AMITY UNIVERSITY

A RESEARCH & INNOVATION DRIVEN UNIVERSITY GRADE A+ ACCREDITED BY NAAC

ANNUAL REPORT

2022

Amity Science, Technology & Innovation Foundation (ASTIF) & Amity Directorate of Science & Innovation (ADSI, AUUP)

A Journey towards Research Excellence

Message from Founder President

"I breathe Innovation; I dream innovation and ensure that our outcome-based research and innovation ecosystem enable us to achieve ever rising benchmarks of success"

Amity Education group has come a long way during the last few decades to become the "Topmost Research & Innovation Driven" University and it gives me immense pleasure to see the group spreading its wings to achieve newer heights every single day.

I feel proud of all my universities which are touching new horizons of research and innovation with the hardwork and dedication of my Vice- Chancellors, HODs, HOIs, Faculty Members, Scientists and Researchers and every member of the team who are contributing their best in making my dream a reality with their commitment and outcome-based approach.

Amity Science, Technology & Innovation Foundation (ASTIF) was established in the year 2008 followed by Amity Directorate of Science & Innovation (ADSI) in 2014 with a vision of constantly working to facilitate, promote, support and augment outcome-based approach to nurture the research and innovation initiatives undertaken in the Amity universities. With great pride and happiness, I would revisit with satisfaction the milestones achieved by my faculty members and researchers in the last one year which have been brought out in the 7th Annual report prepared by ASTIF/ ADSI.

I have noted with pride that India has reached 40th rank in the global innovation index (GII) from 81st position, and buoyed by this achievement, I have announced Amity Mission GII-25 on Innovation Day dated September 28, 2022 which seeks to aim at enhancing the GII with the dedicated efforts of each and every Amitian so that together Amity Education Group as a whole can immensely contribute to our country achieving a GII ranking of 25.

We must all work harder than ever this year to reach the goals we have set for ourselves at an individual, institutional, and university level. We must also work to make our knowledge, technology, and products accessible to the public by transferring technologies to the industry so that they can be used to address societal and industrial demands contributing towards the National Mission of "Aatma Nirbhar Bharat"

I proudly would like to congratulate all Amitians for creating and implementing strategies with an endeavor for extraordinary & augmented research outcome. I am confident that with your constant efforts, determination and synergy from other organisations, Amity will surely reach the position of one of the best in the world sooner than expected.

Dr. Ashok K. Chauhan
Founder President
Ritnand Balved Education Foundation

Preface

It is my proud privilege to put forth the Seventh Annual Report of Amity Science, Technology & Innovation Foundation (ASTIF) & Amity Directorate of Science & Innovation (ADSI) giving a glimpse of major milestones achieved by Amity University in the field of research and innovation during the year 2022 (Jan- Dec). Our deepest gratitude and thanks to Honorable Founder President, Dr. Ashok K. Chauhan for his exemplary leadership coupled with great vision, constant motivation, guidance, support and blessings without which we would not have been able to achieve all these milestones.

I would also like to take this opportunity to thank Dr. Atul Chauhan, President of the RBEF, Dr. Aseem Chauhan, Addl. President of the RBEF, and the entire AKC family for supporting Amitians in their mission to make Amity the best university in the world via research and innovation. The entire ASTIF and ADSI team is sincerely appreciative of the support and blessings received from every AKC Family member.

My sincere gratitude and appreciation to all Vice-Chancellors and Pro Vice-Chancellors for leading their respective campuses in carrying out the mission and dream of the Honorable Founder President. Their admirable leadership and tireless efforts in the areas through constant monitoring, motivation, and sustained efforts have resulted in exponential growth to improve the research and innovation outcomes; I would also like to acknowledge the sustained efforts made by all deans, heads of institutions, research coordinators, faculty members, and researchers. I would like to thank ASTIF & ADSI team for working together to support all Amitians in their research pursuits.

Our Faculty members and Researchers were able to receive 95 Projects sanctioned during the year amounting to **Rs 42.21** Crores bringing the total number of ongoing projects to **240** in the year 2022. In addition, **6202** Publications in journals of repute have been published in this year. **218** Patents have been filed during the year taking the total filings from Amity to 1844, **181** Patents have been granted including **68** during 2022 itself.

ASTIF in consultation with all Universities has set a target for the year 2023 of 8000+ Research Publications in Scopus and web of sciences indexed journals, 200 + funded research projects, 300+ patent filing, commercialization of at least 20+ technologies/ products developed by researchers. We will strive to reach the targets.

My best wishes for success in all the future endeavors of Amity group.

Dr. W. Selvamurthy
President, ASTIF & Director General, ADSI

TABLE OF CONTENTS

PREAMBLE

Amity Science, Technology & Innovation Foundation (ASTIF) is the umbrella body of the Amity Education Group for promoting and facilitating research and innovation in science, technology and innovation in all Amity Universities. It was founded by Dr. Ashok K. Chauhan, Hon'ble Founder President in the year 2008 with a vision of making Amity a Centre of Excellence in all Domains of Science & Technology at National and International level through an integrated research and academic endeavors to contribute to the National mission of India emerging as a Knowledge Superpower. Dr. W. Selvamurthy has been its President for a decade now.

The primary objective is to create appropriate research ecosystem, enabling processes to nurture research culture and to undertake quality research in the frontier areas of Science & Technology leading to high-impact publications, patents, technology development and commercialization. To meet this objective, state of the Art research infrastructures have been created, both through National and International funds as well as through Amity resources to augment research. Centers of Excellence have been established in niche areas of Science & Technology. In addition, more than 17 research clusters in areas of great national and international importance are effectively functioning to act as force multiplier in Amity Group. ASTIF undertakes a wide spectrum of important activities, such as Talent search, providing Amity Research Fellowship for meritorious scholars, building collaborations, supporting accreditation, and ranking activities thereby creating an enabling ecosystem for research and innovation to blossom at Amity.

Further, Amity Directorate of Science & Innovation was established at Amity University Uttar Pradesh Noida and Amity Directorate of Research & Innovation in all campuses to achieve the mission of placing Amity amongst the topmost global Universities in the field of Science & Technology. The Directorate facilitates and supports faculty members for achieving the targets in terms of Projects, Patents, Publications, Product development, Collaboration etc.

Founder President, Ritnand Balved Education Foundation (The Foundation of Amity Institutions and the Sponsoring Body of Amity Universities) & Chairman, ASTIF

Dr. W. Selvamurthy
President, ASTIF & Director General, ADSI

Prof. (Dr.) Ajit Varma
Vice President, ASTIF

Prof.(Dr.) B.C. Das
Vice President, ASTIF

Prof. (Dr.) S.L Kothari
Vice President, ASTIF

Prof. (Dr.) V.K. Jain
Vice President, ASTIF

Lt. Gen. S.K. Gadeock
Vice President, ASTIF

Prof. M.S. Prasad
Vice President, ASTIF

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In order to achieve the objectives set for ASTIF & ADSI the following Human Resources have been provided.

HUMAN RESOURCES

Dr. Gopal Bhushan
Dy. Director General,
ADSI

Mr. S. N. Singh
OSD to President, ASTIF &
Director, ADSI

Dr. Goodwill Khokhar
Asst. Director
ASTIF & ADSI

Ms. Sneha Nair
Asst. Director (Research)
ASTIF

Dr. Vaibhav S. Bhugra,
Scientific Staff Officer
ASTIF

Mr. Benny Thomas
Executive Assistant
ASTIF

Ms. Jiji Binu
Dy. Manager
ADSI

Mr. Sanjai K.V.
Sr. Executive Secretary
ADSI

Mr. Devendra Kumar
Research Officer
ADSI

IPR Team

Dr. Smita Sahu
Director IPR
ASTIF & ADSI

Mr. Harish
Assistant Manager

Mr. Sonu Raghvan
Patent Associate

Mr. Aniket V. Shahare
Patent Associate

Ms. Kiran Kotnala
Technical Assistant

SUPPORT STAFF

Mr. Shailendra Tiwari

Mr. Vinod Kumar Chauhan

Mr. Gaurav Kumar

Mr. Hira Lal Kumar

CHARTERS OF ASTIF & ADSI

Amity Science, Technology & Innovation Foundation (ASTIF): The various charters and activities of ASTIF are:

1. Develop appropriate research ecosystem for promotion of cutting-edge research in emerging fields of national and international importance.
2. Set targets for Projects, Patents, Publications, Technology Transfer, Consultancy, Extension, Ph.D. programme and enable the Amity group to achieve them.
3. IPR Protection: Filing of Patents and ensuring their grant through coordination and follow-up with the office of the Controller General of Patents. In addition, Copyrights are also registered.
4. Encourage Development of technologies and products leading to Commercialization through Transfer of Technology to the Industry.
5. Organize lectures/ oration from eminent scientists from India and abroad.
6. Conduct workshops and training programmes for writing quality Project proposals, Publications, IPR augmentation.
7. Offer financial support for selective scientific projects and offer fellowships to meritorious research scholars.
8. To identify and nurture scientific talents through research cluster formation, interaction meetings and providing synergy.
9. Dissemination of scientific achievements, research excellence and innovations to promote visibility of Amity Group through media.
10. Developing research policies/ concept notes relating to areas connected with promotion of quality research and innovation.
11. Development and updation of ASTIF Website and formulation S & T Brochures, promotional Film highlighting research accomplishments.
12. Facilitating National & International research Collaborations and promoting synergy of brains.
13. Identification and submission of quality applications/ proposals under various National/International Awards & Fellowship schemes.
14. Promoting Global Research Hub, initiatives in niche areas such as Global Research Network on Novel Viruses, Neurospine etc.
15. Conducting review meetings of all Amity Universities/Institutions in India & abroad to assess the Health and Performance management of the Organization.
16. Providing assistance to all AU Campuses addressing specific issues, if any, related to HR, Projects, Certifications like NGO Darpan registration etc.

Amity Directorate of Science & Innovation (ADSI) has also been established in 2014 to address all issues related to research and innovation at AUUP-Noida, Greater Noida, Lucknow & Dubai. 26 institutions under Science & Technology domain in AUUP have been brought under this Directorate for overseeing their performance. The main charters of this Directorate are:

1. To facilitate and catalyse research activities in AUUP and its constituent campuses.
2. Set quantitative and qualitative targets in terms of research, publication & patents etc.
3. Periodic review and monitoring research endeavours including those of Ph.D. scholars.
4. Review and augment research facilities in the S&T Institutes as per the emerging needs.
5. Formulate Annual Research plan and monitor its progress in AUUP aligning to Broad Based Goals.
6. Motivate faculty members to attain their best in terms of competence, commitment, and self-motivation.
7. Promote transdisciplinary research with the participation of various relevant research Institutes.
8. Administrative & Financial Management of Funded Projects of AUUP.
9. Accreditation and rankings related activities of AUUP pertaining to Research, innovation, and extension activities.
10. To resolve any administrative or HR issues and address the grievance of Faculty and Scientists as and when referred to the Directorate.
11. Support Amity Institute of Defence Technology (AIDT) for defence technology programme including industries/schools and DRDO/ISRO interaction/special invites/talks and arranging internship.
12. Preparation of reports/notes/concept papers on emerging areas of interest to Amity.
13. Support to Amity Institute of Defence & Strategic Studies (AIDSS) as and when consulted.
14. Support ASTIF in all its endeavours including review meetings, hosting of guests and coordination of their visit to Amity/workshop/conferences/guest lectures.
15. Any other activity as and when assigned by the apex management.

GLIMPSE OF ACHIEVEMENTS 2022

Amity has created an appropriate Research eco-system through creation of World class infrastructure bench marked against best Universities around the World, State of the art Research facilities engaging quality Human Resource which have led to following achievements during the year 2022.

1. Awards and Achievement

- Indian Intellectual Property Office under the Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India has conferred Amity University as the winner of prestigious **National Intellectual Property Award for the year 2020 in the category of "Top Academic Institution for Patent and Commercialization"**
- **Amity University with its strong IP Portfolio** has been declared **as the winner for the 8th Confederation of Indian Industry (CII) 'Industrial Intellectual Property Awards 2022' 'Special Appreciation Awards' in the category of 'Academic Institutions'**
- **Quetsel India** has also conferred **IP Excellence Award 2022 to Amity University** in recognition for valuable contribution as an Innovation driven organization
- 90 awards and 22+ fellowships bestowed on the faculty members and researchers of Amity during the year 2022.Some of the noteworthy awards include Prof Birbal Sahni Medal Award, D P Burma, Haryana Yuva Vigyan Ratan award by DST and fellowships such as ESDA Fellowship Award, SERB-SIRE, HORIZON European Commission, European Molecular Biology Organization, Erasmus+ International staff training Mobility Program, DAAD Fellowship.

2. Projects:

- A total of **95 sponsored Projects** have been sanctioned with a funding of Rs. 42.21 Crores.
- **The total number of ongoing projects is 240** with a sanction amount of Rs. 84.86 Crores**.**
- Amity University, Rajasthan (Jaipur) was awarded the prestigious and the much-coveted grant of ₹8.5 crore INR from Department of Science and Technology (DST), Government of India under **The Promotion of University Research and Scientific Excellence (PURSE).**
- Amity University worked as Hub with 20+ partner institutions for conducting the training under **DST Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI)** programme.

- **DBT BUILDER LAB** has been established at Amity University Haryana under DBT - Boost to University Interdisciplinary Life Science Departments for Education and Research (BUILDER) Programme

3. Publications:

- A total of **6206** Publication have been done out of which 4212 are Scopus indexed.
- **396** Publications have an **Impact Factor** ranging from **6 to 202.731.**
- **h-index** of the University is **111**
- **Twenty four** Amity University faculty members figure in **top 2%** of Global Researchers from India, in the list compiled by Stanford University, USA.

4. Patents/Copyrights:

- A total of 1844 patents have been filed out of which 219 were filed during 2022 itself.
- A total of 181 patents have been granted out of which 68 were granted during 2022
- 128 copyrights have been filed out of which 53 have been registered

5. Technologies Transferred: HNB9 formulation (Fungal Biofertilizer) and 7 MTA signed.

6. Research enrichment initiatives

- The research endeavors have been strengthened further through 57 research centers and Centres of Excellence in niche areas established across Amity Universe.
- 17 Thematic Clusters are functional with the focus on the interdisciplinary research and innovations in Science & Technology to promote research in areas of global focus as well as to promote transdisciplinary and multidisciplinary research.
- 102 MoUs i.e; 84 National and 28 International have been signed in 2022.
- 21 Ramalingaswami re-entry, Ramanujan, DST-INSPIRE, SERB-SRS, Wellcome Trust Fellows are presently working at Amity.
- Amity University has bestowed 12 Honorary Doctorates and 25 Honorary Professorships in the year 2022.
- The group has organized more than 1050 webinars/ Lectures of global relevance during the year for keeping its faculty members and researchers updated with recent technological advancement in their field of research. In addition to this, 293 Conferences, Seminars, workshops and FDPs were organized using online mode.

Chapter – 1 PROJECTS

• FUNDED PROJECTS

1.1. Amity believes in the philosophy that funded research projects play a pivotal role in building a strong research culture amongst the scientists and researchers as well as in generation and dissemination of knowledge for the benefit of society. Accordingly, it motivates and supports its scientists and researchers to apply for funded projects by National and International organizations as these are aligned to national priority.

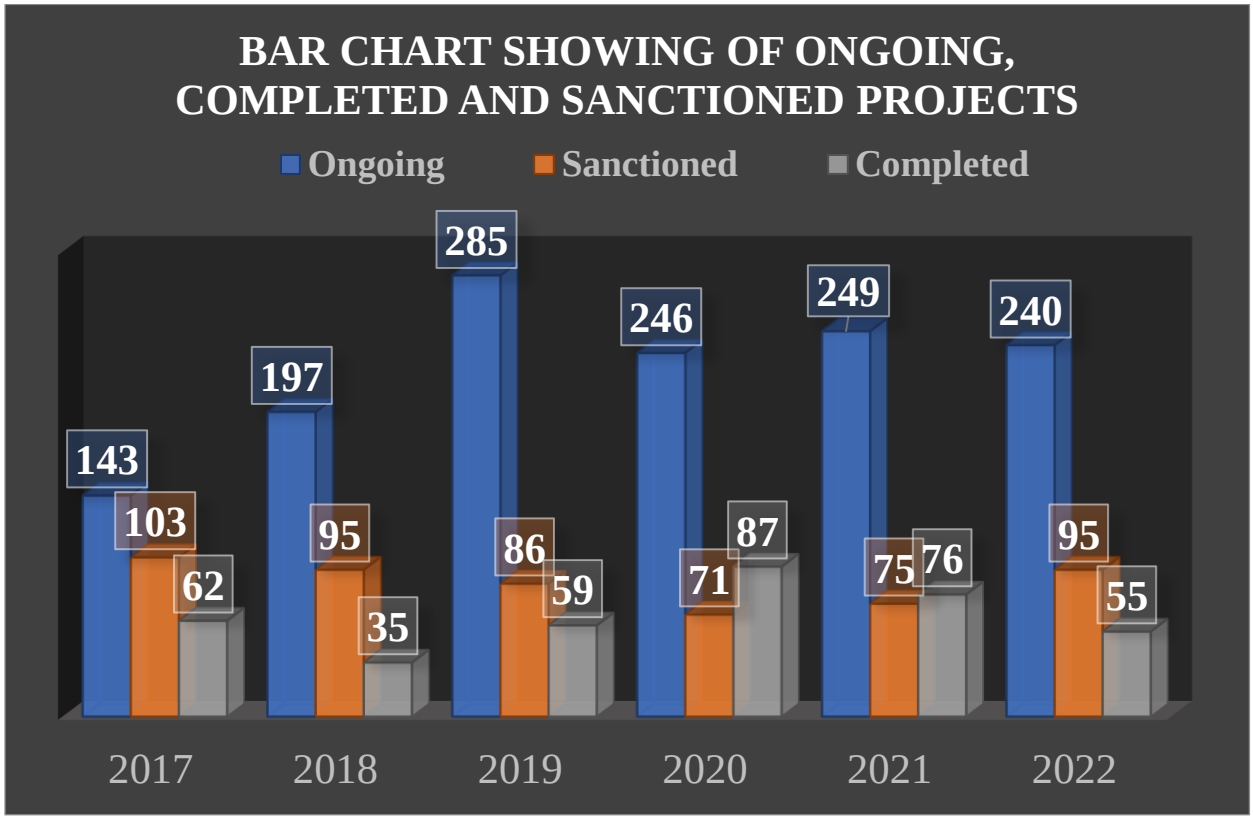
1.2. The University has also created an ecosystem through the establishment of Amity Foundation for Science, Technology & Innovation Alliances (AFSTIA) and Amity Centre for Developmental Cooperation and Alliances (I & II) exclusively to accelerate the number of submissions of quality proposals through timely identifying the funding opportunities, locating the relevant faculty, monitoring formulation of quality proposals as well as their technical implementation after approval. These departments have played an important role in the submission of **795 project proposals to various funding agencies in the year 2022.**

1.3. Amity Directorate of Science & Innovation (ADSI) facilitates Administrative & Financial Management of sanctioned research projects through an in-house developed software on "Research Project Management System".

1.4. **A total of 95 projects were sanctioned** during the year 2022 amounting to **₹ 42 Crores 21 Lakhs.**

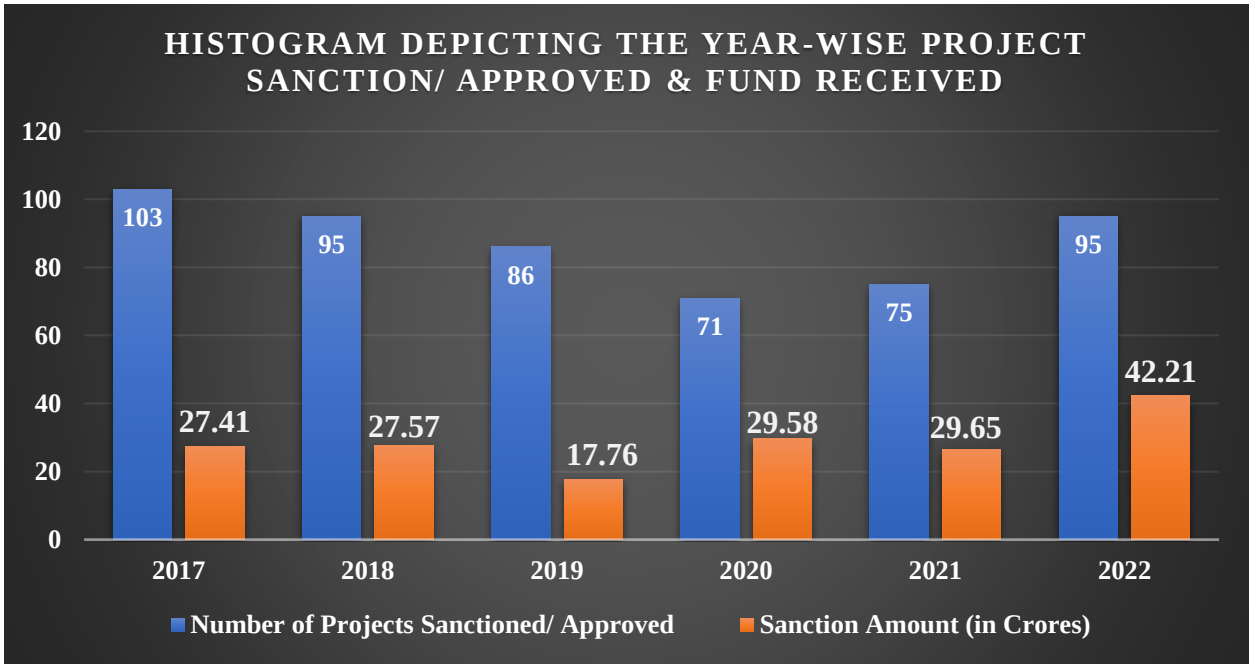
1.5. The summary of sanctioned, ongoing and completed research projects funded by National & International funding agencies last 6 Years is given below:-

Comparative Figures of all Amity campuses						
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Total No. of Projects ongoing	**143**	**197**	**285**	**246**	**249**	**240**
Total No. of projects sanctioned/approved	**103**	**95**	**86**	**71**	**75**	**95**
Total No. of projects completed	**62**	**35**	**59**	**87**	**76**	**55**



1.7 **Funds received for Sanctioned/ Approved projects**

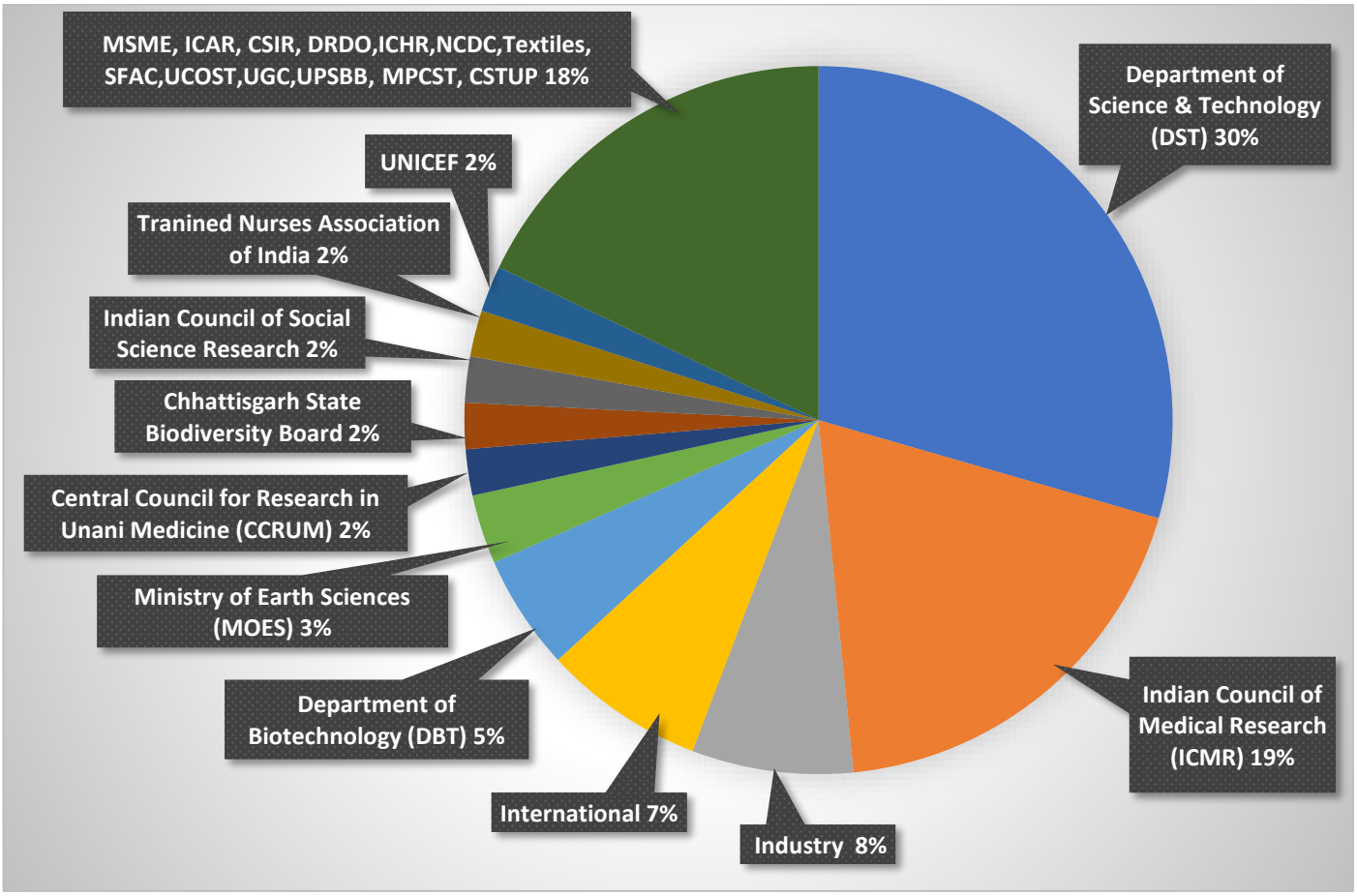
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
Total No. of projects sanctioned/ approved	**103**	**95**	**86**	**71**	**75**	**95**
Amount in Rupees (Crores)	**27.41**	**27.57**	**17.76**	**29.58**	**29.65**	**42.21**



1.9 University wise details of projects in 2022 (Funded projects):-

Name of campus	Ongoing	Completed	Sanctioned
Amity University Noida	133	35	52
Amity University Haryana	30	6	12
Amity University Lucknow	10	5	5
Amity University Rajasthan	19	2	5
Amity University Madhya Pradesh	4	1	0
Amity University West Bengal	23	0	3
Amity University Chhattisgarh	7	3	5
Amity University Bihar	0	0	1
Amity University Jharkhand	5	0	1
Amity University Mumbai	4	2	6
Amity University Punjab	5	1	5
Total	**240**	**55**	**95**

1.10 Funding agency wise project sanctioned in 2022:

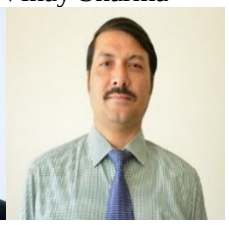


GRAPHICAL REPRESENTATION OF THE FUNDS RECEIVED FROM VARIOUS FUNDING AGENCIES

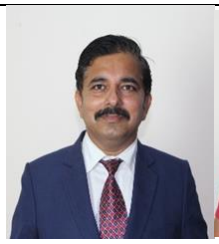
1.11 The funds received for undertaking **Consultancy, Training and Skill Development programme** for the **year 2022 is ₹ 3 Crore 35 Lakhs.**

1.12 Amity group has undertaken training programme for prestigious organizations such as National Internet Exchange of India, The Nainital Bank Ltd, Chhattisgarh Grameen Aajeevika Samwardhan Samiti, Ministry of external Affair, AU Small Finance Bank Ltd, Indian Oil Corporation Ltd, Mercedes-Benz India Private Limited, Tata group, Indian Oil Corporation Ltd, West Bengal State Livelihood Mission, Embassy of USA (SAFE WATER NETWORK INDIA)

GLIMPSE OF HIGH VALUE RESEARCH PROJECTS SANCTIONED IN – 2022

S. No.	Project Details	Principal Investigator
1.	**Project Title:** Promotion of University Research and Scientific Excellence (PURSE 2021) **Funding Agency:** Department of Science & Technology **Sanctioned Amount:** ₹ 850 Lakhs **Sanctioned date:** 31-Jan-2022 **Duration:** 4 years	  Prof (Dr.) S.L. Kothari Prof (Dr.) G.K. Aseri  Prof (Dr.) Vinay Sharma   Prof (Dr.) Jagdish Prasad Prof (Dr.) Pankaj Kumar **Amity University Rajasthan**
2.	**Project Title:** Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI) **Funding Agency:** Department of Science & Technology **Sanctioned Amount:** ₹ 225 Lakhs **Sanctioned date:** 19-Dec-2022 **Duration:** 5 Year	 Dr. Nitin Batra Amity Institute of Training & Development **Amity University Uttar Pradesh**
3.	**Project Title:** Development of Novel Materials For Prophylactic, Diagnostic And Therapeutic Applications **Funding Agency:** DST-FIST-2022 **Sanctioned Amount:** ₹ 200 Lakhs **Sanctioned date:** 19-Dec-2022 **Duration:** 5 Year	 Prof. Seema R Pathak, Faculty of Science Engineering and Technology **Amity University Haryana**

4.	**Project Title:** Cluster Based Business Organizations (CBBO) for promotion of Farmer Producer Organizations was approved under Central Sector Scheme for Formation and Promotion of 10,000 FPOs during 2022-23 **Funding Agency:** Small Farmers' Agri-Business Consortium (SFAC) **Sanctioned Amount:** ₹ 125 Lakhs **Sanctioned date:** 14-Aug-2022 **Duration:** 1 year	  Dr. Nutan Kaushik Dr. R.S. Antil Amity Food & Agriculture Foundation **Amity University Uttar Pradesh Noida**
5.	**Project Title:** Kinetics of Macromolecular Conformational Transition **Funding Agency:** Science & Engineering Research Board (SERB) **Sanctioned Amount:** ₹ 119 Lakhs **Sanctioned date:** 9-Feb-2022 **Duration:** 5 years	 Dr Suman Majumder Amity Institute of Applied Science **Amity University Uttar Pradesh Noida**
6.	**Project Title:** A synthetic microbial platform for the production of a1,4-butanediol **Funding Agency:** Science & Engineering Research Board (SERB - CRG) **Sanctioned Amount:** ₹ 78 Lakhs **Sanctioned date:** 9-Feb-2022 **Duration:** 5 years	 Dr. Anmoldeep Randhawa Amity School of Biological Sciences **Amity University Punjab**
7.	**Project Title:** Formation and Promotion of Farmer Producer Organizations (FPOs) under the Central Sector Scheme for Formation & Promotion of 10,000 FPOs **Funding Agency:** National Cooperative Development Corporation (NCDC) **Sanctioned Amount:** ₹ 75 Lakhs **Sanctioned date:** 6-Dec-2022 **Duration:** 5 years	 Dr. Nutan Kaushik Amity Food & Agriculture Foundation **Amity University Uttar Pradesh Noida**

8.	**Project Title:** Sustainable use of unconventional fibers of Indian Himalayas for Agro Textiles **Funding Agency:** Ministry of Textiles **Sanctioned Amount:** ₹ 70 Lakhs **Sanctioned date:** 20-Sep-2022 **Duration:** 3 Year	  Prof. Atul Thakur Prof. Preeti Thakur Amity Centre for Nanotechnology & Amity School of Applied Sciences **Amity University Haryana**
9.	**Project Title:** Structure-Function analysis of a non-canonical primase domain of the vertebrate Mcm10 **Funding Agency**: SERB-CRG **Sanctioned Amount:** ₹ 63.74 Lakhs **Sanctioned date:** 30-May-22 **Duration:** 3 years	 Dr Jagmohan Singh, Amity School of Biological Sciences **Amity University Punjab**
10.	**Project Title:** Technical Assistance to Mission Directorate JJM, PHED Chhattisgarh on strengthening monitoring capacities on JJM in 14 districts of Chhattisgarh **Funding Agency:** UNICEF **Sanctioned Amount:** ₹ 59.82 Lakhs **Sanctioned date:** 07-Jun-22 **Duration:** 07 Months	  Prof. Surendra N. Rahamatkar Prof. Satyendra Patnaik **Amity University Chhattisgarh**
11.	**Project Title:** Pre-clinical and Immunotherapeutic assessment of classical Unani Formulation in Cervical Carcinoma **Funding Agency:** Central Council for Research in Unani Medicine **Sanctioned Amount:** ₹ 58.68 Lakhs **Sanctioned date:** 02-Nov-22 **Duration:** 3 years	 Dr Kumud Bala Amity Institute of Biotechnology **Amity University Uttar Pradesh Noida**

12.	**Project Title:** To investigate physiological alterations in cortical signalling during retinal degeneration: implications for vision restoration **Funding Agency:** Science & Engineering Research Board **Sanctioned Amount:** ₹ 57.15 Lakhs **Sanctioned date:** 21-Feb-22 **Duration:** 3 years	 Dr Anwesha Bhattacharyya Amity Institute of Neurosciences & Neurology **Amity University Uttar Pradesh Noida**
14.	**Project Title:** Mass spectrometry-based identification and characterization of mycolic acid lipid biomarkers and their application for development of a lateral flow POC device for tuberculosis diagnosis. **Funding Agency:** Indian Council for Medical Research **Sanctioned Amount**: ₹57 Lakhs **Sanctioned date:** 29-Mar-22 **Duration:** 3 Years	  Dr. Zeeshan Fatima Dr. Saif Hameed Amity Institute of Biotechnology **Amity University Haryana**
15.	**Project Title:** Identifying and Establishing Bioactive Lipids as Non-invasive Biomarkers for Nonalcoholic Fatty Liver Disease (NAFLD) Progression. **Funding Agency:** Indian Council for Medical Research **Sanctioned Amount:** ₹ 29-Mar-22 **Sanctioned date:** 51 Lakhs **Duration:** 3 Year	 Dr. Ujjaini Dasgupta Amity Institute of Integrative Sciences and Health **Amity University Haryana**
16.	**Project Title:** The Genetic Screen of Chromatin "Readers" and "Erasers" proteins in DNA Damage Response pathway **Funding Agency:** Department of Biotechnology (DBT) **Sanctioned Amount:** ₹ 50.62 Lakhs **Sanctioned date:** 30-Jan-22 **Duration:** 5 years	 Dr Rajesh Kumar Yadav Amity Institute of Molecular Medicine & Stem Cell Research **Amity University Uttar Pradesh Noida**

17.	**Project Title:** Development of Nanomaterials for High Density Application **Funding Agency**: Global Affairs Office. Yuan Ze University **Sanctioned Amount**: ₹ 50 Lakhs **Sanctioned date:** 21-Mar-22 **Duration:** 3 Years	  Prof. Atul Thakur Prof. Preeti Thakur Amity Centre for Nanotechnology & Amity School of Applied Sciences **Amity University Haryana**
18.	**Project Title:** APT detection in 5G Networks **Funding Agency:** UKI-FNI, UK **Sanctioned Amount:** 49,995 £ (4968153 INR) **Sanctioned date:** 21- Nov-22 **Duration:** 8 Months	 Dr.Satheesh Abimannan Amity School of Engineering and Technology, **Amity University Maharastra**
19.	**Project Title:** A smartphone assisted Point of Care (POC) electrochemical device for detection of SARS-COV-2 (COVID-19) **Funding Agency:** Indian Council of Medical Research (ICMR) **Sanctioned Amount:** ₹ 48.00 Lakhs **Sanctioned date:** 12 -Jan-22 **Duration:** 3 years	  Dr. Chansi Prof. Tinku Basu  Dr. Ashish Mani Amity Center for Nanomedicine & Amity School of Engineering & Technology **Amity University Uttar Pradesh Noida**

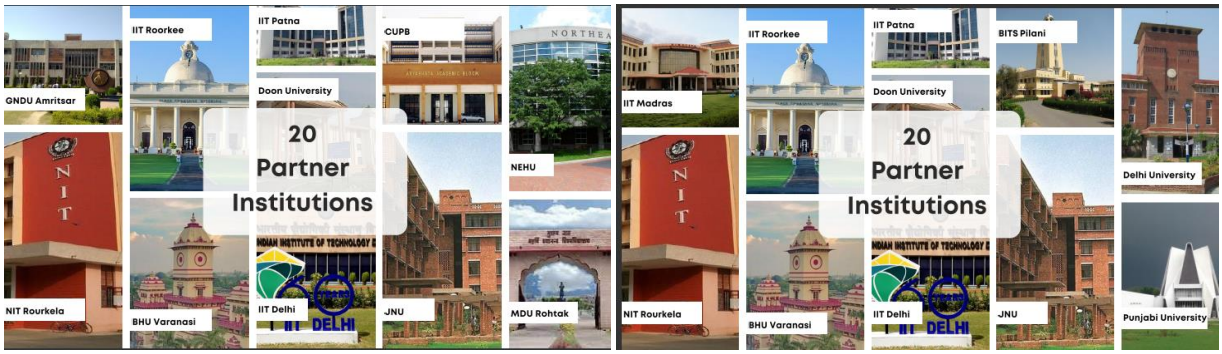
20.	**Project Title:** Identification of early diagnostic biomarker for GBM using differential alternative splicing and deep learning. **Funding Agency:** Indian Council of Medical Research (ICMR) **Sanctioned Amount:** ₹ 47 Lakhs **Sanctioned date: 30** -Mar-22 **Duration:** 3 Year	  Dr. Ravi Datta Sharma Dr. Amresh Prakash Amity Institute of Biotechnology **Amity University Haryana**
21.	**Project Title:** Deciphering the oncogenic role of SOX2I Antisense RNA I lncRNA and its potential as a therapeutic,target for pancreatic ductal adenocarcinomal as a therapeutic,target for. pancreatic,ductal adenocarcinomal' **Funding Agency:** Indian Council of Medical Research (ICMR) **Sanctioned Amount:** ₹ 47.00 Lakhs **Sanctioned date:** 12 -Jan-22 **Duration:** 3 years	  Prof. (Dr) Manoj Garg Prof. Subhrajit Biswas Amity Institute of Molecular Medicine & Stem Cell Research **Amity University Uttar Pradesh Noida**

LIST OF RESEARCH PROJECTS SANCTIONED IN 2022 ATTACHED AS ANNEXURE - I

1.13 A total of **168 Fellows** under various projects and fellowships have enrolled in Amity Universe during the year.

1.14 DST Synergistic Training program Utilizing the Scientific and Technological Infrastructure (STUTI)

Amity University served as Hub with 20+ partner institutions for conducting the training programme which saw 8000+ registrations out of which 660 participants attended the programme.




Molecular Beam Epitaxy Instrument at IIT-Delhi


IIT-Delhi: Spray Pyrolysis process & STED Instrument.


NEHU Shillong: Hands-on- Training on High-End Equipments.


NEHU Shillong: Descriptive session on Transmission Electron Microscope.


IIT Roorkee: Certificate Distribution during Valedictory Program


BHU Varanasi: Group Picture after Inaugural

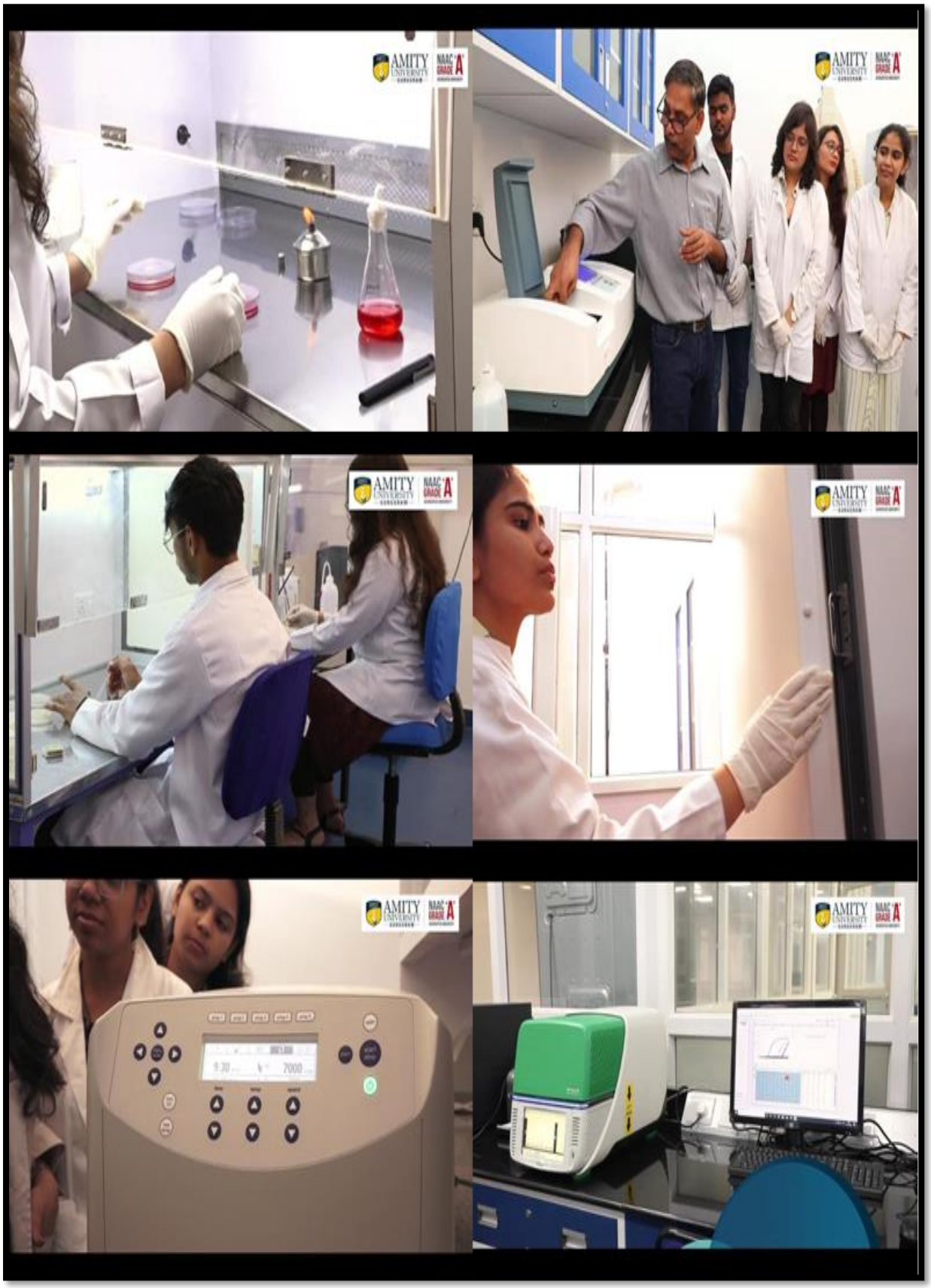

IIT Delhi: Learning skills of Molecular Imaging & Spectroscopy


Amity University Rajasthan: Classroom session

1.15 DBT BUILDER LAB has been established at Amity University Haryana under DBT - Boost to University Interdisciplinary Life Science Departments for Education and Research (BUILDER) Programme

The objective of the programme is to provide for the infrastructural developments of Teaching Laboratories to enable students to perform hands-on experiments. The total funding is of ₹ 161 Lakhs with 50% contribution from the University.

GLIMPSE OF FACILITY DEVELOPED:


AMITY UNIVERSITY
NAAC GRADE A

GLIMPSE OF RAMALINGASWAMI, RAMANUJAN & DST-INSPIRE FELLOWS 2022

A number of researchers who have been awarded prestigious fellowships such as Ramalingaswami re-entry fellowship, Ramanujan fellowship, DST-INSPIRE etc have been associated with amity in the past few years. The total number of such fellows working in Amity university campuses is as mentioned below:-

Type of Fellowship	Total
Ramalingaswami Fellow	17
DST Inspire Faculty Fellow	7
Ramanujan Fellow	3
SERB SRS Fellow	1
DBT Wellcome Trust Fellow	1
Women Scientist (ICMR, DST)	2
Total	31

Out of the above mentioned, 21 fellows are Active while the remaining 10 Fellows have completed their tenure and have been absorbed in various faculty positions within Amity.

GLIMPSE OF FELLOWS

Ramalingaswami re-entry/ Ramanujan Fellows

Dr. SoumitraSau
Pathogenic Yeast Models

Dr Raja Bhattacharya
Neuromodulation Neurotransmission

Dr. AbhishekGuldhe
Biofuels, Algal Biotechnology, Enzyme catalysis, Biodiesel

Dr. ManoranjanNayak
Biotechnology, Microalgal Biorefinery for Biodiesel & Biorenewables

Dr. Manoranjan Nayak
Biochemistry & Molecular Biology

Dr. AnkanDutta Chowdhury
Applied Chemistry, Biosensor, Nanomaterials

Dr. Suman Majumdar
Statistical Mechanics, Polymer Dynamics, Spin Systems, ComputerSimulations

Dr. Anwesha Bhattacharyya
Neurobiology

Wellcome Trust Fellow

Dr. Shinjinee Dasgupta
Amyloid Biology and Cancer Research

SERB - SRS Fellow

Dr. Arif Sheikh
Nanotechnology

DST – INSPIRE FELLOW

Dr. Ashish Srivastava
Virology

DST-WOS(B)

Dr. Kirti Saxena
Nanotechnology, Biosensors

ICMR-WOS (A)

Dr. Shaheen Hussain
Bio nanotechnology, Tissue engineering, Nanomedicine

Chapter – 2 PUBLICATIONS

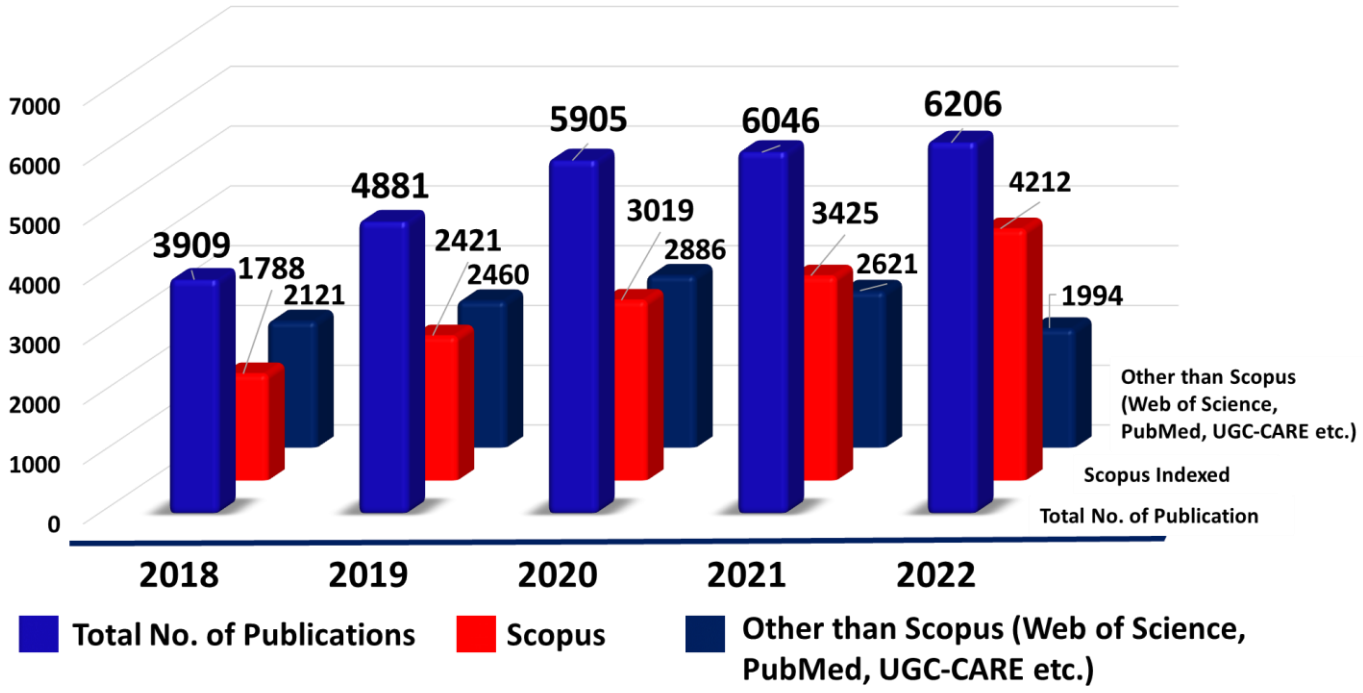
2.1 Publication, a mirror image of knowledge generation based on research and its dissemination to the scientific fraternity for societal benefit has been at the core of scientists and researchers who pursue research activities tirelessly, and publish their work in reputed, peer-reviewed refereed journals indexed in Scopus and web of sciences.

2.2 Enhancing the publications both qualitatively and quantitatively through strengthened research in order to contribute to strengthen the National position has been the objective of Amity.

2.3 This year a total of 6206 publications have been made, out of which over 396 are having an impact factor ranging from 6.0 to 202.731.

2.4 A Glimpse of data shared herein gives the summary of the number of Research Papers/ Books/ Book Chapters/ Papers in conference proceedings during the last 5 Years indicating the growth pattern in the Publication domain.

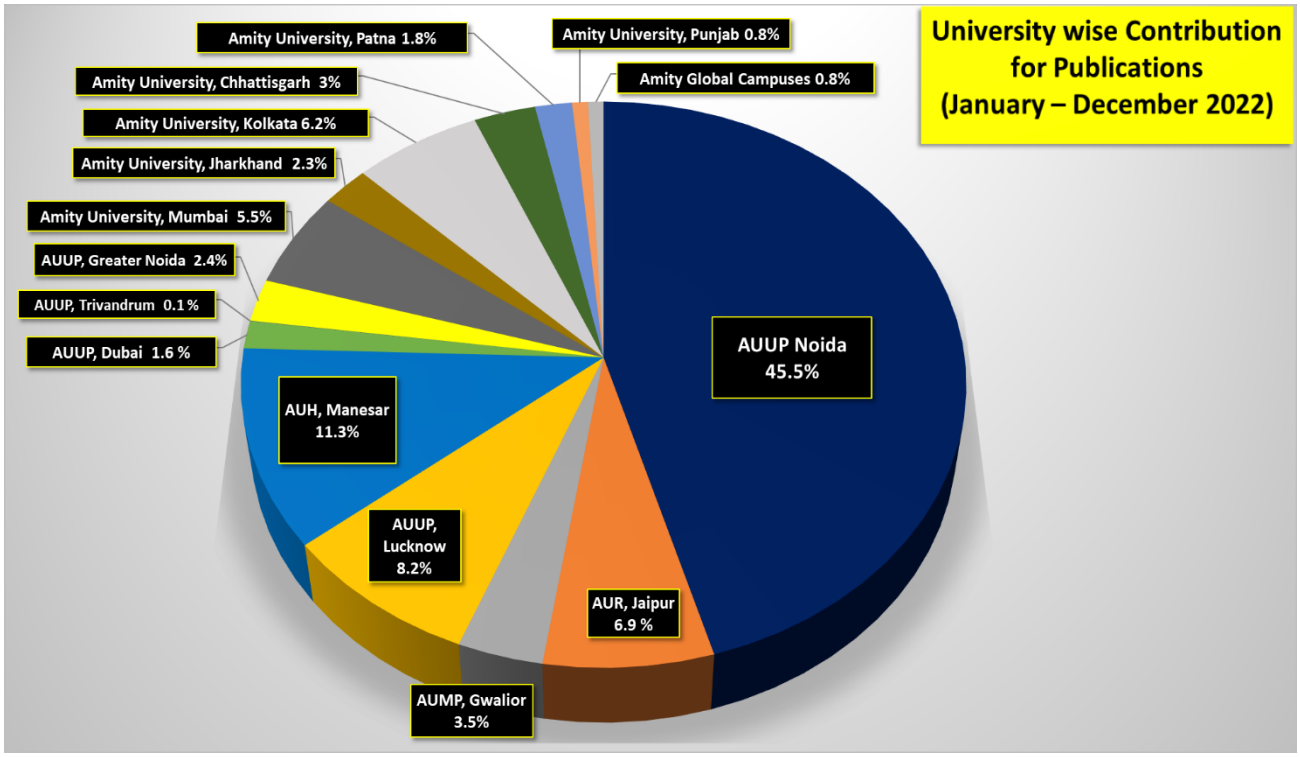
Year	2018	2019	2020	2021	2022
Total No. of Publication	3909	4881	5905	6046	6206
Scopus Indexed	1788	2421	3019	3425	4212
Other than Scopus (Web of Science, PubMed, UGC-CARE etc.)	2121	2460	2886	2621	1994



2.4 University wise No. of Publications					
Name of Campus	**2018**	**2019**	**2020**	**2021**	**2022**
AMITY UNIVERSITY UTTAR PRADESH, NOIDA	**1765**	**2168**	**2579**	**2695**	**2644**
AMITY UNIVERSITY UTTAR PRADESH, LUCKNOW CAMPUS	**275**	**373**	**575**	**548**	**478**
AMITY UNIVERSITY, RAJASTHAN	**404**	**295**	**242**	**311**	**403**
AMITY UNIVERSITY, MADHYA PRADESH	**314**	**236**	**209**	**227**	**203**
AMITY UNIVERSITY, HARYANA	**559**	**484**	**838**	**632**	**659**

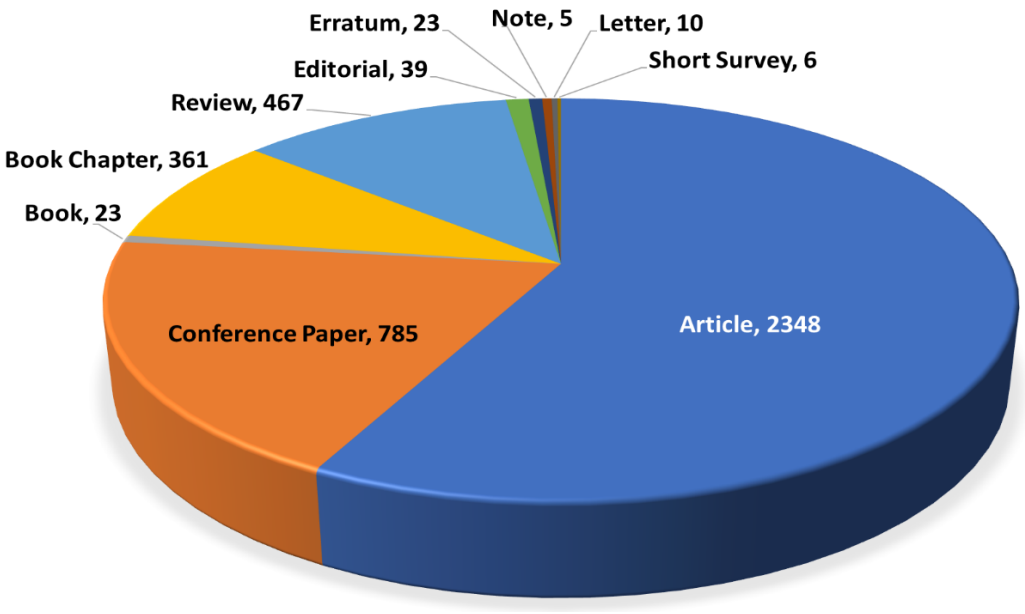
AMITY UNIVERSITY, MUMBAI	**40**	**112**	**76**	**140**	**320**
AMITY UNIVERSITY, WEST BENGAL	**93**	**178**	**408**	**399**	**364**
AMITY UNIVERSITY, CHHATISGARH	**65**	**93**	**139**	**199**	**175**
AMITY UNIVERSITY, JHARKHAND	**3**	**38**	**110**	**84**	**135**
AMITY UNIVERSITY, BIHAR	**7**	**55**	**101**	**82**	**105**
AMITY UNIVERSITY, PUNJAB	**-**	**-**	**-**	**11**	**45**
AMITY DUBAI	**78**	**140**	**125**	**143**	**92**
AMITY UNIVERSITY, GREATER NOIDA	**33**	**71**	**99**	**135**	**141**
AMITY TRIVANDRUM	**10**	**13**	**3**	**1**	**1**
AMITY UNIVERSITY, BANGALORE	**-**	**-**	**-**	**1**	**0**
AMITY UNIVERSITY BHUBNESHWAR	**0**	**18**	**0**	**0**	**0**
AMITY GLOBAL BUSINESS SCHOOLS	**230**	**377**	**369**	**433**	**397**
AMITY CAMPUSES OVERSEAS	**0**	**0**	**32**	**5**	**44**
TOTAL	**3909**	**4651**	**5905**	**6045**	**6206**

Representation of Contribution towards Mega Mission Publications from each University for the year 2022

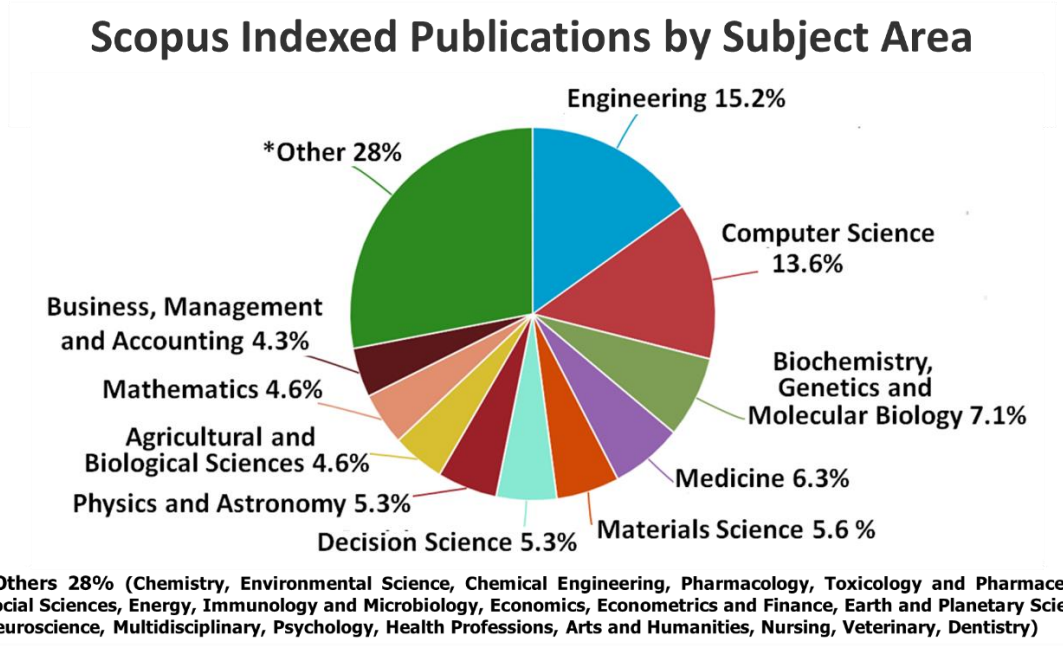


2.5 Analysis of Scopus indexed Publications for the year 2022

- **The percentage of the publications document wise such as Articles, Conference papers etc. is given below:**



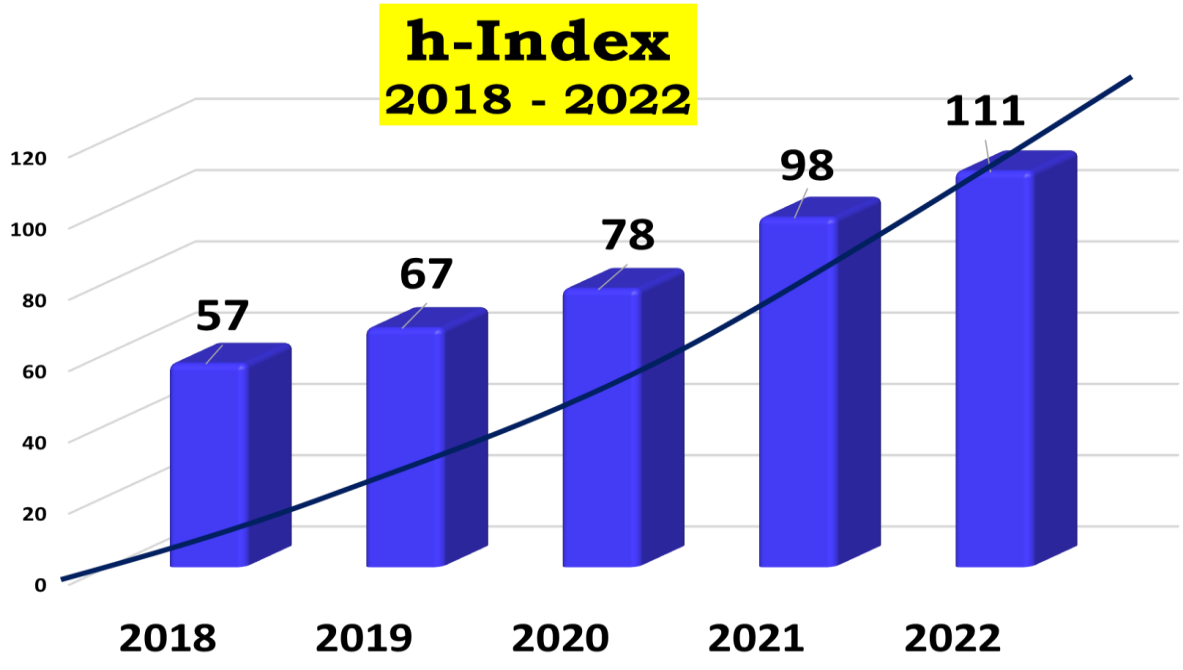
- **The percentage of publications based on their subject is as given below:**



*Others 28% (Chemistry, Environmental Science, Chemical Engineering, Pharmacology, Toxicology and Pharmaceutics, Social Sciences, Energy, Immunology and Microbiology, Economics, Econometrics and Finance, Earth and Planetary Sciences, Neuroscience, Multidisciplinary, Psychology, Health Professions, Arts and Humanities, Nursing, Veterinary, Dentistry)

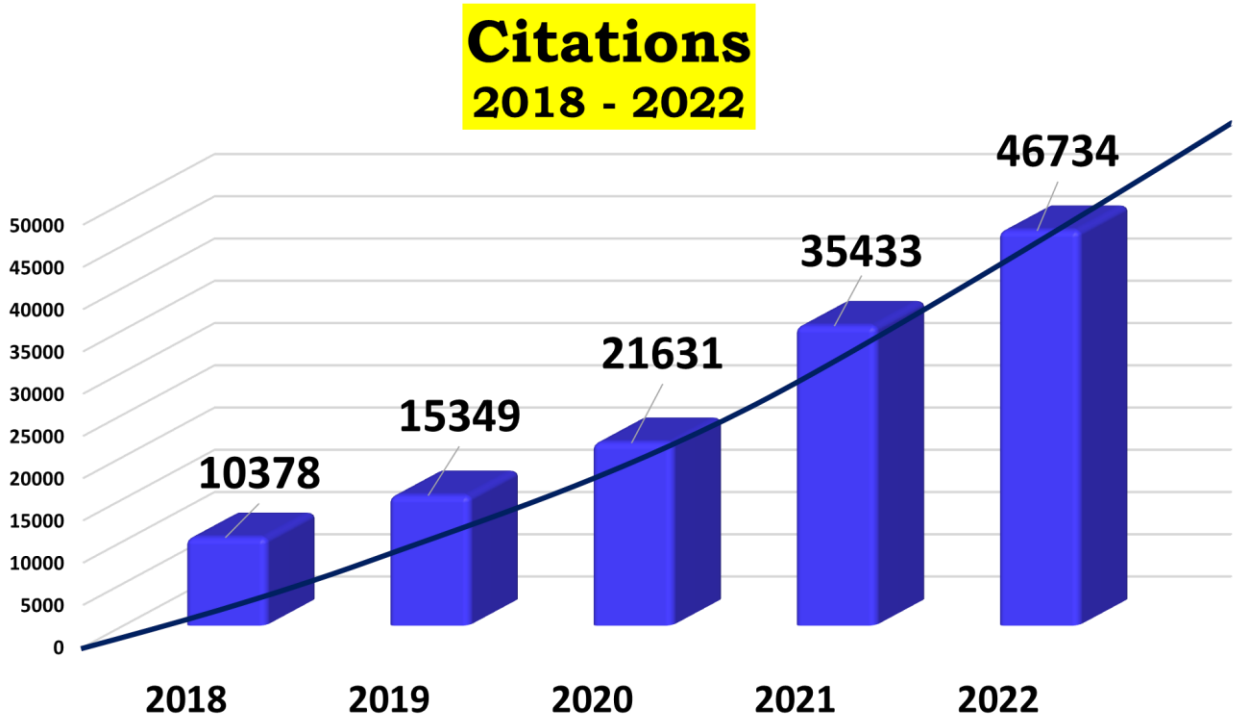
- **h-index of Amity University for the last 5 years:**

Year	2018	2019	2020	2021	2022
h-index	57	67	78	98	111



2.6 The citations of research publications by Amity faculty members/researchers as per Scopus for the last 5 years is depicted below:-

Year	2018	2019	2020	2021	2022
Citations	10378	15349	21631	35433	46734



A GLIMPSE OF STAR PUBLISHERS (BASED ON IMPACT FACTOR)

Sr. No.	Publication	Photograph
1	**Title of Paper:** Strengthening the reporting of stillbirths globally **Name of Journal:** Lancet **Impact Factor:** 202.731 **Name of Author/s:** Das, Ankan Mukherjee; Janardhanan, Rajiv **Name of Department/University:** AIPH, AUUP, Noida	 **Mr. Ankan Mukherjee Das AIPH, AUUP**  **Dr. Rajiv Janardhanan AIPH, AUUP**
2	**Title of Paper:** Population-level risks of alcohol consumption by amount, geography, age, sex, and year: a systematic analysis for the Global Burden of Disease Study 2020 **Name of Journal:** Lancet **Impact Factor:** 202.731 **Name of Author/s:** Bryazka, Dana; Reitsma, Marissa B.; Griswold, Max G.; at el. **Name of Department/University:** AIFS, AUUP, Noida	 **Dr. Himanshu Khajuria, AIFS, AUUP**  **Dr. Biswa P. Nayak AIFS, AUUP**
3	**Title of Paper:** Adolescent transport and unintentional injuries: a systematic analysis using the Global Burden of Disease Study 2019 **Name of Journal:** Lancet Public Health **Impact Factor:** 72.427 **Name of Author/s:** GBD 2019 Adolescent Transport and Unintentional Injuries Collaborators **Name of Department/University:** AIB, AU Rajasthan	 **Dr. Era Upadhyay, AIB, AUR**
4	**Title of Paper:** Global, regional, and national sex differences in the global burden of tuberculosis by HIV status, 1990–2019: results from the Global Burden of Disease Study 2019 **Name of Journal:** Lancet Infectious Diseases **Impact Factor:** 71.421 **Name of Author/s:** GBD 2019 Tuberculosis Collaborators **Name of Department/University:** AIFS, AUUP, Noida	 **Dr. Himanshu Khajuria AIFS, AUUP**  **Dr. Biswa P. Nayak AIFS, AUUP**
5	**Title of Paper:** Performance of artificial intelligence-based breast cancer screening in a community setting: a real-world evaluation study **Name of Journal:** Lancet Oncology **Impact Factor:** 54.433 **Name of Author/s:** Ramprasad, Jenisa; Krishnan, Lakshmi; Gangadharan, Charitha; Deshpande, Gargi; Madhu, Himanshu; Kakileti, Siva Teja; Manjunath, Geetha **Name of Department/University:** AIB, AUUP, Noida	 **Ms. Jenisa Ramprasad, B. Tech (Biotech), AIB, AUUP**

6	**Title of Paper:** The global burden of adolescent and young adult cancer in 2019: a systematic analysis for the Global Burden of Disease Study 2019 **Name of Journal:** Lancet Oncology **Impact Factor:** 54.433 **Name of Author/s:** GBD Collarators **Name of Department/University:** AIB, AU Rajasthan & AIFS, AUUP, Noida	 **Dr. Era Upadhyay, AIB, AUR**  **Dr. Himanshu Khajuria AIFS, AUUP**  **Dr. Biswa P. Nayak AIFS, AUUP**
7	**Title of Paper:** COVID-19 lockdown: Psychological impact on breast cancer patients **Name of Journal:** Annals of Oncology **Impact Factor:** 51.769 **Name of Author/s:** Goyal, Shekhar; Beniwal, Surender Kumar; Kumar, Rakesh; Kumar, H. S.; Kumar, Dhruv; Das, Bhudev C. **Name of Department/University:** AIMMSCR, AUUP, Noida	 **Prof. (Dr.) B. C. Das, AIMMSCR, AUUP**
8	**Title of Paper:** AI in NSCLC: PET-CT & histology model **Name of Journal:** Journal of clinical Oncology **Impact Factor:** 50.717 **Name of Author/s:** Ullas Batra, Shrinidhi Nathany, Swarsat Kaushik Nath, Joslia T Jose, Robin Sinha, Preeti P, Trapti Sharma, Sunil Pasricha, Mansi Sharma, Abhishek Bansal, Kamal Rawal **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Kamal Rawal, AIB, AUUP**
9	**Title of Paper:** Cyclodextrin-based nanostructures **Name of Journal:** Progress in Materials Science **Impact Factor:** 48.165 **Name of Author/s:** Ganesh Narayanan*, Jialong Shen*, Ishita Matai*, Abhay Sachdev, Ramiz Boy, Alan E. Tonelli. **Name of Department/University:** Department of Biotechnology, AU Punjab	 **Dr. Ishita Matai AU Punjab**
10	**Title of Paper:** Global, regional, and national burden of hepatitis B, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019 **Name of Journal:** Lancet Gastroenterology & Hepatology **Impact Factor:** 45.042 **Name of Author/s:** GBD 2019 Hepatitis B Collaborators **Name of Department/University:** AIFS, AUUP, Noida	 **Dr. Himanshu Khajuria, AIFS, AUUP**

11	**Title of Paper:** Diabetes mortality and trends before 25 years of age: an analysis of the Global Burden of Disease Study 2019 **Name of Journal:** Lancet Diabetes & Endocrinology **Impact Factor:** 44.867 **Name of Author/s:** Cousin, Ewerton; Duncan, Bruce B.; Stein, Caroline; at el. **Name of Department/University:** AIB, AU Rajasthan & AIFS, AUUP, Noida	 **Dr. Era Upadhyay, AIB, AUR**  **Dr. Himanshu Khajuria AIFS, AUUP**  **Dr. Biswa P. Nayak AIFS, AUUP**
12	**Title of Paper:** Molecular mechanism(s) of regulation(s) of c-MET/HGF signaling in head and neck cancer **Name of Journal:** Molecular Cancer **Impact Factor:** 41.444 **Name of Author/s:** Raj, Sibi; Kesari, Kavindra Kumar; Kumar, Arun; Rathi, Brijesh; Sharma, Ashok; Gupta, Piyush Kumar; Jha, Saurabh Kumar; Jha, Niraj Kumar; Slama, Petr; Roychoudhury, Shubhadeep; Kumar, Dhruv **Name of Department/University:** AIMMSCR, AUUP, Noida	 **Dr. Dhruv Kumar AIMMSCR, AUUP**
13	**Title of Paper:** Mapping development and health effects of cooking with solid fuels in low-income and middle-income countries, 2000-18: a geospatial modelling study **Name of Journal:** The Lancet Global health **Impact Factor:** 38.927 **Name of Author/s:** Local Burden of Disease Household Air Pollution Collaborators **Name of Department/University:** AIB, AU Rajasthan	 **Dr. Era Upadhyay, AIB, AUR**
14	**Title of Paper:** Cancer Incidence, Mortality, Years of Life Lost, Years Lived With Disability, and Disability-Adjusted Life Years for 29 Cancer Groups From 2010 to 2019 A Systematic Analysis for the Global Burden of Disease Study 2019 **Name of Journal:** JAMA Oncology **Impact Factor:** 33.006 **Name of Author/s:** Global Burden of Disease 2019 Cancer Collaboration **Name of Department/University:** AIB, AU Rajasthan	 **Dr. Era Upadhyay, AIB, AUR**
15	**Title of Paper:** Restoring bone marrow hematopoietic stem cells (BM-HSC) reserve augments regression of fibrosis and regeneration in animal model of cirrhosis **Name of Journal:** Journal of Hepatology **Impact Factor:** 30.083 **Name of Author/s:** Nautiyal, Nidhi; Maheshwari, Deepanshu; Rao, Pranshu E.; Mohanty, Sujata; Parasar, Anupama; Bihari, Chhagan; Biswas, Subhrajit; Maiwall, Rakhi; Kumar, Anupam; Sarin, Shiv Kumar **Name of Department/University:** AIMMSCR, AUUP, Noida	 **Dr. Subhrajit Biswas, AIMMSCR, AUUP**

16	**Title of Paper:** Internet-of-nano-things (IoNT) driven intelligent face masks to combat airborne health hazard **Name of Journal:** Materials Today **Impact Factor:** 26.943 **Name of Author/s:** Chaudhary V., Gautam A., Silotia P., Malik S., de Oliveira Hansen R., Khalid M., Khosla A., Kaushik A., Mishra Y.K. **Name of Department/University:** AIB, AU Jharkhand	 **Dr. Sumira Malik, AIB, AUJ**
17	**Title of Paper:** The progress and roadmap of metal–organic frameworks for high-performance supercapacitors **Name of Journal:** Coordination Chemistry Reviews **Impact Factor:** 24.833 **Name of Author/s:** Lokhande P.E., Kulkarni S., Chakrabarti S., Pathan H.M., Sindhu M., Kumar D., Singh J., Kumar A., Kumar Mishra Y., Toncu D.-C., Syväjärvi M., Sharma A., Tiwari A. **Name of Department/University:** AINT, AUUP, Noida	 **Dr. Sandip Chakrabarti AINT, AUUP**
18	**Title of Paper:** Calix[n]arenes and its derivatives as organocatalysts **Name of Journal:** Coordination Chemistry Reviews **Impact Factor:** 24.833 **Name of Author/s:** Sachdeva G., Vaya D., Srivastava C.M., Kumar A., Rawat V., Singh M., Verma M., Rawat P., Rao G.K. **Name of Department/University:** ASAS, AU Haryana	 **Dr. Dipti Vaya ASAS, AUH**  **Dr. Varun Rawat ASAS, AUH**  **Dr. G. K. Rao ASAS, AUH**
19	**Title of Paper:** Understanding the unceasing evolution of Co(II) based single-ion magnets **Name of Journal:** Coordination Chemistry Reviews **Impact Factor:** 24.833 **Name of Author/s:** Kumar Sahu P., Kharel R., Shome S., Goswami S., Konar S. **Name of Department/University:** AIAS, AU Kolkata	 **Dr. Soumyabrata Goswami AIAS, AUK**
20	**Title of Paper:** Precision medicine: Ray of hope in overcoming cancer multidrug resistance **Name of Journal:** Drug Resistance Updates **Impact Factor:** 22.841 **Name of Author/s:** Musyuni P., Bai J., Sheikh A., Vasanthan K.S., Jain G.K., Abourehab M.A.S., Lather V., Aggarwal G., Kesharwani P., Pandita D. **Name of Department/University:** AIP, AUUP, Noida	 **Dr. V. Lather AIP, AUUP**

21	**Title of Paper:** Arsenite: the umpire of arsenate perception and responses in plants **Name of Journal:** Trends in Plant Science **Impact Factor:** 22.012 **Name of Author/s:** Kandhol N., Singh V.P., Herrera-Estrella L., Tran L.-S.P., Tripathi D.K. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
22	**Title of Paper:** Ca2+ sensor-mediated ROS homeostasis: defense without yield penalty **Name of Journal:** Trends in Plant Science **Impact Factor:** 22.012 **Name of Author/s:** Kandhol N., Singh V.P., Wang Y., Chen Z.-H., Tripathi D.K. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
23	**Title of Paper:** RIPK: a crucial ROS signaling component in plants **Name of Journal:** Trends in Plant Science **Impact Factor:** 22.012 **Name of Author/s:** Singh P., Mishra V., Tripathi D.K., Corpas F.J., Singh V.P. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
24	**Title of Paper:** Silica nanoparticles: the rising star in plant disease protection **Name of Journal:** Trends in Plant Science **Impact Factor:** 22.012 **Name of Author/s:** Kandhol N., Singh V.P., Peralta-Videa J., Corpas F.J., Tripathi D.K. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
25	**Title of Paper:** Nanocarrier spray: a nontransgenic approach for crop engineering **Name of Journal:** Trends in plant science **Impact Factor:** 22.012 **Name of Author/s:** Kandhol N, Singh VP, Herrera-Estrella L, Tran LP, Tripathi DK. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
26	**Title of Paper:** "Is Omicron mild"? Testing this narrative with the mutational landscape of its three lineages and response to existing vaccines and therapeutic antibodies **Name of Journal:** Journal of Medical Virology **Impact Factor:** 20.693 **Name of Author/s:** Rajpal, Vijay Rani; Sharma, Shashi; Kumar, Avinash; Chand, Shweta; Joshi, Lata; Chandra, Atika; Babbar, Sadhna; Goel, Shailendra; Raina, Soom Nath; Shiran, Behrouz **Name of Department/University:** AIB, AUUP, Noida	 **Prof. S. N. Raina AIB, AUUP**

27	**Title of Paper:** A systematic review on SARS-CoV-2-associated fungal coinfections **Name of Journal:** Journal of Medical Virology **Impact Factor:** 20.693 **Name of Author/s:** Soni S., Namdeo Pudake R., Jain U., Chauhan N. **Name of Department/University:** AINT, AUUP, Noida	 **Dr. Ramesh Namdeo Pudake** **AINT, AUUP**
28	**Title of Paper:** Emerging SARS-CoV-2 variants can potentially break set epidemiological barriers in COVID-19 **Name of Journal:** Journal of Medical Virology **Impact Factor:** 20.693 **Name of Author/s:** Kumar A., Parashar R., Kumar S., Faiq M.A., Kumari C., Kulandhasamy M., Narayan R.K., Jha R.K., Singh H.N., Prasoon P., Pandey S.N., Kant K. **Name of Department/University:** AIB, AU Mumbai	 **Dr. Sujeet Kumar** **AIB, AUM**
29	**Title of Paper:** COVID-19 vaccination may enhance hippocampal neurogenesis in adults **Name of Journal:** Brain, Behavior, and Immunity **Impact Factor:** 19.227 **Name of Author/s:** Kumar A., Narayan R.K., Prasoon P., Jha R.K., Kumar S., Kumari C., Pandey S.N., Faiq M.A. **Name of Department/University:** AIB, AU Mumbai	 **Dr. Sujeet Kumar** **AIB, AUM**
30	**Title of Paper:** OlfactionBase: a repository to explore odors, odorants, olfactory receptors and odorant-receptor interactions **Name of Journal:** Nucleic Acids Research **Impact Factor:** 19.160 **Name of Author/s:** Sharma A., Saha B.K., Kumar R., Varadwaj P.K. **Name of Department/University:** AIB, AUUP, Lucknow	 **Rajnish Kumar,** **AIB, AUUP, Lucknow**
31	**Title of Paper:** Electron transfer-driven single and multi-enzyme biofuel cells for self-powering and energy bioscience **Name of Journal:** Nano Energy **Impact Factor:** 19.069 **Name of Author/s:** chata S., Patil R., Dey T. **Name of Department/University:** AICCRS, AUUP, Noida	 **Dr. Saikat Dutta,** **AICCRS, AUUP**
32	**Title of Paper:** Constitutive activation of canonical Wnt signaling disrupts choroid plexus epithelial fate **Name of Journal:** Nature Communications **Impact Factor:** 17.694 **Name of Author/s:** Parichha A., Suresh V., Chatterjee M., Kshirsagar A., Ben-Reuven L., Olender T., Taketo M.M., Radosevic V., Bobic-Rasonja M., Trnski S., Holtzman M.J., Jovanov-Milosevic N., Reiner O., Tole S. **Name of Department/University:** AINN, AUUP, Noida	 **Dr. Mallika Chatterjee** **AINN, AUUP**

33	**Title of Paper:** The overlapping burden of the three leading causes of disability and death in sub-Saharan African children **Name of Journal:** Nature Communications **Impact Factor:** 17.694 **Name of Author/s:** LBD Triple Burden Collaborators **Name of Department/University:** AIB, AU Rajasthan	 **Dr. Era Upadhyay, AIB, AUR**
34	**Title of Paper:** Current understanding of biological interactions and processing of DNA origami nanostructures: Role of machine learning and implications in drug delivery **Name of Journal:** Biotechnology advances **Impact Factor:** 17.681 **Name of Author/s:** Singh M., Sharma D., Garg M., Kumar A., Baliyan A., Rani R., Kumar V. **Name of Department/University:** AIMMSCR, AUUP, Noida & ASET, AUUP, Greater Noida	 **Dr. Manoj Garg, AIMMSCR, AUUP**  **Mr Atul Kumar ASET, AUUP, Greater Noida**
35	**Title of Paper:** Engineering of Saccharomyces cerevisiae as a consolidated bioprocessing host to produce cellulosic ethanol: Recent advancements and current challenges **Name of Journal:** Biotechnology Advances **Impact Factor:** 17.681 **Name of Author/s:** Sharma J., Kumar V., Prasad R., Gaur N.A. **Name of Department/University:** AIB, AU Haryana	 **Dr. Rajendra Prasad AIB, AUH**
36	**Title of Paper:** Spousal support and work performance during the COVID-19 pandemic among elected women representatives in rural Bihar, India: A cross-sectional, mixed-methods study **Name of Journal:** eClinicalMedicine **Impact Factor:** 17.033 **Name of Author/s:** Priyadarshini A., Dehingia N., Joshi M., Singh D., Chakraborty S., Raj A. **Name of Department/University:** ALS, AUUP, Noida	 **Dr Shiney Chakraborty ALS, AUUP**
38	**Title of Paper:** A comprehensive review of the multifaceted role of the microbiota in human pancreatic carcinoma **Name of Journal:** Seminars in Cancer Biology **Impact Factor:** 17.012 **Name of Author/s:** Gouri Pandya, Anuradha Kirtonia, Aishwarya Singh, Arul Goel, Chakrabhavi Dhananjaya Mohan, Kanchugarakoppal S Rangappa, Amit Kumar Pandey, Sonia Kapoor, Simran Tandon, Gautam Sethi, Manoj Garg **Name of Department/University:** AIMMSCR, AUUP, Noida & AIB, AU Haryana	 **Dr. Manoj Garg AIMMSCR, AUUP**  **Dr. Amit Kumar Pandey AIB, AUH**

39	**Title of Paper:** Re-establishing the comprehension of phytomedicine and nanomedicine in inflammation-mediated cancer signaling **Name of Journal:** Seminars in Cancer Biology **Impact Factor:** 17.012 **Name of Author/s:** Jha N.K., Arfin S., Jha S.K., Kar R., Dey A., Gundamaraju R., Ashraf G.M., Gupta P.K., Dhanasekaran S., Abomughaid M.M., Das S.S., Singh S.K., Dua K., Roychoudhury S., Kumar D., Ruokolainen J., Ojha S., Kesari K.K. **Name of Department/University:** AIMMSCR, AUUP, Noida	 **Ms. Saniya Arfin** **AIMMSCR, AUUP**
40	**Title of Paper:** Role of epigenetics in carcinogenesis: Recent advancements in anticancer therapy **Name of Journal:** Seminars in Cancer Biology **Impact Factor:** 17.012 **Name of Author/s:** Hussain S., Tulsyan S., Dar S.A., Sisodiya S., Abiha U., Kumar R., Mishra B.N., Haque S. **Name of Department/University:** AIB, AUUP, Noida	 **Ms. Umme Abiha** **AIB, Noida**
41	**Title of Paper:** Natural products and their derivatives as immune check point inhibitors: Targeting cytokine/chemokine signalling in cancer **Name of Journal:** Seminars in Cancer Biology **Impact Factor:** 17.012 **Name of Author/s:** Gupta M., Chandan K., Sarwat M. **Name of Department/University:** AIP, AUUP, Noida	 **Dr. Maryam Sarwat** **AIP, AUUP**
42	**Title of Paper:** Plant lectins and their usage in preparing targeted nanovaccines for cancer immunotherapy **Name of Journal:** Seminars in Cancer Biology **Impact Factor:** 17.012 **Name of Author/s:** Gupta, Bhavika; Sadaria, Daizy; Warrier, Vaishnavi U.; Kirtonia, Anuradha; Kant, Ravi; Awasthi, Amit; Baligar, Prakash; Pal, Jayanta K.; Yuba, Eiji; Sethi, Gautam; Garg, Manoj; Gupta, Rajesh Kumar **Name of Department/University:** AIMMSCR, AUUP, Noida	 **Dr. Manoj Garg,** **AIMMSCR, AUUP**
43	**Title of Paper:** Role of LDH in tumor glycolysis: Regulation of LDHA by small molecules for cancer therapeutics **Name of Journal:** Seminars in Cancer Biology **Impact Factor:** 17.012 **Name of Author/s:** Sharma D., Singh M., Rani R. **Name of Department/University:** AIB, AIMMSCR, AUUP, Noida	 **Ms. Dolly Sharma** **AIB, AUUP**

44	**Title of Paper:** Influence of catalase encapsulation on Cobalt@Nanoporous carbon with multiwall shell for supercapacitor and polyurethane synthesis using carbon dioxide **Name of Journal:** Chemical Engineering Journal **Impact Factor:** 16.744 **Name of Author/s:** Patil R., Kumar N., Bhattacharjee S., Wu H.-Y., Han P.-C., Matsagar B.M., Wu K.C.W., Salunkhe R.R., Bhaumik A., Dutta S. **Name of Department/University:** AICCRS, AUUP, Noida	 **Dr. Saikat Dutta, AICCRS, AUUP**
45	**Title of Paper:** Biosynthesis of saponin defensive compounds in sea cucumbers **Name of Journal:** Nature Chemical Biology **Impact Factor:** 16.174 **Name of Author/s:** Thimmappa R., Wang S., Zheng M., Misra R.C., Huang A.C., Saalbach G., Chang Y., Zhou Z., Hinman V., Bao Z., Osbourn A. **Name of Department/University:** AIGE, AUUP, Noida	 **Dr. Ramesha Thimmappa AIGE, AUUP**
46	**Title of Paper:** Superstructures of Zeolitic Imidazolate Frameworks to Single- and Multiatom Sites for Electrochemical Energy Conversion **Name of Journal:** Small **Impact Factor:** 15.153 **Name of Author/s:** Patil R., Liu S., Yadav A., Khaorapapong N., Yamauchi Y., Dutta S. **Name of Department/University:** AICCRS, AUUP, Noida	 **Dr. Saikat Dutta, AICCRS, AUUP**
47	**Title of Paper:** Techno-economic understanding of Indian energy-storage market: A perspective on green materials-based supercapacitor technologies **Name of Journal:** Renewable and Sustainable Energy Reviews **Impact Factor:** 14.98 **Name of Author/s:** Ghosh S., Yadav S., Devi A., Thomas T. **Name of Department/University:** ASAS, AU Haryana	 **Dr Ambika Devi, ASAS, AUH**
48	**Title of Paper:** Metalloids in plant biology: New avenues in their research **Name of Journal:** Journal of Hazardous Materials **Impact Factor:** 14.224 **Name of Author/s:** Tripathi D.K., Singh V.P., Ahmad P., Guerriero G., Vaculík M., Corpas F.J. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
49	**Title of Paper:** Phytochemicals targeting NF-kappa B signaling: Potential anti-cancer interventions **Name of Journal:** Journal of Pharmaceutical Analysis **Impact Factor:** 14.026 **Name of Author/s:** Chauhan, Akansha; Ul Islam, Asim; Prakash, Hridayesh; Singh, Sandhya **Name of Department/University:** AIPAS, AIVI, AUUP, Noida	 **Dr. Hridayesh Prakash AIVI, AUUP**

50	**Title of Paper:** Intersection of network medicine and machine learning towards investigating the key biomarkers and pathways underlying amyotrophic lateral sclerosis: a systematic review **Name of Journal:** Briefings in Bioinformatics **Impact Factor:** 13.994 **Name of Author/s:** Das T., Kaur H., Gour P., Prasad K., Lynn A.M., Prakash A., Kumar V. **Name of Department/University:** AINN, AUUP, Noida & AIISH, AU Haryana	 **Dr. Vijay Kumar AINN, AUUP**  **Dr. Amresh Prakash, AIB, AIT, AIISH, AUH**
51	**Title of Paper:** Job satisfaction, psychological well-being, and perceived stress among teachers during the pandemic **Name of Journal:** Asian Journal of Psychiatry **Impact Factor:** 13.890 **Name of Author/s:** Thakur M., HN J., Sharma R., Mohanan K., Hari Hara S. **Name of Department/University:** AIPS, AUUP, Noida	 **Dr. Roopali Sharma AIPAS, AUUP**
52	**Title of Paper:** Barriers in the adoption of buyback schemes for used plastic packaging material – a contextual relationship analysis **Name of Journal:** Resources Conservation and Recycling **Impact Factor:** 13.716 **Name of Author/s:** Vimal K.E.K., Agarwal V., Mathiyazhagan K. **Name of Department/University:** AIBS, AUUP, Noida	 **Dr. Vernika Agarwal, AIBS, AUUP**
53	**Title of Paper:** Green Carbon Materials for the Analysis of Environmental Pollutants **Name of Journal:** Trends in Environmental Analytical Chemistry **Impact Factor:** 13.622 **Name of Author/s:** Chawla S., Rai P., Garain T., Uday S., Hussain C.M. **Name of Department/University:** AIAS, AUUP, Noida	 **Dr. Shashi Chawla AIAS, AUUP**
54	**Title of Paper:** Monkeypox in South-East Asia: Is an alarming bell for this region? – Correspondence **Name of Journal:** International Journal of Surgery **Impact Factor:** 13.400 **Name of Author/s:** Chakraborty C., Bhattacharya M., Pandya P., Dhama K. **Name of Department/University:** AIFS, AUUP, Noida	 **Dr. Prateek Pandya AIFS, AUUP**
55	**Title of Paper:** Omicron with threatened antagonistic consequences and are convoyed by new fangled risks - Correspondence **Name of Journal:** International journal of surgery (London, England) **Impact Factor:** 13.400 **Name of Author/s:** Mukerjee N., Maitra S., Das P., Malik S., Alexiou A., Ghosh A. **Name of Department/University:** AIB, AU Jharkhand	 **Dr. Sumira Malik, AIB, AUJ**

56	**Title of Paper:** Blockchain-Enhanced Federated Learning Market With Social Internet of Things **Name of Journal:** IEEE Journal on Selected Areas in Communications **Impact Factor:** 13.081 **Name of Author/s:** Wang P., Zhao Y., Obaidat M.S., Wei Z., Qi H., Lin C., Xiao Y., Zhang Q. **Name of Department/University:** ASET, AUUP, Noida	 **Obaidat, Mohammad S, ASET, AUUP**
57	**Title of Paper:** Identification of novel early pancreatic cancer biomarkers KIF5B and SFRP2 from "first contact" interactions in the tumor microenvironment **Name of Journal:** Journal of Experimental and Clinical Cancer Research **Impact Factor:** 12.658 **Name of Author/s:** Charles Jacob H.K., Signorelli R., Charles Richard J.L., Kashuv T., Lavania S., Middleton A., Gomez B.A., Ferrantella A., Amirian H., Tao J., Ergonul A.B., Boone M.M., Hadisurya M., Tao W.A., Iliuk A., Kashyap M.K., Garcia-Buitrago M., Dawra R., Saluja A.K. **Name of Department/University:** ASCI, AMS, AU Haryana	 **Dr. M. K. Kashyap ASCI, AMS, AUH**
58	**Title of Paper:** Molecular mechanism(s) of regulations of cancer stem cell in brain cancer propagation **Name of Journal:** Medicinal Research Reviews **Impact Factor:** 12.388 **Name of Author/s:** Swati K., Agrawal K., Raj S., Kumar R., Prakash A., Kumar D. **Name of Department/University:** AIMMSCR, AIB, AUUP, Noida	 **Dr Rajeev Kumar AIB, AUUP**
59	**Title of Paper:** Microalgae-bacterial granular consortium: Striding towards sustainable production of biohydrogen coupled with wastewater treatment **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Iqbal K., Saxena A., Pande P., Tiwari A., Chandra Joshi N., Varma A., Mishra A. **Name of Department/University:** AIMT, AIB, AUUP, Noida	 **Prof. (Dr.) Ajit Varma AIMT, AUUP**  **Dr. Arti Mishra AIMT, AUUP**
60	**Title of Paper:** Biogeochemical profiling and taxonomic characterization of municipal landfill site by metagenomic sequencing **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Gupta J., Rathour R., Dupont C., Mishra A., Shekhar Thakur I. **Name of Department/University:** AUUP, Noida & AU Haryana	 **Dr. Indu Shekar Thakur, ASEES, AUH**  **Dr. Arti Mishra AIMT, AUUP**

61	**Title of Paper:** Envisaging the role of pharmaceutical contaminant 17-β estradiol on growth and lipid productivity of marine diatom Chaetoceros gracilis **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Pankaj Kumar Singh, Raya Bhattacharjya, Abhishek Saxena, Indu Shekhar Thakur, Archana Tiwari **Name of Department/University:** AIB, AUUP, Noida & ASEES, AU Haryana	 **Dr. Indu Shekar Thakur, ASEES, AUH**  **Archana Tiwari, AIB, AUUP**
62	**Title of Paper:** Growth of marine diatoms on aquaculture wastewater supplemented with nanosilica **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Saxena A., Kumar Singh P., Bhatnagar A., Tiwari A. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**
63	**Title of Paper:** Production of biosurfactants from agro-industrial waste and waste cooking oil in a circular bioeconomy: An overview **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Gaur V.K., Sharma P., Sirohi R., Varjani S., Taherzadeh M.J., Chang J.-S., Yong Ng H., Wong J.W.C., Kim S.-H. **Name of Department/University:** AIB, AUUP, Lucknow	 **Vivek Kumar Gaur AIB, AUUP, Lucknow**
64	**Title of Paper:** The effect of solvents polarity and extraction conditions on the microalgal lipids yield, fatty acids profile, and biodiesel properties **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Zarrinmehr M.J., Daneshvar E., Nigam S., Gopinath K.P., Biswas J.K., Kwon E.E., Wang H., Farhadian O., Bhatnagar A. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Subhasha Nigam AIB, AUUP**
65	**Title of Paper:** Genetic and non-genetic tailoring of microalgae for the enhanced production of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) – A review **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Jakhwal P., Kumar Biswas J., Tiwari A., Kwon E.E., Bhatnagar A. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**
66	**Title of Paper:** Recent advances in microalgae-based remediation of industrial and non-industrial wastewaters with simultaneous recovery of value-added products **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Sharma R., Mishra A., Pant D., Malaviya P. **Name of Department/University:** AIMT, AUUP, Noida	 **Dr. Arti Mishra AIMT, AUUP**

67	**Title of Paper:** Nutrient acclimation in benthic diatoms with adaptive laboratory evolution **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Saxena A., Mishra B., Sindhu R., Binod P., Tiwari A. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**
68	**Title of Paper:** Mass cultivation of marine diatoms using local salts and its impact on growth and productivity **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Saxena, Abhishek; Mishra, Bharti; Tiwari, Archana **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**
69	**Title of Paper:** Production of biopolymers from food waste: Constrains and perspectives **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Gautam K., Vishvakarma R., Sharma P., Singh A., Kumar Gaur V., Varjani S., Kumar Srivastava J. **Name of Department/University:** AIB, AUUP, Lucknow	 **Dr. Vivek Kumar Gaur AIB, AUUP, Lucknow**  **Dr. J. K. Srivastava AIB, AUUP, Lucknow**
70	**Title of Paper:** Production of lipids and proteins from marine diatoms under changing pH and silica **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Kumar Singh P., Bhattacharjya R., Kiran Marella T., Saxena A., Mishra B., Savio S., Congestri R., Sindhu R., Binod P., Tiwari A. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**
71	**Title of Paper:** Integrated biorefinery development for pomegranate peel: Prospects for the production of fuel, chemicals and bioactive molecules **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Arun K.B., Madhavan A., Anoopkumar A.N., Surendhar A., Liz Kuriakose L., Tiwari A., Sirohi R., Kuddus M., Rebello S., Kumar Awasthi M., Varjani S., Reshmy R., Mathachan Aneesh E., Binod P., Sindhu R. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**
72	**Title of Paper:** Genetic and non-genetic tailoring of microalgae for the enhanced production of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) - A review **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Jakhwal, Parul; Biswas, Jayanta Kumar; Tiwari, Archana; Kwon, Eilhann E.; Bhatnagar, Amit **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Archana Tiwari, AIB, AUUP**

73	**Title of Paper:** Molecular insights into plant–microbe interactions for sustainable remediation of contaminated environment **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Rane N.R., Tapase S., Kanojia A., Watharkar A., Salama E.-S., Jang M., Kumar Yadav K., Amin M.A., Cabral-Pinto M.M.S., Jadhav J.P., Jeon B.-H. **Name of Department/University:** AIB, AU Mumbai	 **Dr. Anuprita Watharkar** **AIB, AUM**
74	**Title of Paper:** Genomic analysis, simultaneous production, and process optimization of extracellular polymeric substances and polyhydroxyalkanoates by Methylobacterium sp. ISTM1 by utilizing molasses **Name of Journal:** Bioresource Technology **Impact Factor:** 11.889 **Name of Author/s:** Tyagi B., Gupta B., Khatak D., Meena R., Shekhar Thakur I. **Name of Department/University:** ASEES, AU Haryana	 **Dr. Indu Shekar Thakur,** **ASEES, AUH**
75	**Title of Paper:** Effect of tool rotational speed on friction stir welded AA6061-T6 scarf joint configuration **Name of Journal:** Advanced Composites and Hybrid Materials **Impact Factor:** 11.806 **Name of Author/s:** Sethi D., Acharya U., Kumar S., Shekhar S., Roy B.S. **Name of Department/University:** ASET, AU Kolkata	 **Dr. Uttam Acharya** **ASET, AUK**
76	**Title of Paper:** COVID-19 and Poverty in South America: the Mental Health Implications **Name of Journal:** International Journal of Mental Health and Addiction **Impact Factor:** 11.555 **Name of Author/s:** Bassey E.E., Gupta A., Kapoor A., Bansal A. **Name of Department/University:** AIB, AUUP, Noida	 **Ms. Arushi Kapoor** **AIB, AUUP**
77	**Title of Paper:** Protein, thermal and functional properties of α-, γ- and ω-gliadins of wheat and their effect on bread making characteristics **Name of Journal:** Food Hydrocolloids **Impact Factor:** 11.504 **Name of Author/s:** Chaudhary N., Virdi A.S., Dangi P., Khatkar B.S., Mohanty A.K., Singh N. **Name of Department/University:** Department of Food Science and Technology, AU Punjab	 **Dr. Amardeep Singh Virdi** **AU Punjab**
78	**Title of Paper:** Nanobots-based advancement in targeted drug delivery and imaging: An update **Name of Journal:** Journal of Controlled Release **Impact Factor:** 11.467 **Name of Author/s:** Gupta A., Soni S., Chauhan N., Khanuja M., Jain U. **Name of Department/University:** AINT, AUUP, Noida	 **Mr. Abhinandan Gupta** **AINT, AUUP**

79	**Title of Paper:** Ultra-high energy stored into multi-layered functional porous carbon tubes enabled by high-rate intercalated pseudocapacitance **Name of Journal:** Carbon **Impact Factor:** 11.307 **Name of Author/s:** Gupta S.P., Shakeelur Raheman A.R., Gurung A., Qiao Q., Late D.J., Walke P.S. **Name of Department/University:** ACNN, AU Mumbai	 **Dr. Dattatray J. Late, ACNN, AUM**
80	**Title of Paper:** Microbial desalination cell: Desalination through conserving energy **Name of Journal:** Desalination **Impact Factor:** 11.211 **Name of Author/s:** Zahid M., Savla N., Pandit S., Thakur V.K., Jung S.P., Gupta P.K., Prasad R., Marsili E. **Name of Department/University:** AIB, AU Mumbai	 **Ms. Masirah Zahid AIB, AUM**
81	**Title of Paper:** Biocolorants in food: Sources, extraction, applications and future prospects **Name of Journal:** Critical Reviews in Food Science and Nutrition **Impact Factor:** 11.208 **Name of Author/s:** Monika Thakur & V K Modi **Name of Department/University:** AIFT, AUUP, Noida	 **Dr. Monika Thakur AIFT, AUUP**  **Dr. V K Modi AIFT, AUUP**
82	**Title of Paper:** Gluten-free grains: Importance, processing and its effect on quality of gluten-free products **Name of Journal:** Critical Reviews in Food Science and Nutrition **Impact Factor:** 11.208 **Name of Author/s:** Kaur S., Kumar K., Singh L., Sharanagat V.S., Nema P.K., Mishra V., Bhusan B. **Name of Department/University:** ASHS, AU Punjab	 **Dr. Bharat Bhushan ASHS, AU Punjab**
83	**Title of Paper:** Recent advances and future perspectives on nanoparticles-controlled alignment of liquid crystals for displays and other photonic devices **Name of Journal:** Critical Reviews in Solid State and Materials Sciences **Impact Factor:** 11.178 **Name of Author/s:** Priscilla, P.; Malik, Praveen; Supreet; Kumar, Ajay; Castagna, Riccardo; Singh, Gautam **Name of Department/University:** AIAS, AUUP, Noida & ASAS, AU Haryana	 **Dr. Supreet ASAS, AUH**  **Dr. Gautam Singh AIAS, AUUP**
84	**Title of Paper:** A review on 1D photonic crystal based reflective optical limiters **Name of Journal:** Critical Reviews in Solid State and Materials Sciences **Impact Factor:** 11.178 **Name of Author/s:** Gadhwal R., Kaushik P., Devi A. **Name of Department/University:** ASAS, AU Haryana	 **Dr Ambika Devi, ASAS, AUH**

85	**Title of Paper:** Modeling the pressures for sustainability adoption in the Indian automotive context **Name of Journal:** Journal of Cleaner Production **Impact Factor:** 11.072 **Name of Author/s:** Mathivathanan, Deepak; Agarwal, Vernika; Mathiyazhagan, K.; Saikouk, Tarik; Appolloni, Andrea **Name of Department/University:** AIBS, AUUP, Noida	 **Dr. Vernika Agarwal, AIBS, AUUP**
86	**Title of Paper:** Comparative evaluation of Integrated Solar combined cycle plant with cascade thermal storage system for different heat transfer fluids **Name of Journal:** Journal of Cleaner Production **Impact Factor:** 11.072 **Name of Author/s:** Khandelwal N., Sharma M., Singh O., Shukla A.K. **Name of Department/University:** ASET, AUUP, Noida	 **Dr. Meeta Sharma ASET, AUUP**
87	**Title of Paper:** Visible LED-light driven photocatalytic degradation of organochlorine pesticides (2,4-D & 2,4-DP) by Curcuma longa mediated bismuth vanadate **Name of Journal:** Journal of Cleaner Production **Impact Factor:** 11.072 **Name of Author/s:** Chawla H., Garg S., Rohilla J., Szamosvölgyi Á., Efremova A., Szenti I., Ingole P.P., Sápi A., Kónya Z., Chandra A. **Name of Department/University:** AIAS, AIP, AUUP, Noida	 **Dr. Seema Garg AIAS, AUUP**
88	**Title of Paper:** Techno-economic analysis of microalgae cultivation for commercial sustainability: A state-of-the-art review **Name of Journal:** Journal of Cleaner Production **Impact Factor:** 11.072 **Name of Author/s:** Bhatt A., Khanchandani M., Rana M.S., Prajapati S.K. **Name of Department/University:** AIB, AU Madhya Pradesh	 **Ms. Mitali Khanchandani AIB, AUMP**
89	**Title of Paper:** Impact of customer experience on attitude and repurchase intention in online grocery retailing: A moderation mechanism of value Co-creation **Name of Journal:** Journal of Retailing and Consumer Services **Impact Factor:** 10.972 **Name of Author/s:** Kumari Anshu, Loveleen Gaur, Gurmeet Singh **Name of Department/University:** AIBS, AUUP, Noida	 **Dr. Loveleen Gaur AIBS, Noida**
90	**Title of Paper:** Mainstreaming fashion rental consumption: A systematic and thematic review of literature **Name of Journal:** Journal of Business Research **Impact Factor:** 10.969 **Name of Author/s:** Jain R., Jain K., Behl A., Pereira V., Del Giudice M., Vrontis D. **Name of Department/University:** AIBS, AUUP, Noida	 **Kokil Jain AIBS, AUUP**

91	**Title of Paper:** The role of Financial Development and Technological Innovation towards Sustainable Development in Pakistan: Fresh insights from consumption and territory-based emissions **Name of Journal:** Technological Forecasting and Social Change **Impact Factor:** 10.884 **Name of Author/s:** Abbasi K.R., Hussain K., Haddad A.M., Salman A., Ozturk I. **Name of Department/University:** AUUP, Dubai	 **Dr. A.M. Haddad, AUUP, Dubai**
92	**Title of Paper:** Modeling the critical success factors of implementing net zero emission (NZE) and promoting resilience and social value creation **Name of Journal:** Technological Forecasting and Social Change **Impact Factor:** 10.884 **Name of Author/s:** Sindhwani, Rahul; Singh, Punj Lata; Behl, Abhishek; Afridi, Mohd. Shayan; Sammanit, Debaroti; Tiwari, Aviral Kumar **Name of Department/University:** ASET, AUUP, Noida	 **Dr Punj Lata Singh ASET, AUUP**
93	**Title of Paper:** Role of Industry 4.0 in agile manufacturing to achieve sustainable development **Name of Journal:** Business Strategy and the Environment **Impact Factor:** 10.801 **Name of Author/s:** Agarwal V., Hameed A.Z., Malhotra S., Mathiyazhagan K., Alathur S., Appolloni A. **Name of Department/University:** AIBS, AUUP, Noida	 **Dr. Vernika Agarwal, AIBS, AUUP**
94	**Title of Paper:** A review on co-culturing of microalgae: A greener strategy towards sustainable biofuels production **Name of Journal:** Science of the Total Environment **Impact Factor:** 10.753 **Name of Author/s:** Ray A., Nayak M., Ghosh A. **Name of Department/University:** AIB, AUUP, Noida	 **Dr. Manoranjan Nayak, AIB, AUUP**
95	**Title of Paper:** Trends in mitigation of industrial waste: Global health hazards, environmental implications and waste derived economy for environmental sustainability **Name of Journal:** Science of the Total Environment **Impact Factor:** 10.753 **Name of Author/s:** Sharma P., Gaur V.K., Gupta S., Varjani S., Pandey A., Gnansounou E., You S., Ngo H.H., Wong J.W.C. **Name of Department/University:** AIB, AUUP, Lucknow	 **Vivek Kumar Gaur AIB, AUUP, Lucknow**

96	**Title of Paper:** Sustainable strategies for combating hydrocarbon pollution: Special emphasis on mobil oil bioremediation **Name of Journal:** Science of the Total Environment **Impact Factor:** 10.753 **Name of Author/s:** Gaur V.K., Gautam K., Sharma P., Gupta P., Dwivedi S., Srivastava J.K., Varjani S., Ngo H.H., Kim S.-H., Chang J.-S., Bui X.-T., Taherzadeh M.J., Parra-Saldívar R. **Name of Department/University:** AIB, AUUP, Lucknow	 **Dr. Vivek Kumar Gaur AIB, AUUP, Lucknow**  **Dr. J. K. Srivastava AIB, AUUP, Lucknow**
97	**Title of Paper:** Biochar application for greenhouse gas mitigation, contaminants immobilization and soil fertility enhancement: A state-of-the-art review **Name of Journal:** Science of the Total Environment **Impact Factor:** 10.753 **Name of Author/s:** Abhishek K., Shrivastava A., Vimal V., Gupta A.K., Bhujbal S.K., Biswas J.K., Singh L., Ghosh P., Pandey A., Sharma P., Kumar M. **Name of Department/University:** AIES, AUUP, Noida	 **Dr. Anamika Shrivastava AIES, AUUP**
98	**Title of Paper:** From poops to planning: A broad non-invasive genetic survey of large mammals from the Indian Himalayan Region **Name of Journal:** Science of the Total Environment **Impact Factor:** 10.753 **Name of Author/s:** Joshi B.D., Singh S.K., Singh V.K., Jabin G., Ghosh A., Dalui S., Singh A., Priyambada P., Dolker S., Mukherjee T., Sharief A., Kumar V., Singh H., Thapa A., Sharma C.M., Dutta R., Bhattacharjee S., Singh I., Mehar B.S., Chandra K., Sharma L.K., Thakur M. **Name of Department/University:** AIFW, AUUP, Noida	 **Dr Sujeet Kumar Singh AIFW, AUUP**
99	**Title of Paper:** Microbial remediation and plant-microbe interaction under arsenic pollution **Name of Journal:** Science of the total environment **Impact Factor:** 10.753 **Name of Author/s:** Raturi G, Chaudhary A, Rana V, Mandlik R, Sharma Y, Barvkar V, Salvi P, Tripathi DK, Kaur J, Deshmukh R, Dhar H. **Name of Department/University:** AIOA, AUUP, Noida	 **Dr. D. K. Tripathi, AIOA, AUUP**
100	**Title of Paper:** Nanozyme-based pollutant sensing and environmental treatment: Trends, challenges, and perspectives **Name of Journal:** Science of the Total Environment **Impact Factor:** 10.753 **Name of Author/s:** Singh R., Umapathi A., Patel G., Patra C., Malik U., Bhargava S.K., Daima H.K. **Name of Department/University:** ACNN, AIB, AU Rajasthan	 **Dr. Hemant Kumar Daima ACNN, AIB, AUR**

101	**Title of Paper:** Self-assembled chitosan polymer intercalating peptide functionalized gold nanoparticles as nanoprobe for efficient imaging of urokinase plasminogen activator receptor in cancer diagnostics (vol 266, 118138, 2021) **Name of Journal:** Carbohydrate Polymers **Impact Factor:** 10.723 **Name of Author/s:** Shahdeo, Deepshikha; Kesarwani, Veerbhan; Suhag, Deepa; Ahmed, Jahangeer; Alshehri, Saad M.; Gandhi, Sonu **Name of Department/University:** AIB, AU Haryana & AIB, AUUP, Noida	 **Dr. Deepa Suhag, AIB Haryana**
102	**Title of Paper:** Assessing spatiotemporal variations in land surface temperature and SUHI intensity with a cloud based computational system over five major cities of India **Name of Journal:** Sustainable Cities and Society **Impact Factor:** 10.696 **Name of Author/s:** Ghosh S., Kumar D., Kumari R. **Name of Department/University:** AIGIRS, AUUP, Noida	 **Dr. Sukanya Ghosh AIGIRS, AUUP**  **Dr. Deepak Kumar AIGIRS, AUUP**
103	**Title of Paper:** Electrospun polyurethane fiber mats coated with fish collagen layer to improve cellular affinity for skin repair **Name of Journal:** Sustainable Materials and Technologies **Impact Factor:** 10.681 **Name of Author/s:** Sofi H.S., Abdal-hay A., Rashid R., Rafiq A., Rather S.-U., Beigh M.A., Alrokayan S.H., Khan H.A., Tripathi R.M., Sheikh F.A. **Name of Department/University:** AINT, AUUP, Noida	 **Dr. Ravi Mani Tripathi AINT, AUUP**
104	**Title of Paper:** Paper-Based Electrodes Conjugated with Tungsten Disulfide Nanostructure and Aptamer for Impedimetric Detection of Listeria monocytogenes **Name of Journal:** Biosensors **Impact Factor:** 10.62 **Name of Author/s:** Mishra A., Pilloton R., Jain S., Roy S., Khanuja M., Mathur A., Narang J. **Name of Department/University:** AINT, AUUP, Noida	**Ms. Annu Mishra AINT, AUUP**
105	**Title of Paper:** Selective Reduction of CO2on Ti2C(OH)2MXene through Spontaneous Crossing of Transition States **Name of Journal:** ACS Applied Materials and Interfaces **Impact Factor:** 10.383 **Name of Author/s:** Parui A., Srivastava P., Singh A.K. **Name of Department/University:** ASAS, AUUP, Lucknow	 **Dr. Pooja Srivastava ASAS, AU, Lucknow**

106	**Title of Paper:** Nanoarchitectonics of Metal-Free Porous Polyketone as Photocatalytic Assemblies for Artificial Photosynthesis **Name of Journal:** ACS Applied Materials & Interfaces **Impact Factor:** 10.383 **Name of Author/s:** Mondal S., Powar N.S., Paul R., Kwon H., Das N., Wong B.M., In S.-I., Mondal J. **Name of Department/University:** AINT, AU Kolkata	**Mr. Sujan Mondal** **AINT, AUK**
107	**Title of Paper:** Transcriptome analysis identifies TODL as a novel lncRNA associated with proliferation, differentiation, and tumorigenesis in liposarcoma through FOXM1 **Name of Journal:** Pharmacological Research **Impact Factor:** 10.334 **Name of Author/s:** Kanojia D., Kirtonia A., Srujana N.S.V., Jeevanandan S.P., Shyamsunder P., Sampath S.S., Dakle P., Mayakonda A., Kaur H., Yanyi J., Koeffler H.P., Garg M. **Name of Department/University:** AIMMSCR, AUUP, Noida	 **Dr. Manoj Garg,** **AIMMSCR, AUUP**
108	**Title of Paper:** Nodule INception-independent epidermal events lead to bacterial entry during nodule development in peanut (Arachis hypogaea) **Name of Journal:** New Phytologist **Impact Factor:** 10.323 **Name of Author/s:** Bhattacharjee O., Raul B., Ghosh A., Bhardwaj A., Bandyopadhyay K., Sinharoy S. **Name of Department/University:** AU Haryana	 **Dr. Kaustav Bandyopadhyay** **AIB, AUH**
109	**Title of Paper:** PF-DA: Pairing Free and Secure Data Aggregation for Energy Internet-Based Smart Meter-to-Grid Communication **Name of Journal:** IEEE Transactions on Smart Grid **Impact Factor:** 10.275 **Name of Author/s:** Verma G.K., Gope P., Kumar N. **Name of Department/University:** ASET, AU Madhya Pradesh	 **Dr. Girraj Kumar Verma,** **ASET, AUMP**
110	**Title of Paper:** Smart nanomaterials for cancer diagnosis and treatment **Name of Journal:** Nano Convergence **Impact Factor:** 10.038 **Name of Author/s:** Singh R., Sharma A., Saji J., Umapathi A., Kumar S., Daima H.K. **Name of Department/University:** ACNN, AIB, AU Rajasthan	 **Dr. Hemant Kumar Daima** **ACNN, AIB, AUR**

A GLIMPSE OF COLLABORATIVE PUBLICATIONS WITHIN AMITY UNIVERSE

S. No.	Name of the Department/ University	Name of Faculty/ Scientist	Title of paper	Name of Journal	Impact Factor
1	AIB, AU Rajasthan & AIFS, AUUP, Noida	Dr Era Upadhyay, Khajuria, Himanshu; Nayak, Biswa Prakash	The global burden of adolescent and young adult cancer in 2019: a systematic analysis for the Global Burden of Disease Study 2019	Lancet Oncology	Impact Factor: 54.433
2	AIB, AU Rajasthan & AIFS, AUUP, Noida	Dr Era Upadhyay, Khajuria, Himanshu; Nayak, Biswa Prakash	Diabetes mortality and trends before 25 years of age: an analysis of the Global Burden of Disease Study 2019	Lancet Diabetes & Endocrinology	Impact Factor: 44.867
3	AIMMSCR, AUUP, Noida & ASET, Greater Noida	Singh M., Sharma D., Garg M., Kumar A., Kumar V.	Current understanding of biological interactions and processing of DNA origami nanostructures: Role of machine learning and implications in drug delivery	Biotechnology Advances	Impact Factor: 17.681
4	AIMMSCR, AUUP, Noida & AIB, AU Haryana	Gouri Pandya, Anuradha Kirtonia, Aishwarya Singh, Amit Kumar Pandey, Sonia Kapoor, Simran Tandon, Manoj Garg	A comprehensive review of the multifaceted role of the microbiota in human pancreatic carcinoma	Seminars in Cancer Biology	Impact Factor: 17.012
5	AINN, AUUP, Noida & AIISH, AU Haryana	Prasad K., Prakash A., Kumar V.	Intersection of network medicine and machine learning towards investigating the key biomarkers and pathways underlying amyotrophic lateral sclerosis: a systematic review	Briefings in Bioinformatics	Impact Factor: 13.994
6	AIB, AUUP, Noida & ASEES, AU Haryana	Pankaj Kumar Singh, Raya Bhattacharjya, Abhishek Saxena, Indu Shekhar Thakur, Archana Tiwari	Envisaging the role of pharmaceutical contaminant 17-β estradiol on growth and lipid productivity of marine diatom Chaetoceros gracilis	Bioresource Technology	Impact Factor: 11.889
7	AIMT, AUUP, Noida & AU Haryana	Mishra A., Shekhar Thakur I.	Biogeochemical profiling and taxonomic characterization of municipal landfill site by metagenomic sequencing	Bioresource Technology	Impact Factor: 11.889
8	AIAS, AUUP, Noida & ASAS, AU Haryana	P P., Supreet, Singh G.	Recent advances and future perspectives on nanoparticles-controlled alignment of liquid crystals for displays and other photonic devices	Critical Reviews in Solid State and Materials Sciences	Impact Factor: 11.178

9	AIB, AU Haryana & AIB, AUUP, Noida	Suhag, Deepa; Gandhi, Sonu	Self-assembled chitosan polymer intercalating peptide functionalized gold nanoparticles as nanoprobe for efficient imaging of urokinase plasminogen activator receptor in cancer diagnostics (vol 266, 118138, 2021)	Carbohydrate Polymers	Impact Factor: 10.723
10	AICCRS, AIB, AIMMSCR, AUUP, Noida & AIAS, AU Kolkata	Aakanksha Agarwal, Sampathkumar Jeevanandham, Chirantan Kar, Monika Prakash Rai, Subhrajit Biswas and Monalisa Mukherjee*	Crystalline Domains Nested on Two-Dimensional Nanosheets as Heterogeneous Nanomachineries for the Sustainable Production of Bioactive Compounds from Chlorella sorokiniana	ACS Sustainable Chemistry & Engineering	Impact Factor: 9.224
11	AIMMSCR, AUUP, Noida & AIB, AU Haryana	Kirtonia A., Pandey A.K., Garg M.	Overexpression of laminin-5 gamma-2 promotes tumorigenesis of pancreatic ductal adenocarcinoma through EGFR/ERK1/2/AKT/mTOR cascade	Cellular and Molecular Life Sciences	Impact Factor: 9.207
12	AIP, AU Haryana & AICCRS, AIB, AUUP, Noida	Arun K. Sharma, Prof Monalisa Mukherjee, Ashish Kumar	Preliminary investigation on impact of intergenerational treatment of resveratrol endorses the development of 'super-pups'	Life sciences	Impact Factor: 6.780
13	AIMMSCR, AIB, AUUP, Noida & AIB, AU Haryana	Kirtonia A., Rani R., Pandey A.K., Baligar P., Kumar V., Das B.C., Garg M.	Long noncoding RNAs: A novel insight in the leukemogenesis and drug resistance in acute myeloid leukemia	Journal of Cellular Physiology	Impact Factor: 6.513
14	AIB, AIISH, AU Haryana & AINN, AUUP, Noida	Sharma R.D., Prasad R., Prakash A., Kumar V.	Computational Insights of Unfolding of N-Terminal Domain of TDP-43 Reveal the Conformational Heterogeneity in the Unfolding Pathway	Frontiers in Molecular Neuroscience	Impact Factor: 6.261
15	AIB, AIISH, AU Haryana & AINN, AUUP, Noida	Rajendra Prasad, Amresh Prakash* and Vijay Kumar	Emerging Molecular Mechanisms of TDP-43 Misfolding, Dyshomeostasis and Proteinopathy in ALS, FTLD-TDP and Other Neurodegenerative Diseases	Frontiers in Molecular Neuroscience	Impact Factor: 6.261
16	AIB, AU Jharkhand & AIETSM, AUUP, Noida	Malik S., Chauhan A.	Fabrication and evaluation of herbal beads to slow cell ageing	Frontiers in Bioengineering and Biotechnology	Impact Factor: 6.064
17	AIP, AUUP, Noida & AIP, Amity University, Gwalior	Jain N., Kanoujia J.	Advances and Challenges in Intranasal Delivery of Antipsychotic Agents Targeting the Central Nervous System	Frontiers in Pharmacology	Impact Factor: 5.988
18	ASET, AU PATNA & ASET, AUUP, Noida	Singh P., Singh S., Shankar A.	A homomorphic non-subsampled contourlet transform based ultrasound image despeckling by novel thresholding function and self-organizing map	Biocybernetics and Biomedical Engineering	Impact Factor: 5.687

19	AICCRS, AIB, AUUP, Noida & AIAS, AU Kolkata	Singh A., Agarwal A., Chakraborty A., Bhardwaj R., Sutradhar S., Kumar Mittal A., Kumar Rajput S., Ray D., Mukherjee M.	Click chemistry tailored benzimidazole functionalized triazole block-co-polymer for emergence of exotic chimaeric nano-crystalsomes	European Polymer Journal	Impact Factor: 5.546
20	AICCRS, AUUP, Noida & AIAS, AU Kolkata	Siddiqui R, Patra S, Shivam K, Goswami S, Patra R.	Halogen Bond Mediated Self-Assembly of Mononuclear Lanthanide Complexes: Perception of Supramolecular Interactions, Slow Magnetic Relaxation, and Photoluminescence Properties	INORGANIC CHEMISTRY	Impact Factor: 5.436
21	AIB, Kolkata & AIMMSCR, AUUP, Noida	Roy S.M., Barman S., Pore S.K., Maity A.R.	Amine as a bottom-line functionality on DDS surface for efficient endosomal escape and further subcellular targets	Journal of Drug Delivery Science and Technology	Impact Factor: 5.062
22	ASET, AUUP, Noida & ASET, AU Haryana	Vimal Kishor Singh, Pallavi Sharma, Uttkarsh Kumar Sharma	Current approaches for the regeneration and reconstruction of ocular surface in dry eye	Frontiers in Medicine	Impact Factor: 5.058
23	AIB JHARKHAND & AIP, AUUP, Noida	Malik S., Tagde P.	A Prospective Viewpoint on Neurological Diseases and Their Biomarkers	Molecules	Impact Factor: 4.927
24	AICCRS, AIP, AIB, AUUP, Noida & AIP, AU Haryana	Agarwal, Aakanksha; Kumar, Arun; Garg, Piyush; Chakraborty, Arnab; Sarwat, Maryam; Mukherjee, Monalisa	Algal Biomass-Loaded Hydrogel Scaffolds as a Biomimetic Platform with Antibacterial and Wound Healing Activities	ACS Applied Polymer Materials	Impact Factor: 4.855
25	AIB, Amity University Jharkhand & AIETSM, AUUP, Noida	Sumira Malik, Abhishek Chauhan	A Bioengineered Quercetin-Loaded 3D Bio-Polymeric Graft for Tissue Regeneration and Repair	Biomedicines	Impact Factor: 4.757
26	AICCRS, AUUP, Noida & AIAS Kolkata	Agarwal A., Sen M., Kant M.	Effective Bioremediation of Zinc(II) with Fusarium spIn Batch and Continuous Studies	Asian Journal of Chemistry	Impact Factor: 4.568
27	AUUP, Noida & Amity University, Taskent	Sharma P., Khapre S.	Human-robot interaction in higher education for predicting student engagement	COMPUTERS & ELECTRICAL ENGINEERING	Impact Factor: 4.152

28	Amity University Tashkent & AIAS, AUUP, Noida	Priyan S., Mittal M.	A Sustainable Production Scheduling with Backorders under Different Forms of Rework Process and Green Investment	Sustainability (Switzerland)	Impact Factor: 3.889
29	AIIT, ACIDR, AUUP, Noida & Amity University, Tashkent	Anjum M., Kapur P.K., Khatri S.K.	Analysis of vulnerability fixing process in the presence of incorrect patches	Journal of Systems and Software	Impact Factor: 3.514
30	AICCRS, AUUP, Noida & AIAS Kolkata	Dhamija, Swati; Patra, Ranjan; Goswami, Soumyabrata	Probing the structural features and magnetic behaviors in dinuclear cobalt(II) and trinuclear iron(III) complexes	Inorganica Chimica Acta	Impact Factor: 3.118
31	AIAS, AUUP, Noida & ASAS Rajasthan	Kumar A., Dwivedi U.K., Choubey R.K.	Role of deposition parameters on the properties of the fabricated heterojunction ZnS/p-Si Schottky diode	Physica Scripta	Impact Factor: 3.081
32	AIMMSCR, AUUP, Noida & Amity Global School, Gurugram, Haryana	Kirti Agrawal, Saumya Chauhan & Dhruv Kumar	Expression analysis and regulation of GLI and its correlation with stemness and metabolic alteration in human brain tumor	3 Biotech	Impact Factor: 2.893
33	AIB, AIMMSCR, AUUP, Noida & Amity University, Punjab	Singh, Anubha; Tandon, Simran; Kumar, Dhruv; Kesari, Kavindra Kumar; Tandon, Chanderdeep	Insights into the cytoprotective potential of Bergenia ligulata against oxalate-induced oxidative stress and epithelial–mesenchymal transition (EMT) via TGFβ1/p38MAPK pathway in human renal epithelial cells	Urolithiasis	Impact Factor: 2.861
34	ASET, AUUP, Noida & ASET, AU Haryana	Gupta R., Mehrotra D., Tyagi R.K.	Hybrid edge-based fractal image encoding using K-NN search	Multimedia Tools and Applications	Impact Factor: 2.577
35	ASET, AU Haryana & ASET, AUUP, Noida	Sharma P., Singh A.	Vehicle identification using modified region based convolution network for intelligent transportation system	MULTIMEDIA TOOLS AND APPLICATIONS	Impact Factor: 2.577
36	AICCRS, AUUP, Noida & AIAS, Kolkata	Shivam K., Goswami S., Patra R.	Design of Dinuclear Lanthanide Complexes from N2O2 Donor Ligand for Single Molecule Magnets: Crystalline Architecture and Slow Magnetic Relaxation Studies	ChemistrySelect	Impact Factor: 2.307

37	AIB, AU Rajasthan & ACNT, AU Haryana	Singh R., Kumar N., Mehra R., Walia A., Kumar H., Thakur A.	Colorimetric assay for visual determination of imidacloprid in water and fruit samples using asparagine modified gold nanoparticles	Journal of the Iranian Chemical Society	Impact Factor: 2.271
38	AIP, AUUP, Noida & AIP, AU Haryana	Sahu, Megha; Sharma, Arun K.; Sharma, Gunjan; Kumar, Ashish; Babu, Varsha	Facile synthesis of bromelain copper nanoparticles to improve the primordial therapeutic potential of copper against acute myocardial infarction in diabetic rats1	Canadian Journal of Physiology and Pharmacology	Impact Factor: 2.245
39	AIIT, AUUP, Noida & Amity University Tashkent	Kumar R., Khatri S.K.	Performance Analysis of Machine Learning Regression Techniques to Predict Data Center Power Usage Efficiency	International Journal of Engineering Trends and Technology	Impact Factor: 2.06, SJR: 0.14
40	AIMMSCR, AIB, AUUP, Noida & Amity University, Punjab	Basu N., Narad P., Tandon C., Das B.C., Tandon S.	Computational and in Vitro Approaches to Elucidate the Anti-cancer Effects of Arnica montana in Hormone-Dependent Breast Cancer	Homeopathy	Impact Factor: 1.818
41	AIMMSCR, AUUP, Noida & Amity University Punjab, Mohali	Basu N., Garg M., Tandon C., Das B.C., Tandon S.	Arsenicum album Induces Cell Cycle Arrest and Apoptosis, and Inhibits Epithelial-Mesenchymal Transition in Hormone-Dependent MCF7 Breast Cancer Cells	Homeopathy: the journal of the Faculty of Homeopathy	Impact Factor: 1.818
42	AIMMSCR, AUUP, Noida & Amity University Punjab, Mohali	Basu N., Garg M., Tandon C., Das B.C., Tandon S.	Arsenicum album Induces Cell Cycle Arrest and Apoptosis, and Inhibits Epithelial-Mesenchymal Transition in Hormone-Dependent MCF7 Breast Cancer Cells	Homeopathy	Impact Factor: 1.818
43	ASET, AU Haryana & ASET, AUUP, Noida	Parkash O., Sikarwar B.S.	CFD modeling of slurry flow erosion wear rate through mitre pipe bend	Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science	Impact Factor: 1.762
44	ASET, AU Madhya Pradesh & AIAS, AU Kolkata	Mishra A.K., Bhardwaj R.	A fuzzy soft set based novel method to destabilize the terrorist network	Journal of Intelligent and Fuzzy Systems	Impact Factor: 1.737
45	ABS, AU Rajasthan & ABS, AU Chhattisgarh	Singh U.B., Gupta T.	Repayment Performance of Self-Help Groups in Uttar Pradesh: An Empirical Investigation	Journal of Asian and African Studies	Impact Factor: 0.882
46	ASET, AU Haryana & ASET, AUUP, Noida	Parkash O., Sikarwar B.S.	Drag model validation of slurry pipeline using CFD	Journal of Engineering Research (Kuwait)	Impact Factor: 0.64

47	ASAS Lucknow & AIB, AU Chhattisgarh	Pandey S.M., Mishra M.S., Pandey J.	Microwave Assisted Green Synthesis and Entomological Characteristic Studies of Novel Chromium (III) complexes of dithiocarbamates derived from glycine, alanine, proline, Valine and Norvaline α-amino acids	Journal of the Indian Chemical Society	Impact Factor: 0.243
48	AIISH, AU Haryana & AINN, AUUP, Noida	Prakash A., Kumar V.	In silico evaluation of the inhibitory potential of nucleocapsid inhibitors of SARS-CoV-2: a binding and energetic perspective	Journal of Biomolecular Structure and Dynamics	CiteScore: 8.2
49	AIB, AUUP, Lucknow & AIB, AU Jharkhand	Hasan S., Awasthi P., Malik S., Dwivedi M.	Immunotherapeutic strategies to induce inflection in the immune response: therapy for cancer and COVID-19	Biotechnology and Genetic Engineering Reviews	CiteScore: 7.5
50	AIMT, AUUP, Noida & Amity University, Gurugram, AU Haryana	Arti Mishra, Khushboo Iqbal, Indu Shekhar Thakur	Persistent organic pollutants in the environment: Risk assessment, hazards, and mitigation strategies	Bioresource Technology Reports	CiteScore: 6.3
51	AIP&P, AUUP, Noida & AIB, AU Mumbai	Chander S., Kharkwal H., Ajit Bastikar V.	Potential inhibitory activity of phytoconstituents against black fungus: In silico ADMET, molecular docking and MD simulation studies	Computational Toxicology	CiteScore: 4.7
52	AIAS, AUUP, Noida & AIAS, AU, Rajasthan	Tomar S., Dwivedi U.K., Choubey R.K.	Temporal evolution of optical absorption and emission spectra of thiol capped CdTe quantum dots	Applied Physics A: Materials Science and Processing	CiteScore: 4.2
53	ASAS, LUCKNOW & AIB, AU Chhattisgarh	Pandey J., Dubey R., Kate A., Sinha A., Mishra M.S.	Nanomedicines: A Focus on Nanomaterials as Drug Delivery System with Current Trends and Future Advancement	Drug Research	CiteScore: 3.8
54	Amity University, Mumbai & Amity University, Lucknow	Iyer J.M., Pandey J., Yadav M.	Molecular Docking Study of Isoxazole Indole Derivatives (B2A2 Series) as Promising Selective Estrogen Receptor Modulators & Anticancer Drugs	Drug Research	CiteScore: 3.8
55	Amity University, Mumbai & Amity University, Lucknow	Iyer J.M., Pandey J.	Insilico Docking Study of Isoxazole Indole Linked Resorcinol Derivatives as Promising Selective Estrogen Receptor Modulators & Anticancer Drugs	Drug Research	CiteScore: 3.8
56	AIIT, AU Rajasthan & Amity University, Tashkent	Kaushik S., Khatri S.K.	Transmit Range Adjustment Using Artificial Intelligence for Enhancement of Location Privacy and Data Security in Service Location Protocol of VANET	Wireless Communications and Mobile Computing	CiteScore: 3.5

57	ABS, ASH, AUUP, Noida & Centre for VUCA Studies, Amity University, Lucknow	Shukla B., Sufi T., Joshi M., Sujatha R.	Leadership challenges for Indian hospitality industry during COVID-19 pandemic	Journal of Hospitality and Tourism Insights	CiteScore: 3.2
58	AUUP, Noida & ABS, AU Chhattisgarh	Kamal Gulati, Ambarish Ghosh	Impact of digitalization on retailers and its future trends	Materials Today: Proceedings	CiteScore: 2.3
59	AIGIRS, ASNRSD, AUUP, Noida & ACOAST, ACESH, AUH, Gurugram	Sharma V., Ghosh S., Kumari M., TDevara P.C.S.	Analysis and Variation of the Maiac Aerosol Optical Depth in Underexplored Urbanized Area of National Capital Region, India	Journal of Landscape Ecology(Czech Republic)	CiteScore: 2.3
60	ASAS, AU Haryana & ASET, AU Jharkhand	Jain S., Kumar Singh P.	Prediction of temperature for various pressure levels using ANN and multiple linear regression techniques: A case study	Materials Today: Proceedings	CiteScore: 2.3
61	Amity University Maharashtra & Amity University Rajasthan	Gupta P., Dwivedi U.K., Kumar Yadav A.	Supervised classification model for estimation of wear in sisal fibre-epoxy composites	Materials Today: Proceedings	CiteScore: 2.3
62	AIIT, AU Rajasthan & AUUP, Noida	Kaushik S., Khatri S.K.	Cryptographic key distribution using artificial intelligence for data security and location privacy in VANET	Journal of Discrete Mathematical Sciences and Cryptography	CiteScore: 1.9
63	AIB, AIMMSCR, AUUP, Noida & Amity University Punjab, Mohali	Anubha Singh, Simran Tandon, Chanderdeep Tandon	In vitro studies on calcium oxalate induced apoptosis attenuated by didymocarpus pedicellata	Biointerface Research in Applied Chemistry	CiteScore: 1.6, SJR: 0.216, SNIP: 0.357
64	AIB, Chhattisgarh & ASAS Lucknow	Kate A., Pandey J., Mishra M., Sharma P.K.	Green catalysis for chemical transformation: The need for the sustainable development	Current Research in Green and Sustainable Chemistry	CiteScore: 1.6
65	AIAS, AUUP, Noida & Amity University, Tashkent	Kumar V., Mittal M., Khatri S.K.	Preface, International Journal of Applied Management Science	International Journal of Applied Management Science	CiteScore: 1.3
66	ASIBAS, ABS, AUUP, Noida & ABS, AUH, Gurugram	Kadyan S., Bhasin N., Madhukar V.	Impact of claim settlement procedure of health insurance companies on customer satisfaction during the pandemic: A case of third-party administrators	Insurance Markets and Companies	CiteScore: 1.0

67	AIIT, AUUP, Noida & Amity University Tashkent	Kumar M., Khatri S.K.	Feature Based Ensemble Learning Model for Breast Cancer Reoccurrence Retrieval	International Journal of Engineering Trends and Technology	CiteScore: 0.6
68	AIB, AUUP, Noida & AIB, AU Haryana	Sen P., Vijay M., Singh S., Hameed S., Vijayaraghavan P.	Understanding the environmental drivers of clinical azole resistance in Aspergillus species	Drug Target Insights	SJR: 0.895
69	AIIT, AUUP, Noida & Amity University Tashkent	Tanwar M., Khatri S.K.	Semantic Term-Term Coupling-Based Feature Enhancement of User Profiles in Recommendation Systems	Journal of Cases on Information Technology	SJR: 0.46
70	AIMMSCR, AUUP, Noida & Amity Global School, Gurugram, Haryana	Saniya Arfin, Saumya Chauhan, Dhruv Kumar	In Silico analysis of Ceruloplasmin alteration in Oral Squamous Cell Carcinoma	Chemical Biology Letters	SJR: 0.401
71	AIB, AU Rajasthan & AIB, AU Mumbai	Sakpal S., Kothari S.L.	Characterization of human-malarial parasite species based on DHFR and GST targets, resulting in changes in anti-malarial drug binding conformations	Drug metabolism letters	SJR: 0.36
72	ASAP, Amity University Punjab & ASAP, Amity University Kolkata	Dutta S., Dr. Siddhartha Koduru	Impact of Physical Density on Nature and Use of Open Spaces: A Pilot Study of Two Residential Areas from Jaipur, India	Journal of The Institution of Engineers (India): Series A	SJR: 0.32
73	AIIT, AUUP, Noida & Amity University Tashkent	Kumar R., Khatri S.K.	Optimization of power consumption in data centers using machine learning based approaches: a review	International Journal of Electrical and Computer Engineering	SJR: 0.28, CiteScore: 2.7
74	AUUP, Noida & Amity University, Tashkent	Tanwar M., Khatri S.K.	A Framework for Feature Selection Using Natural Language Processing for User Profile Learning for Recommendations of Healthcare-Related Content	International Journal of Business Analytics	SJR: 0.25
75	ASET, AU Haryana & AUUP, Noida	Singh P., Rana A.	A Robust Illumination and Intensity invariant Face Recognition System	International Journal of Circuits, Systems and Signal Processing	SJR: 0.2
76	ASAS, Amity University Rajasthan & AIETSM, AUUP, Noida	Dabodhia K.L., Chauhan A., Lamba N.P., Manchanda S., Chauhan M.S.	Biological Potential And Microencapsulation Stability Of Dlimonene, Garlic Oil And Epoxiconazole For Control Of Chilly Leaf Spot	Journal of Pharmaceutical Negative Results	SJR: 0.196

77	AIB, AU Rajasthan & AIB, AU Maharashtra	Sakpal S., Kothari S.L., Bastikar V.	Comparative transcriptomic analysis of the malaria parasites Plasmodium falciparum and Plasmodium vivax sensitive and resistant strains	Drug Development and Registration	SJR: 0.16
78	AIIT, AUUP, Noida & Amity University, Tashkent	Kumar M., Khatri S.K.	Predicting Cancer Survival Using Multilayer Perceptron and High-Dimensional SVM Kernel Space	Ingenierie des Systemes d'Information	SJR: 0.103
79	Amity University, Kolkata & ASET, AU, Madhya Pradesh	Bhardwaj R., Mishra P.K.	Room and High-Temperature Study of Rare Earth Chalcogenides [Кімнатне та високотемпературне дослідження рідкісноземельних халькогенідів]	Journal of Nano- and Electronic Physics	SJR: 0.213
80	AINN, AUUP, Noida & Department of Audiology & Speech-Language Pathology, AU Haryana	Bansal H, Kumar V.	Maskne: A side effect of wearing face mask and face mask-wearing attitudes and behavior during 1(st), 2(nd) and 3(rd) waves of COVID-19 in rural population of Haryana	Journal of Family Medicine and Primary Care	NA
81	ABS, AU Chhattisgarh & ABS, AU Kolkata	Dr.Souren Koner, DR. Rupsha Roy	An Empirical Investigation of the Relationship between Retail Store Attributes and Customer Satisfaction	IITM Journal Of Business Studies	NA
82	Amity University, Lucknow & Amity University, Tashkent	Pandey R., Verma P., Khatri S.K.	Artificial Intelligence and Machine Learning for EDGE Computing	Book	NA
83	Amity University, Tashkent & Amity Education Group	Saroliya A., Rana A.	Internet of Things and fog computing-enabled solutions for real-life challenges	Book	NA
84	ASET, AUUP, Noida & AUUP Greater Noida	Vidushi Vatsa, Ruchika Gupta, Priyank Srivastava	Sustaining India's Gig Economy in Industry 4.0: Regulatory Framework and the Proposed Model	Transitioning From Globalized to Localized and Self-Reliant Economies	NA
85	ASET, AUUP, Noida & AUUP Greater Noida	Vidushi Vatsa, Ruchika Gupta, Priyank Srivastava	Sustaining India's Gig Economy in Industry 4.0: Regulatory Framework and the Proposed Model	Transitioning From Globalized to Localized and Self-Reliant Economies	NA
86	AIB, AICCRS, AUUP, Noida & Science Instrumentation Centre, Amity University, AU Haryana	Sujata Sangam, Piyush Garg, Trinanjana Sanyal, Siddhartha Pahari, S. M. Paul Khurana & Monalisa Mukherjee	Graphene Quantum Dots and Their Hybrid Hydrogels: A Multifaceted Platform for Theranostic Applications	Synthesis and Applications of Nanoparticles	NA

87	ACNT, ASAS, AU Haryana & AISST, AUUP, Noida	Fayu Wan, Xiaoyu Huang, Samuel Ngoho, Kishore Ajay Kumar Ayyala, Preeti Thakur, M. S. Prasad, Atul Thakur, Sébastien Lalléchère, Wenceslas Rahajandraibe, Nour Mohammad Murad & Blaise Ravelo	Electromagnetic Characterization of Nanomaterials: Preliminary Study of 60 GHz Millimetre Wave Li-NGD Circuit in Microstrip Technology	Synthesis and Applications of Nanoparticles	NA
88	AIP, AU, Madhya Pradesh & AIP, AUUP, Lucknow	Jovita Kanoujia, Dr. Poonam Parashar	Brain specific delivery of phytoconstituents through nanodrug wagons approach	Nanocarriers for Drug-Targeting Brain Tumors	NA
89	Amity University, Dubai & AIIT, AUUP, Noida	Shukla V.K., Bathla R.	Analyzing COVID-19 and Other Pandemics through Human-Computer Interaction	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
90	Amity University, Dubai & AIIT, AUUP, Noida	Nuzhat Zaidi S.F., Shukla V.K., Singh A.	Applications and Implementation of Contactless Hand Sanitizer Using Proximity Sensor	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
91	Amity University, Dubai & AIIT, AUUP, Noida	Siraj A., Shukla V.K., Saini S.	Prediction of Cardiovascular Diseases Using Data Mining - Machine Learning and Deep Learning System	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
92	Amity University, Dubai & AIIT, AUUP, Noida	Nazim S.F., Shukla V.K., Saxena K.	Human Computer Interface Trends in Healthcare: Industry 4.0 View	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
93	AIIT, AU Mumbai & AIIT, AUUP, Noida	Gupta P., Sinha S., Rana A.	Leveraging Artificial Intelligence in a Human-Centric Society 5.0: A Health Care Perspective	Healthcare and Knowledge Management for Society 5.0: Trends, Issues, and Innovations	NA
94	AIIT, AUUP, Noida & AIIT, AU Mumbai	Sinha S., Gupta P.	Evolution of Business Intelligence System: From Ad-Hoc Report to Decision Support System to Data Lake Based BI 3.0	Healthcare and Knowledge Management for Society 5.0: Trends, Issues, and Innovations	NA
95	Amity University, Dubai & AIIT, AUUP, Noida	Shukla V.K., Bathla R.	Analyzing COVID-19 and Other Pandemics through Human-Computer Interaction	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
96	Amity University, Dubai & AIIT, AUUP, Noida	Nuzhat Zaidi S.F., Shukla V.K., Singh A.	Applications and Implementation of Contactless Hand Sanitizer Using Proximity Sensor	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA

97	Amity University, Dubai & AIIT, AUUP, Noida	Siraj A., Shukla V.K., Saini S.	Prediction of Cardiovascular Diseases Using Data Mining - Machine Learning and Deep Learning System	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
98	Amity University, Dubai & AIIT, AUUP, Noida	Nazim S.F., Shukla V.K., Saxena K.	Human Computer Interface Trends in Healthcare: Industry 4.0 View	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
99	Amity University, Haryana & Amity University, Dubai	Mehta K., Sharma S., Shukla V.K.	Pillars of a Corruption Free Economically Strong Healthcare Industry during COVID-19: Artificial Intelligence and Global Connectivity	Industry 4.0 and Intelligent Business Analytics for Healthcare	NA
100	Amity University, Lucknow & Amity University, Tashkent	Pandey R., Verma P., Khatri S.K.	Preface, Artificial Intelligence and Machine Learning for EDGE Computing	Artificial Intelligence and Machine Learning for EDGE Computing	NA
101	Amity University, Greater Noida; Amity University, Tashkent & Amity University Uttar Pradesh, Noida	Anand P., Saroliya A., Sharma M.	Fog computing fundamentals in the Internet of Things: A taxonomy, survey, and future directions	Internet of Things and Fog Computing-Enabled Solutions for Real-Life Challenges	NA
102	AIAS, AU Kolkata & AICCRS, AUUP, Noida	Pradip Kumar Sukul, Monalisa Mukherjee, Chirantan Kar	Quantum Dot–Polymer Composites as Sensors	Quantum Dots and Polymer Nanocomposites	NA
103	Amity University, Dubai & AIIT, AUUP, Noida	Ansari S.Z.A., Shukla V.K., Saxena K., Filomeno B.	Implementing Virtual Reality in Entertainment Industry	Lecture Notes in Networks and Systems	NA
104	Amity University, Dubai & AIIT, AUUP, Noida	Ansari S.Z.A., Shukla V.K., Saxena K., Filomeno B.	Implementing Virtual Reality in Entertainment Industry	Lecture Notes in Networks and Systems	NA

105	ASET, AUUP, Noida & ASET, AU Rajasthan	Pramod Kumar, Manju Kaushik	Secure Authentication in WLAN Using Modified Four-Way Handshake Protocol	Lecture Notes in Electrical Engineering	NA
106	AIIT, AUUP, Noida, India & Amity University, Tashkent	Nayak S., Agarwal R., Khatri S.K.	Automated Assessment Tools for grading of programming Assignments: A review	2022 International Conference on Computer Communication and Informatics, ICCCI 2022	NA
107	AIIT, AUUP, Noida, India & Amity University, Tashkent	Nayak S., Agarwal R., Khatri S.K.	Review of Automated Assessment Tools for grading student SQL queries	2022 International Conference on Computer Communication and Informatics, ICCCI 2022	NA
108	Amity University, Greater Noida & AIIT, AUUP, Noida	Das Lipsa, Ahuja L., Singh A.	A Review of Data Warehousing Using Feature Engineering	Proceedings of 2nd International Conference on Innovative Practices in Technology and Management, ICIPTM 2022	NA
109	Amity University, Uttar Pradesh, Noida & Amity University, Greater Noida	Singh G., Bhardwaj G., Vikram Singh S., Chaudhary N.	Artificial Intelligence led Industry 4.0 Application for Sustainable Development	Proceedings of 2nd International Conference on Innovative Practices in Technology and Management, ICIPTM 2022	NA
110	AUUP, Noida & Amity University Tashkent	Goyal S., Bhatia M., Urvashi, Kumar P.	Mining Plants Features for Disease Detection Tensor Flow: A Boon to Agriculture	Lecture Notes in Networks and Systems	NA
111	ASET, AUUP, Noida & Amity University Tashkent	Bhatia M., Saru, Vats P., Kumar P.	Data Visualisation Using Self-organising Maps	Lecture Notes in Networks and Systems	NA
112	ASET, AUUP, Noida & ASAS RAJASTHAN	Keshwala U., Ray K.	Bio-inspired Lotus (Nelumbo Nucifera) Shaped Ultra-wide Band Planar Antenna for Wireless Applications	Lecture Notes in Electrical Engineering	NA
113	AUUP, Noida & AU, DUBAI	Duwee K.J., Kumar H., Khalid M.N., Yadav A.	Effect of Temperature Variation on a Solar PV Module in Dubai Winter Climate	Lecture Notes in Mechanical Engineering	NA

114	ASET, AUUP, Noida & ASET Greater Noida	Divya Singh, Gaurav Mishra	Detection of Cancer using Contrast Stretching	Proceedings of 3rd International Conference on Intelligent Engineering and Management, ICIEM 2022	NA
115	AU, AUUP, Noida & AU Greater Noida Campus	Gurinder Singh, Prateek Chaturvedi, S Vikram Singh	Breast Cancer Screening Using Machine Learning Models	Proceedings of 3rd International Conference on Intelligent Engineering and Management, ICIEM 2022	NA
116	ASET, AUUP, Noida & ASET Greater Noida	Divya Singh, Gaurav Mishra	Detection of Cancer using Contrast Stretching	Proceedings of 3rd International Conference on Intelligent Engineering and Management, ICIEM 2022	NA
117	AU, AUUP, Noida & AU Greater Noida Campus	Gurinder Singh, Prateek Chaturvedi, S Vikram Singh	Breast Cancer Screening Using Machine Learning Models	Proceedings of 3rd International Conference on Intelligent Engineering and Management, ICIEM 2022	NA
118	ASET, AUUP, Noida & Amity University, Dubai	Singh S., Krishan P., Mehrotra D., Sadath L.	Combating Challenges in Health Care Using Blockchain	Lecture Notes in Networks and Systems	CiteScore: 0.7
119	ASET, AUUP, Noida & AU, PATNA	Govind A., Tayal V.K., Kumar P.	Phase Synchronization Control Techniques under Adverse Grid Conditions using Shunt Active Power Filter	2021 6th IEEE International Conference on Recent Advances and Innovations in Engineering, ICRAIE 2021	NA
120	ASET, AU KOLKATA & ASET, AU Lucknow	Pattnaik B., Hazela B.	Malware Detection Using Genetic Cascaded Support Vector Machine Classifier in Internet of Things	2022 2nd International Conference on Computer Science, Engineering and Applications, ICCSEA 2022	NA
121	Amity University, Dubai & ASET, AUUP, Noida	Sadath L., Mehrotra D., Kumar A.	Scalability in Blockchain - Hyperledger Fabric and Hierarchical Model	2022 IEEE Global Conference on Computing, Power and Communication Technologies, GlobConPT 2022	NA
122	ASET, AUUP, Noida & Amity University, Dubai	Sharma P., Sharma P., Shukla V.K.	Covid-19 detection using Cough Sound with Neural Networks	2022 10th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions), ICRITO 2022	NA

123	ASET, AUUP, Noida & Amity University, Dubai	Sharma P., Sharma P., Shukla V.K.	Covid-19 detection using Cough Sound with Neural Networks	2022 10th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions), ICRITO 2022	NA
124	AIIT, AUUP, Noida & Amity University, Tashkent	Vashisth R., Tripathi S., Goel H., Srivastava P.	Visualization of Covid-19 Pandemic Data: An Analysis	Proceedings - 2022 3rd International Conference on Computation, Automation and Knowledge Management, ICCAKM 2022	NA
125	Amity University, Dubai & AIIT, AUUP, Noida	Naje I.A., Shukla V.K., Gupta Deepa	Addressing Cloud Security Challenges through Blockchain Technology	2022 10th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions), ICRITO 2022	NA
126	Amity University, Dubai & AIIT, AUUP, Noida	Naje I.A., Shukla V.K., Gupta Deepa	Addressing Cloud Security Challenges through Blockchain Technology	2022 10th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions), ICRITO 2022	NA
127	Amity University, Dubai & AIIT, AUUP, Noida	Wadhwa D., Gupta D., Shukla V., Jha S.K.	Benefits of Incorporating IoT and Cloud Computing	2022 10th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions), ICRITO 2022	NA
128	ASET, AUUP, Noida & ASET Patna, Bihar	Jindal M., Bajal E., Singh P., Diwakar M.	A review on multiple facets of Indian Road safety-classification, challenges and future scope	2021 IEEE 8th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering, UPCON 2021	NA
129	ASET, AUUP, Noida & ASET, AU Patna, Bihar	Singh P., Singh S.	A Review of Neural Machine Translation based on Deep learning techniques	2021 IEEE 8th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering, UPCON 2021	NA

130	Department of Mathematics, Amity University, Madhya Pradesh & AIAS, Amity University, Kolkata	Khan A., Sharma S.K., Verma G.K., Bhardwaj R.	Fixed Point Results in b-Metric Spaces Over Banach Algebra and Contraction Principle	Lecture Notes in Mechanical Engineering	NA
131	ASAS, AU MADHYA PRADESH & AIAS, AU KOLKATA	Khan A., Sharma S., Bhardwaj R.	Contractions with Comparison Function in the Extended Cone 2-Metric Space	ECS Transactions	NA
132	Amity University, Jaipur & Amity University, Kolkata	Rawal, Y.S., Bagchi, P.	Opportunities and Challenges in Implementation of Artificial Intelligence in Food & Beverage Service Industry	AIP Conference Proceedings	SJR: 0.198

DETAILED LIST OF PUBLICATIONS IN 202 ATTACHED AS ANNEXURE - II (A) & II (B)

The Top 2% of Global Researchers from Amity Universe in the list compiled by Stanford University, USA for 2022


Dr. Dattatray J. Late


Dr. Saikat Dutta


Prof. (Dr.) Ajit Varma


Dr. Indu Shekar Thakur


Dr. Durgesh Kumar Tripathi


Dr. Devendra Choudhary


Dr. Abhishek Guldhe


Dr. Sandipan Chakraborty


Dr. Maryam Sarwat


Dr. Surajit Chattopadhyay


Dr. Nidhi Chauhan


Dr. Niraj Kumar


Dr. Nutan Kaushik


Dr. Rajendra Awasthi


Dr. Kamal Kumar


Dr. Sushanto Gouda


Dr. Dhruv Kumar


Dr. J. K. Srivastava


Dr. Atul Thakur


Dr. Pallav Gupta


Dr. Sanmukh Kaur


Dr. Vinod Kumar Shukla


Dr. Amit Kumar Mittal


Dr. Ravinder Kumar

URL: https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/4?fbclid=IwAR0u4xhKMuKGIsi_prZLxOIOaMPzV-LNCmoIlDYua90eybIVIyE6SI70vyc

Chapter – 3 PATENTS & COPYRIGHTS FILED

3.1 Amity has been credited to be one of the largest patent filing Institutions at National level with a **total of 1844 patents** till 31 December, 2022 of which **219 were filed in 2022** itself. Out of this total filed patents, **181** have been **granted** so far out of which **68** were granted during **this year itself.** In addition, **128 copyrights** were also **filed** out of which **53** have been **registered.**

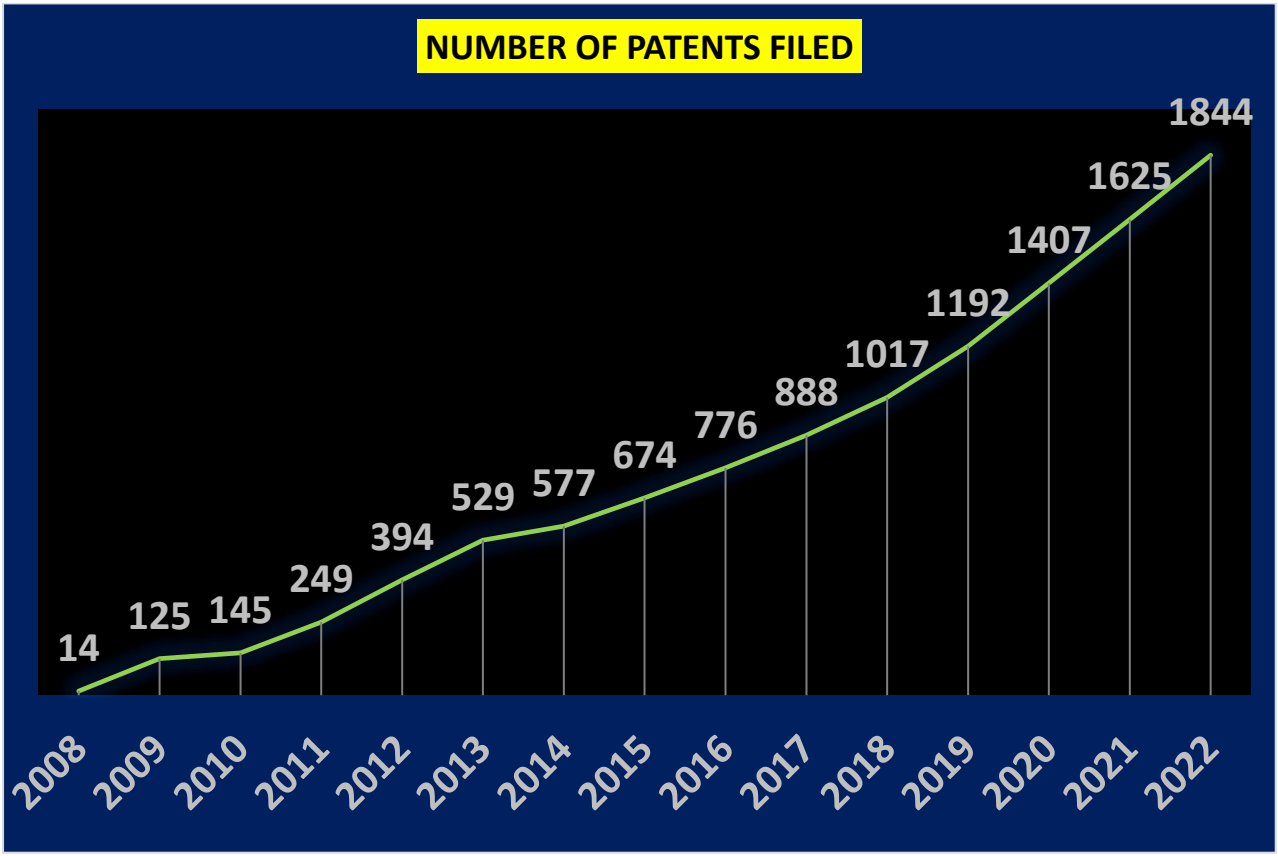
3.2 Indian Intellectual Property Office under the Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India has conferred **Amity University as the winner of prestigious National Intellectual Property Award for the year 2020 in the category of "Top Academic Institution for Patent and Commercialization":**

3.3 Further to this, **in the year 2022, Amity University with its strong IP Portfolio** has been declared **as the winner for the 8th Confederation of Indian Industry (CII) 'Industrial Intellectual Property Awards 2022'**

'Special Appreciation Awards' in the category of 'Academic Institutions' considered as the champion in IP generation and protection to fuel our business and economic growth, **in the 8th International Conference on IPR, 'Building Global IP Partnerships', wherein World Intellectual Property Organization (WIPO), Japan Patent Office (JPO), Japan External Trade organization (JETRO), were the Institutional Partners as organized by the CII on November 18,2022.**

3.4 **Quetsel India** has also conferred **IP Excellence Award 2022 to Amity University** in recognition for valuable contribution as an Innovation driven organization.

3.5 Graphical representation of Patents filed till date by Amity:-



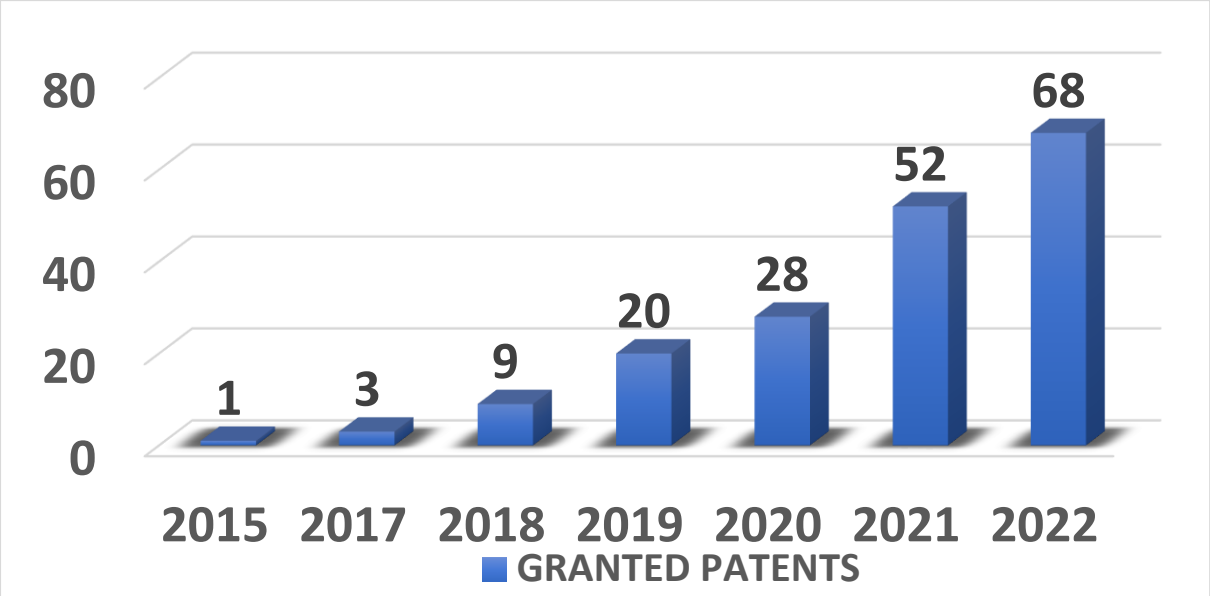
3.6 The **IP Analytics of the Group during the last year is shared below:-**

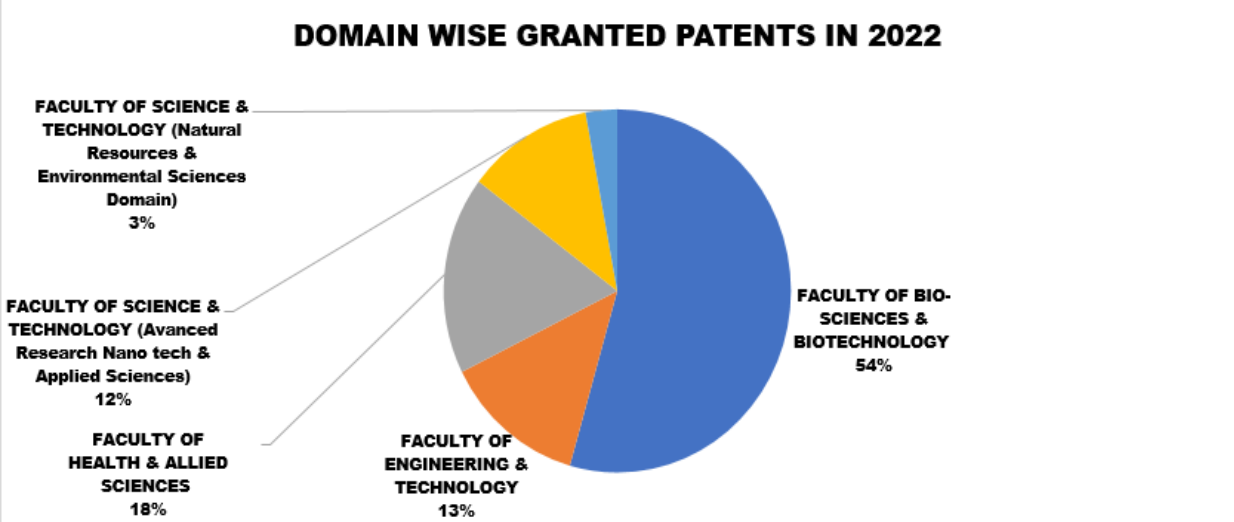
Details	Figures for 2022
Number of Patent Application filed	219
Copyrights filed	128
Copyrights approved	53
Granted patents	68
CAP filed	164
Prior Art/Novelty Search Report	270
RFE's Filed	102
Response to FER	127
Hearing attended	36
NBA filed/Response filed to NBA queries/ NBA Approvals	343

3.7 CAMPUS WISE PATENT FILING TRENDS: -

Name of the Campus	No. of Patents Filed	Contributions in Percentage (%)
Amity University Uttar Pradesh Noida	116	52.97
Amity University Haryana	37	16.89
Amity University Kolkata	5	2.28
Amity University Rajasthan	9	4.11
Amity University Maharashtra	1	0.46
Amity University Madhya Pradesh	17	7.76
Amity University Chhattisgarh	11	5.02
Amity University Bihar	10	4.57
Amity University Jharkhand	3	1.37
Amity University Uttar Pradesh Lucknow Campus	3	1.37
AIS Noida	1	0.46
AIS Saket	3	1.37
AIS Pushp Vihar	1	0.46
AIS Mayur Vihar	1	0.46
AIS Gurgaon	1	0.46
Total	219	100

PATENTS GRANTED: A total of 181 patents have been granted till 31st December 2022 out of which 68 have been granted in the year 2022.



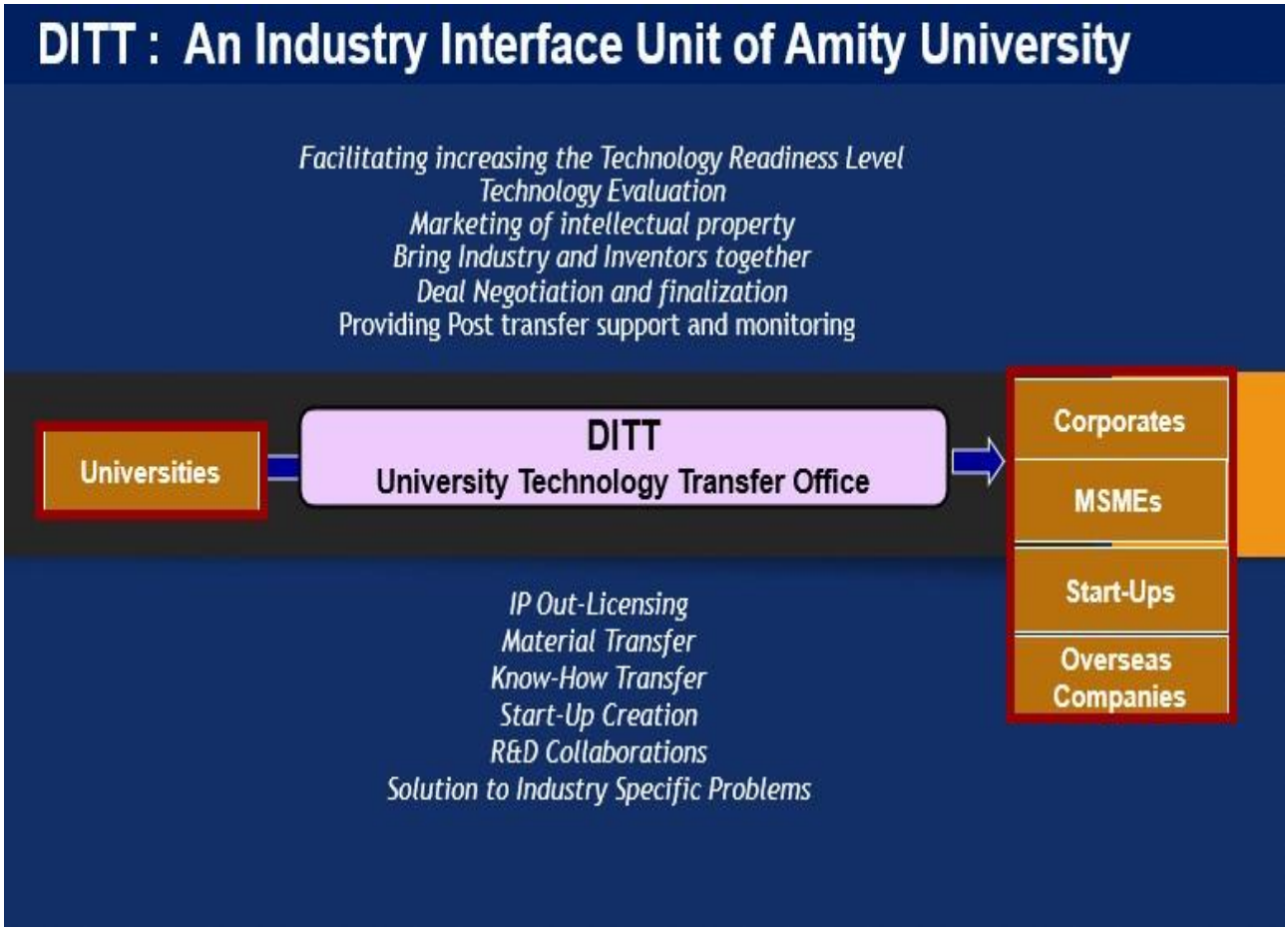


3.8 AMITY COPYRIGHT FILINGS

Copyrights Details	Total	2022
Copyrights Filed	267	122
Copyrights Registered	136	53

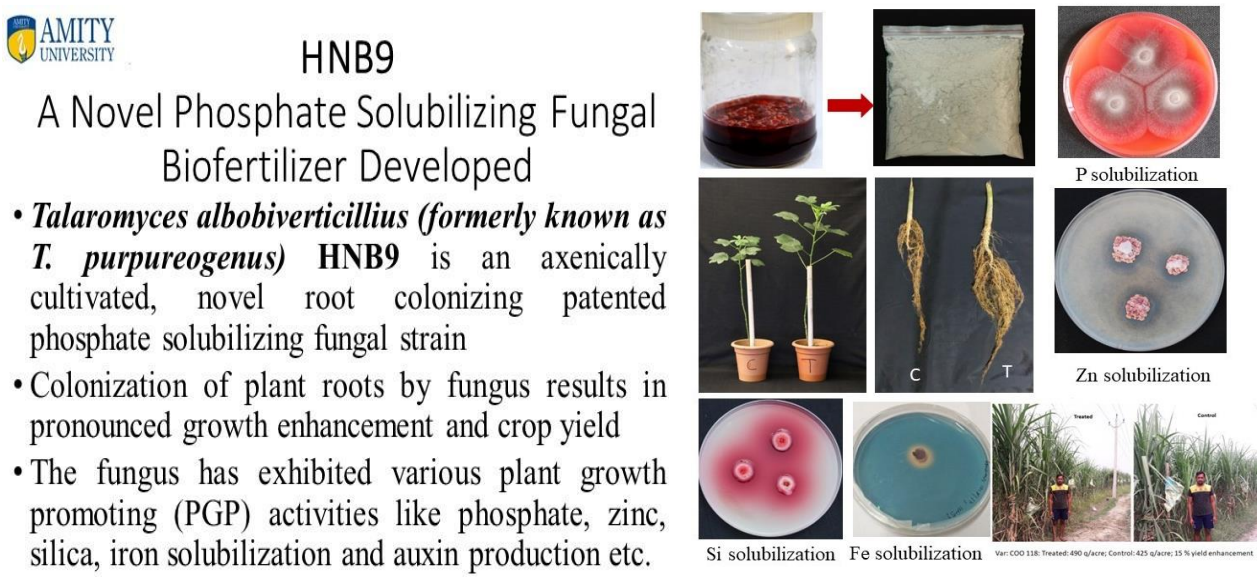
Chapter – 4 TECHNOLOGIES TRANSFERRED

Being conscious of bridging the gap between research output of the University and its application in industries. Amity has created the Directorate of Innovation and Technology Transfer (DITT) which functions as the Industry Interface of Amity University. The DITT has a clear mandate to provide an effective interface with the Industry to promote, develop, nurture and commercialize innovative technologies of Amity Universe for mutual benefit. It is operating on the basis converting "KNOW-HOW' to "SHOW-HOW" and to "DO-HOW".



4.1 Amity has transferred 33 technologies to the industry so far out of which the following **Technology has been** transferred to the industries for commercialization in 2022:

- **HNB9 Formulation to Vedic Vigyan**



4.2 The transfer of some of technologies have been initiated by signing NDA-MTA Agreement**:**

S. No.	Name of the technology/product	Name of the Industry
1	A plant-based drinking straw	ABPP Papers
2	Healthcare Technologies	Trivitron Healthcare Pvt. Ltd.
3	Natural Small Molecules as Potential Bio-Pesticide against Rice Blast Fungus, Magnaporthe oryzae'	Sahasra Crop Science Pvt. Ltd.
4	Novel Protease Enzymes	Balaji Enzymes & Chemicals Pvt. Limited
5	Eco-Lution	Indian pollution control association
6	"Herbal energy Drink"	Humble & Honest Services
7	"Ready to cook protein enriched vegetable Soup"	Humble & Honest Services

4.3 A Technology Enabling Centre (DST-TEC) fully funded by DST has been established in AUUP Noida to upgrade Technology Readiness Level (TRL) and to make them Industry ready. Technology Readiness Level of following technologies have been upgraded during the year:

Sr.No.	Technology	Inventor
1	ECOLUTION	Tuvijeet Sharma, Akshita Singh, Saachi Singh, AIS NOIDA
2	UVS² WAND (Ultraviolet Sensor Sanitizer)	Yash Wadhwa, Diya Mahalwal, AIS PV
3	Homemade Low-cost herbal mosquito larvicide	Sarvagya Bhasin, Rachit Jain, Raghav Arora, AIS Noida
4	Using Firefly structures to improve light Extraction efficiency in LED	Shivanshi Sharma, AIS MV
5	Heritage Troopers	AREIN JAIN & NAMAN JAIN, AIS,V6
6	Spice Tablet	Dr. V.K. Modi, Head, Amity Institute of Food Technology
7	Biryani Mix	Dr. V.K. Modi, Head, Amity Institute of Food Technology
8	Cutlet Mix	Dr. V.K. Modi, Head, Amity Institute of Food Technology
9	Biocompatible and biopolymer based herbal film for enhancement of shelf life of perishable fruits	Dr. V. Pooja, Amity institute of Biotechnology
10	HNB9 Formulation	Dr. Amit C. Kharkwal, Amity Institute of Microbial Technology

Chapter – 5 AWARDS & FELLOWSHIPS

5.1 Awards and fellowships are an important component of recognition to faculty/ student as it is reflective of third-party endorsement about the achievements apart from being beneficial for their career advancement.

5.2 Amity therefore encourages its faculty/researchers and students to participate at National & International forums for research and Innovation as well as Academics for prestigious awards, fellowships, scholarships.

5.3 In recognition of excellence and outstanding accomplishment in research and Academics, the brilliant and dynamic faculty members of Amity Education Group have been bestowed with 90 Awards and 22+ Fellowships/Scholarships during the year 2022.

5.4 Some of the awards received by our faculty includes:-

- Dr. Balvinder Shukla, Vice-Chancellor Amity University Uttar Pradesh: Vice Chancellor of the Year Award 2022 by Universal Mentors Association
- Dr. Balvinder Shukla, Vice-Chancellor Amity University Uttar Pradesh: Excellent Contribution to Education Sector by CMAI Association of India
- Prof. R. K Kohli, Vice- Chancellor, Amity University Punjab: Prof Birbal Sahni Medal Award by The Indian Botanical Society
- Prof. Rajendra Prasad, Dean Faculty of Science Engineering and Technology, Director AIB, AIISH, Amity University Haryana: D P Burma Award for outstanding lifetime contribution in the field of Biological Sciences.
- Dr. Kalpana Chaswal, Amity Institute of Pharmacy, Noida: Haryana Yuva Vigyan Ratan award by DST
- Dr. Shinjinee Dasgupta, Amity Institute of Molecular Medicine & Stem Cell Research, Noida: Dr. Virendra Balkrishna Kamat Award by IACR
- Dr. Sanjeev Bansal, Amity Business School, Noida: Distinguished Scientist Award by INSO
- Prof. Tanu Jindal, Amity Institute of Environmental Toxicology Safety and Management: Women Achiever Award 2022, Environment and Social Development Association (ESDA)

- Dr. Manish Dwivedi, Amity Institute of Biotechnology, Lucknow: Young Biotechnologist Award by The Himalayan Scientific Society

5.5 The faculty have also received prestigious fellowships such as ESDA Fellowship Award, SERB-SIRE, HORIZON European Commission, European Molecular Biology Organization, Erasmus+ International staff training Mobility Program, DAAD Fellowship.

5.6 University-wise summary of the Awards, fellowships and recognition received by Amity faculty are as follows:-

Name of the Campus	Award	Fellowship	Recognition
Amity University Uttar Pradesh Noida	28	11	31
Amity University Uttar Pradesh Lucknow	20	4	40
Amity University Uttar Pradesh Greater Noida	3	0	0
Amity University West Bengal	2	0	1
Amity University Haryana	25	5	2
Amity University Rajasthan	2	0	3
Amity University Mumbai	7	1	0
Amity University Chhattisgarh	0	0	0
Amity University Bihar	0	1	1
Amity University Jharkhand	1	0	0
Amity University Punjab	2	0	0
TOTAL	**90**	**22**	**78**

5.7 **Twenty-four** Amity University faculty members figure in **top 2%** of Global Researchers from India, in the list compiled by Stanford University, USA.

5.8 In addition to the faculty our students have also received 31 awards & 12 fellowships relating to research. This includes ESCV Travel Award, EMBO fellowship, DST Inspire fellowship, Smart Hackathon etc.

5.9 Glimpse of Awards









THE DETAILS OF THE AWARDS & FELLOWSHIPS RECEIVED IN THE YEAR 2022 ARE ATTACHED AS ANNEXURE – V

Chapter – 6 COLLABORATION

6.1 MEMORANDUM OF UNDERSTANDING(MOU)

- MoU provide the starting point for building collaboration and plays a vital role in bridging the gap between Industries, Academic & Government agencies for increasing the academic and research capabilities of both organizations.
- Amity University encourages and facilitates collaboration amongst National and International research-oriented organizations.
- The scope of all such collaborative endeavors encompasses collaborative research projects, joint publications, IPR generation, product/ technology development, joint Ph.D, student exchange/ dissertation/projects, award of Honorary / Adjunct Professorships, supporting international visits of the faculty, International conference/Seminars/Workshops etc.
- Such collaborations contributed to exponential growth in the Research and Innovation acumen as well as initiatives of the group. It has also led to increasing visibility, identity, and diversity of activities of the Group.
- Amity has signed 102 MoUs i.e; 84 National and 28 International in 2022.
- The University wise summary of MoUs initiated are given below: -

S.No	Initiated by	No. of National MoUs	No. of International MoUs
1	Amity University Uttar Pradesh Noida	30	21
2	Amity University Greater Noida	6	1
3	Amity University Haryana	13	2
4	AUUP Lucknow	11	1
5	Amity University Rajasthan	1	1
6	Amity University West Bengal	10	1
7	Amity University Madhya Pradesh	6	0
8	Amity University Mumbai	2	0
9	Amity University Patna	1	0
10	Amity University Jharkhand	3	1
11	Amity University Chhattisgarh	1	0
12	Amity University Mohali	0	0
Total		**84**	**28**

- Some of the National MoUs include Indian Institute of Technology Guwahati, Indian Institute of Technology Hyderabad, Centre for Joint Warfare Studies, Indian National Bar Association, Arid Forest Research Institute, National Maritime Foundation of India, Tourism and Hospitality Skill Council, India Meteorological Department, National Institute of Sowa Rigpa, Elcom Innovation Pvt Ltd, Centre for Land Warfare Studies, CII - Indian Green Building Council, Trivitron Healthcare Private Limited, UP-STATE BIODIVERSITY BOARD, Tata Power, Apollo Hospital, ICAR-Indian Institute of Agricultural Biotechnology, Jiwaji University.
- Some of the International MoUs include Universiti Malaysia Perlis (UniMAP), Malaysia, De Montfort University, UK; University of London, UK; University of Kent, UK; Lawrence Technological University, Michigan; University of Miskolc, Hungary; Royal Melbourne Institute of Technology (RMIT), Melbourne, Australia; Turan University, Kazakhstan.
- The List of MoUs signed in 2022 is attached as **ANNEXURE - VI (A)**.

MoU Signing ceremony with the Indian Navy

MoU Signing ceremony with the Trivitron Healthcare

- The outcome of some of the MoUs signed during last few years is summarized below:-

NATIONAL

1) Council of Scientific & Industrial Research

- 223 Joint Scientific Publications emerged between Amity & CSIR scientists from various labs like NBRI, NPL, CDRI, IITR, IGIB etc.
- 4 Joint Research Projects worth Rs 250+ lakhs are presently ongoing.
- 6 projects worth Rs129 lakhs are sanctioned by CSIR and are ongoing
- 31 Joint research projects submitted to 4 funding agencies, 12 more are being worked out
- 21 PhDs having CSIR Scientists as a Co-guide
- 3 joint patents filed
- More than 150 Amity Students have completed their Internship and Dissertation at different CSIR Labs.
- 3 Joint Workshops/Symposium done recently as a SPV for Partnership/ Alliances.

- **CSIR supporting DST STUTI:**
  - 144 applicants from various CSIR Labs registered for attending the STUTI training programs at various locations
  - Various Eminent Experts from CSIR were invited as keynote speakers and resource persons in various STUTI events. Dr. Avanish Kumar Srivastava, Director CSIR-AMPRI was the keynote speaker at JNU Inaugural program. Dr. Sanjeev Kanojia, Principal Scientist at CDRI was also invited as a keynote speaker at BHU Inaugural Program.

- **CSIR Funding for Conference:** CSIR has provided 5 lakhs funding for conducting workshops in various disciplines at Amity University.
- CSIR-Amity Conclave at AUUP- Lucknow with CSIR-NBRI & CSIR-IITR was organized on 11th July 2022 and 14th July 2022 respectively. Possible partnership in areas such as Nano-agriculture, Plant Genome Engineering, Climate crops, Plant Disease Management, Biofortification etc., which are being followed up for joint projects and joint PhD including joint research publications.

MoU Signing Ceremony between Amity University-CSIR July 23, 2019, CSIR Hqrs., New Delhi.

2) **Institute of Pesticide Formulation Technology (IPFT), Gurgaon**

- Project concept was submitted "Development and validation of Organic Farming Agriculture Production system in Uttarakhand".
- Staff enrolled for Ph.D. at AUUP Noida.
- Student internships
- Expert guest speaker in Amity training program.
- Amity faculty got opportunity to join as expert for Roundtable on Sustainable Inputs for Agriculture on 09 March 2017 at 1400 hrs. at Rashtrapati Bhavan, New Delhi, (IPFT was among the organizer).

3) The Institute of Liver and Biliary Sciences, New Delhi

- A paper on Immune surveillance by Myeloid derived suppressor cells (MDSCs) in liver diseases has been communicated to Digestive Diseases
- Lecture was delivered by Dr Trehan on 16th October, 2020 at 3:15 PM on 'Human Genome and Epigenome: Relevance to health and disease'
- One Ph.D scholar completed her PhD in AIB under Dr. Navkiran Kaur and published two papers, one in cells and one in frontier in immunology with Impact Factor of 8.

4) Rajiv Gandhi Cancer Institute & Research Centre, New Delhi

- Three research grants received from ICMR, in which Co-PI are from RGCIRC
- Three Students enrolled from RGCIRC for Ph.D at AIMMSCR
- Dr. Rajeev Kumar, Oncologist & Director, Breast Surgery, (RGCIRC) is co-guide of one of the Ph.D Scholar
- Three Publications published together with RGCIRC.

- There are several other publications which are either communicated or in the final stage of communication.

5) Indian Fertility Society, New Delhi

- One Year Diploma Program jointly organized by AUUP Noida and Indian Fertility Society (IFS) for MBBS, MD in Gynaecology in Clinical Embryology and Clinical Assisted Reproductive Technology
- 31 students of Clinical Embryology (DCE) and 66 students of Diploma in Clinical ART (DCR) were trained.
- 100% students placed either at their same IFS affiliated enter where they completed their diploma or at some other reputed IVF Clinic and/or Fertility Hospital across the country. Some students went on to open their own IVF clinics.
- Rigorous teaching modules on non-clinical subjects taught by the AIMMSCR faculty and specialized guest faculty such as renowned biostatistician Dr. Padam Singh. Since the students enrolled in these programs are from medical backgrounds, the training provided on research methodology, biostatistics and analytics is crucial to help these students complete their dissertation and subsequently be able to become quality professionals in infertility to provide good patient outcomes.
- Dr. Gaurav Kant, registered as part-time PhD student at AIMMSCR
- Fertivision 2022, December 2022. Dr. Prakash Baligar participated as Chairman for plenary session. All students of the current batch also participated in the conference.
- ACE 2022 (Academy of Clinical embryologists, India), 23rd to 25th September 2022. Dr. Prakash Baligar participated as subject expert.

6) Morarji Desai National Institute of Yoga

- month duration Foundation Course in Yoga Science for Wellness (FCYScW)
- 3 months duration Certificate Course in Yoga for Protocol Instructor (CCYPI)
- In Mar 2020, Amity Institute of Indian System of Medicine (AIISM) with Morarji Desai National Institute of Yoga, Government of India successfully organized a One-month Certificate Course in Yoga for Protocol Instructor for Participants of Leh-Ladakh.
- On 09 Jun 2022 AIISM conducted an Half Day Yoga Workshop on the theme “Yoga for Positive Health and Happy Life” on the occasion of International

Day of Yoga (IDY-2022) in celebration of 100 days countdown to IDY 2022 in association with Morarji Desai National Institute of Yoga, Ministry of Ayush, GoI at Amity University Noida Campus

- Institute of Indian System of Medicine (AIISM) with Amity Institute of Training & Development organized a 5-Day DST Sponsored Training Program on "Traditional Medicine-Modern Approaches for Affordable and Accessible Healthcare" from 05 Sep 2022 to 09 Sep 2022 through virtual mode in which Dr. Ishwar V. Basavaraddi, Director MDNIY was Guest Speaker.

7) National Institute of Ayurveda

- Amity Institute of Indian System of Medicine has been running an AIISM clinic in Amity Noida campus since 2019 which was officially organized by Dr. Sanjeev Sharma, Vice Chancellor, National Institute of Ayurveda (NIA), Jaipur and Prof. K.S. Dhiman, DG-CCRAS.
- Webinar on 27 Apr 2022 on the topic 'COVID-19 and Ayurveda' in which Dr. Sanjeev Sharma, Vice Chancellor, National Institute of Ayurveda (NIA), Jaipur conducted the session as a Resource Person and put light on the important role of Ayurveda in the treatment of Corona.
- On the occasion of 7th International Day of Yoga one day program was organized by Amity University Uttar Pradesh on Zoom Platform in which Dr. Sanjeev Sharma, Vice Chancellor, National Institute of Ayurveda (NIA), Jaipur gave a wonderful lecture on Yoga.
- Planning some joint courses with National Institute of Ayurveda (NIA) at our New York Campus

8) Oncquest Laboratories, New Delhi

- Two PhDs scholars who have been registered, and Dr. Kumud Bala is outsourcing are samples to them for high end analysis.

9) Dhanuka Agritech Limited, New Delhi

- Recruiting our BSc. & MSc. students on regular basis and our also our students are going for internship on regular basis.
- Regular participation of Amity faculty as Panelist/speaker in various events organized by Dhanuka Agritech Limited, New Delhi
- Regular participation of students in their events free of cost and sponsored several events

- Participation as speaker in events/ guest lectures.
- Launched a new course in 2018.

10) Indian Council of Food and Agriculture (ICFA) New Delhi

- 4 research articles published
- Visit of Dr. Sabeer Bhatia was organized
- 2 Awards received
- Amity University was identified as Knowledge Partner by ICFA for their 11th Global Agriculture Leadership Summit & Leadership Awards 2018 from 24th to 25th October 2018 at Hyatt Regency, Bhikaji Cama Place, New Delhi and Agroworld 2018 from 25th to 27th October 2018 at IARI, New Delhi.
- Amity Logo was placed on all display. 15 students worked as volunteers for World Food Agro 2018 with stipend of Rs. 5000/- per month. Amity faculty participated as speaker in this Conference. Along with the Conference, an exhibition was also organized during this event named Agroworld 2018 held at IARI, New Delhi from 25th October to 27th October 2018.
- 30 commodity based case studies were prepared by 75 students from AIHSR, AIOA, AIFT, and AIB.
- Amity University received an Award for Academic Excellence in Agriculture.
- Regularly recruiting our BSc. & MSc. students on regular basis and our also our students are going for internship on regular basis.
- Regular participation of Amity faculty as Panelist/speaker in various events organized by ICFA.

11) Indian Spinal Injuries Centre New Delhi

- 2 Bachelor students of OT have attended ISIC for clinical posting in Rheumatology dept, ISIC in 2018
- 3 students of AIOT have completed their tele posting at ISIC in 2019
- 9 students of AIOT have completed their tele posting in tele rehabilitation unit of ISIC in 2020
- ONGOING STUDIES: Translation and cross cultural validation of Spinal Cord Injury Falls Concern Scale (SCIFCS):
- Test retest reliability of Hindi translated version of "Self Efficacy for Wheeled Mobility" Questionnaire
- Establishment of psychometric properties of "Balance Related Perceived Performance

- Measure (BPPM); for Elderly
- To establish the psychometric properties of Hindi translated version of "Capabilities of Upper Extremity Questionnaire
- No monetary involvement in clinical trials

12) Patanjali Research Foundation Trust, Haridwar, Uttarakhand

- 50 students from AIMT have visited Patanjali Research Foundation Trust, Haridwar, Uttarakhand with Dr. Ajit Varma.

13) Vardhman Mahavir Medical College (VMMC) & Safdarjung Hospital, New Delhi

- In collaboration Dr. Kumud Bala has a project on Cervical cancer and One SRF is working with Colpoclinic at Safdarjung under the supervision of Dr Sarith Shyamsunder, Head of Colpoclinic.
- On regular Amity Faculty is getting Biopsy samples which are being processed at AIB.

14) Central Council for Research in Unani Medicine (CCRUM)

- Project sanctioned on Formulation & Evaluation of Khamira Banafsha based Comestible Chocolate coated Lozenges/Troches: Prophylactic and Restorative Potential against COVID-19 Infection and associated complications.
- Amity Institute of Indian System of Medicine (AIISM) with Amity Institute of Training & Development organized a 5-Day DST Sponsored Training Program on "Traditional Medicine-Modern Approaches for Affordable and Accessible Healthcare" from 21 Feb 2022 to 25 Feb 2022 and again from 05 Sep 2022 to 09 Sep 2022 through virtual mode. In these Training Programs some candidates from peripheral unit of CCRUM also participated and exchanged their expertise/knowledge.
- Further, during both the DST Training Programs held in Feb 2022 and Sep 2022, Prof. (Dr.) Asim Ali Khan, Director General-CCRUM was invited as Resource Person and Prof. Khan conducted both the sessions on "Integrating traditional and modern medicine for Affordable health Unani Perspective" very effectively.

15) Tenet Health Edutech Pvt. Ltd. (Cliniminds), NOIDA

- Organized guest lecture on 29th Oct 2020
- Planning pharmacovigilance capacity development programme at Amity University in 2023
- Replacement talk organized on 11th Jan 2023

16) Delhi State Cancer Institute, New Delhi

- Collaboration with Dr Vinita Kumar Jaggi, MBBS, MD (Obs & Gynae), MRCOG, FRCOG, Chief, Consultant Department of Surgical Oncology (Gynecological Oncology Division) at Delhi State Cancer Institute, New Delhi.
- Dr Neha Taneja, AIPH is pursuing her PhD under her co-supervision. Pilot of 113 samples were collected from Delhi State Cancer Institute. Liquid Based Cervical Cytology and HPV analysis was carried out for early detection of cervical cancer.

17) CCS Haryana Agriculture University, Hisar

- Our Ph. D. students are using their lab and field facilities.
- Published joint papers and book chapters
- Submitted joint proposal
- Knowledge sharing through webinars and seminars

18) Catalysts Biotechnologies Pvt. Ltd (CBTPL) Delhi

- Working on collaborative papers [work on 2 papers going on]
- Purification of xylanases suggested for further investigation of applications in the company
- Guest lectures by Mr. Anil Rai (On Industrial Applications of Enzymes)
- Dr. Pavan Kumar from Catalysts Group as invited speaker for ICEIL2022
  Students have been shortlisted for internship at “The Catalysts Group” [4 students from M. Tech, BTech and MBA

19) Willmar Schwabe India Pvt. Ltd

- Three projects on alopecia, spondylitis, and anti-nociceptive are completed as part of this collaboration.
- ACCR received two ongoing industrial projects in 2022 from Willmar Schwabe India Pvt. Ltd. one is entitled, "Safety and Efficacy of standardized extract of Boswellia serrata in animal model" and the other named, "Safety and Efficacy

of Polyherbal Formulation in Urinary Tract Infection in Vivo" in which Dr. Harsha Kharkwal is the PI.

- One more industrial project is ongoing with Amity Institute of Pharmacy on Hepatoprotective formulations of Homeopathy with Dr. Swati Madan received in 2019.
- ACCR had one part-time Ph.D. student Mr. R. Valavan in AIP&P who currently holds the position of Research Head in Willmar Schwabe India Pvt. Ltd., worked on the Evaluation of Efficacy of Different Formulation of different combinations of medicinal plant extracts for the treatment of dementia

20) All India Institute of Ayurveda

- One Project entitled, "Evaluation and comparative analysis of Vitex agnus-castus Linn with Vitex negundo Linn. Leaf extracts and their analgesic, anti-inflammatory activity in experimental models along with comparative clinical efficacy of its topical applications (oil & bio patch) in knee osteoarthritis" was submitted to AYUSH
- One more research project was submitted to Central Council for research in Ayurveda and Siddha (CCRAS) in which Dr. Tanuja Nesari and Dr. Shivani Ghildiya is the PI and Dr. Harsha Kharkwal and Dr. Bhupesh Sharma, is the Co-PI. Funding is expected very shortly for this project.
- We have utilized the expertise of one of the doctors of AIIA named Dr. Galib, Associate Professor in the Department of Rasa Shastra and Bhaishajya Kalpana, by including him as an Esteemed Hon'ble External Member of the DRC Committee of our department AIP&P.
- AIIA organized the Food Expo 2021 on the auspicious occasion of Ayurveda Day on October 30, 2021. At this exhibition, one of the stalls featured innovations developed by AI&PP, and Dr. Harsha Kharkwal along with Dr. Subhash Chander represented our institute in this stall.

21) Institute of Acupuncture and Natural Medicine, New Delhi: A new program is planned for starting on Diploma in Clinical Acupuncture

22) National Institute of Disaster Management (NIDM), New Delhi

- A Training programme is being organised by Amity Institute of Environmental Toxicology, Safety and Management (AIETSM) and Amity Institute of

Environmental Sciences (AIES) on "Climate Resilience and Sustainability in Disaster Management" in association with National Institute of Disaster Management (NIDM) on March 17, 2021

- 3-day online training program was organized in collaboration of Amity University, Noida and National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Government of India.
- Webinar was organised on "Air Pollution and Health Impacts: Disaster Management" on November 2-4, 2022

23) PRATHISTA INDUSTRIES LIMITED HYDERABAD

- 10 students had undergone training for 4-6 months at the company at Hyderabad.
- Drs. Uma and Kartikya from AIMT worked with the company and now they have shifted to Ontario, Canada.
- Dr. Sairam had delivered a lecture on 17th AIMT Foundation Day. He also discussed about the further strengthening the partnership

24) Shriram Institute for Industrial Research, Delhi

- M.Sc students of AIAS go for Major Project in Shriram.
- Employees from Shriram are doing Ph.D.
- Some of the Co-guides of AIAS PhD scholars are from Shriram Institute

25) Defence Institute of Advanced Technology (DIAT): 52 M.Tech Students from AIDT visited DIAT in 2021 for practical training in the field of defence technology.

26) Pine Biotech

- 43 UG and PG Students participated in Research fellowship program by Pine Biotech along with Amity faculty as IFC.
- The students of the following UG programmes B.Sc (Zoology), and B.Sc & B.Tech (Biotechnology) and PG programmes included M.Sc. (Biotechnology, Microbial Biotechnology, Bioinformatics) and M.Tech (Biotechnology).
- The projects were in 5 different specialization tracks which include: Oncology; Infectious Diseases; Precision Medicine; Machine Learning; and Neuroscience.
- The students have also employed a wide variety of -omics data for their projects including Genomics; Transcriptomics; and Multi-Omics.

27) Indian Council for Forestry Research and Education

- ASNRSD submitted research proposals to ICFRE, Dehradun on Guidelines under Forest (Conservation) Act, 1980 for Diversion Privately Owned Forests for Non-Forestry Uses and Public-Private Partnership in a Broad Perspective in Forestry Involving Various Sections of the Society
- Faculty Members of ICFRE, Dehradun presented lectures on "Value Addition of Wood and Bamboo Handicrafts through Seasoning and Preservation" and "Quality Parameter for Wood Handicraft" during Indian Forest Service (IFS) Officers Training Course on 8th March, 2022 and 27th September, 2022 organized by ASNRSD.
- Research topics are also being ascertained with the help of ICFRE, Dehradun.

28) National institute of Sowa Rigpa (MoA)

Visited the National institute of Sowa Rigpa along with DIHAR in Aug.-Sept.2022. Done extensive literature survey on the plants the team got leads from NISR. Research plan has been chalked out.

Project proposals to be submitted in January 2023.

29) Elcom

- Internship opportunity was provided to students of ECE and PPOs received from Elcom
- Placement opportunities were provided to students of ECE. 5 students got placed.
- Research work in progress by Dr Malay Ranjan Tripathy, Professor of ECE Dept. He is working on following projects-
- High-efficiency Multi-band miniature antenna/technique for spectrum monitoring (in 30MHz to 6GHz band)
- High efficiency very long range Wide-band antenna for spectrum monitoring (in 30MHz to 6GHz band)
- Exploring campus placement of M.Tech Defence Technology students at Elcom in this semester.

30) Mahavir Cancer Sanasthan: Initiated Oral Cancer Project with Dr Ajay Vidyarthi an Oncological Surgeon under the supervision of Dr Ashok Ghosh.

31) IIT Guwahati

- Dr. Deepak Sharma: He is going to organize a National Conference on Multidisciplinary Design, Analysis, and Optimization (NCMDAO 2023) at the Indian Institute of Technology Guwahati during December 6 – 8, 2023. I am going to participate as a member of the Technical Program Committee. A lot of discussions regarding joint research and collaboration are going on with Dr. Deepak Sharma.
- Dr. Sachin Singh: He is involved in many academic and research activities in the department. We are planning to submit a joint project soon.
- Dr. Amaresh Dalal: We are in contact with each other. Dr. Amaresh is highly interested in joint work with us and the joint proposal discussion is going on.

32) IIT-Hyderabad

- Dr. Rajalakshmi: Discussion regarding joint work is going on and soon we will have an online meeting to accelerate the plan.
- In the Department of Material Science and metallurgy, I had an intense discussion with Dr. Atul Suresh Deshpandey about the Nanostructural Carbon material for Lithium Batteries. I am planning to arrange a meeting with him shortly.
- Dr. Nishant Dongri: Discussion for joint research is going on.
- Training/education/2 year M. Tech. Program in Electric Vehicle Technology
- Clinical Training and Research Activities
- Exchange of students, Collaborative Training program & Joint research projects
- Offering the Certification Program of ORACLE to our UG/PG students of AIIT. All UG/PG students of Amity Institution of Information Technology, Amity University Lucknow Campus are covered under the MOU.
- Offering the Certification Program of CISCO (Network Basics, Routing Essentials, IoT, NDG Linux to our UG/PG students of AIIT. All UG/PG students of Amity Institution of Information Technology, Amity University Lucknow Campus are covered under the MOU.
- Placement of Students, Collaborative Training
- Programmes & Joint Research Projects
- The MOU is based on a mutual desire for a broad academic and scientific collaboration permitting both parties to change practice by establishing more effective research strategies. Work proposed will be conducted respecting human rights and intellectual property rights.

- Promote communication and information exchange between the organizations and their respective members through announcements in journals, websites, and other communication modes.

33) Global Health Ltd (Medanta) Nursing

- GHL provides the facilityto deliver the guest lectures in AUH campus and also helping in the facility of external examiners for training evaluation of UG/PG of AMITY MLT students.
- GHL also provides avenues for clinical training with placement and also accommodates the entire student body undergoing allied health programs for scientific interaction, training, workshop and health checkup campaigning in theAUH campus.

34) Biodeavour Research Lab, Chennai

- 15 Days Internship on Advanced Bioinformatics and Intellectual Property Rights (IPR) to train all students and faculty members in understanding the advance concepts in bioinformatics and understanding of intellectual property rights.

35) Greennova India Pvt. Ltd

- 3 student internships
- 3 student projects on industry problems
- Dr. Semanti Chakraborty involved in Research

36) Protech Infosystem Pvt. Ltd: Industry Project

37) Jiwaji University, Gwalior: Lab Facilities Utilized

38) TCS under its - Academic Interface Program (AIP) Program

- Industry Orientation Programs to be organised by TCS-AIP.

39) Param Foundation & Rotary Club of Smart City, Navi Mumbai

- The community intervention program initiated by ASFDT has received a heartening response and has been working towards the fulfilment of its envisaged objectives.

- Noticing the meaningful initiative of ASFDT, Rotary Club Smart City Navi Mumbai and Param Foundation Navi Mumbai have donated 30 sewing machines to Amity University Mumbai.
- They helped to start cutting and stitching classes for women in neighboring villages as part of their CSR activities

40) Hexaview Technologies Private Limited, Noida

- 1 student was selected by the company and offered an Apprenticeship in final semester of BCA program.
- Industry mentor prepared training curriculum of 6 months duration and then company offered 2 years of placement opportunity
- Company also visited for placement drive of PG students.
- Feedback received from Hexaview helped in assessment of student.

41) Sam Infotech, Noida

- SAM Infotech offered Apprenticeship of 6 months to 2 students of AIIT, followed by placement of 1 year.
- Assessment and feedback of student was provided by the Company.
- Curriculum/technology to be covered during Apprenticeship program
- Company will be visiting in current academic year too for offering Apprenticeship to AIIT student.
- As per MoU company will be giving input on the designed curriculum as and when required.

42) Think Future Technologies Pvt Ltd

- One student did apprenticeship and got placed in M/s Think Future
- Company will be visiting for Campus Placement Drive
- Contribute in providing feedback for Curriculum Design and Development

43) Absolutdata Research and Analytics Solutions Pvt Ltd

- Four students did apprenticeship and got placed in M/s Absolutdata Research and Analytics Solutions
- Company will be visiting for Campus Placement Drive
- Contribute in providing feedback for Curriculum Design and Development

INTERNATIONAL

1) University of Szeged, Hungary

- 10 students have been sent to Hungary,
- 25 joint publication was done with University of Szeged.
- 6 Number of Seminar/Conference/Symposia Jointly held.
- Dr. Seema Garg has got a joint project with University of Szeged in Oct'2016
- Dr. Seema Garg visited Hungary in 2017,2018, 2019 and a team from Hungary also visited Amity 2017,2018, 2019.
- Dr. Seema Garg also received certificate of Appreciation as exemplary collaboration University Szeged.
- Prof. Klara Hernadi, received Honorary Professorship from AUUP.
- 3 Joint Guideship under the Supervision of Dr. Seema Garg and Prof Kalra.
- Dr. Mohit Yadav has joined University of Szeged as a post Doc in 2020.
- Ms. Nishat khan got full fellowship from University of Szeged for 4 months for major project from 22nd Feb 2023.
- Dr. Harshita Chawla got offer letter for Post Doc from University of Szeged

2) University of Louisiana, USA

- In November 2017, Dr. Ramesh Kolluru Vice president for Research, Innovation, and Economic Development, and Karen Burstein. Executive. Director Picard Centre, University of Louisiana, Lafayette, came to Amity Lucknow Campus on their own Expenses, to attend and give lectures in the International Conference," Impact of Environment on Women's Health" Organised by Amity Lucknow Campus and NIEHS, North Carolina, USA.
- In 2016 University of Louisiana, Lafayette appointed Prof. Qamar Rahman as Research Professor.
- In 2018 University of Louisiana, Lafayette, gave Dr. Qamar Rahman Picard Fellow which is big honour.
- They have offered exchange visits and training of students on mutual basis.

3) LENTIZ Educational Group, Netherlands

- Dr. Nutan Kaushik and team have designed a Courses in collaboration with LENTIZ.
- Organized joint event in February 2020.1. Informed all Concerned at Amity regarding Internship Availability.

- Estimated Cost for One Month Course sent to Lentiz.
- A Training was Organized by Lentiz .
- A Joint Proposal has been Submitted to them .

3) **KERNEL International Ltd., Bangladesh**

- Dr. Nutan Kaushik has received a project from Asia Pacific Network, Japan on APN CAPABLE with a Funding of INR 37 Lakhs.
- "Building Capacity to Enhance Farmer's Capabilities to Address the Challenges of Climate Change
- Using Climate Smart Agriculture Strategies" in which Kernel is an Industry Partner.
- A training workshop under this project was organized in February 2020 where three scientist from Kernel participated.
- Kernel organized Farmers training program in August 2020 under this project.
- A Joint Proposal was Submitted on Food Safety.
- A Proposal has also been Received by Amity University, Noida to Set-Up a New University in Bangladesh.

4) Institute of Technology Petronas SDN BHD, Malaysia

- Dr. Abhay Bansal, ASET is in discussion for sending some students on 2+2 B.Tech Petroleum Engineering program (UTP-Amity) Btech
- Following speakers have joined from UTP on 16th Oct 2020 for webinar:
- Prof Dr Hilmi Mukhtar- Deputy Vice Chancellor, Academic
- Associate Prof Dr Ku Zilati Ku Shaari- Dean Faculty of Engineering
- Associate Prof Dr Khaled Abdalla Elraies, Department Chair of Petroleum Engineering
- Mr Mohd Khalid Kaab, Manager Admission, Record & Marketing
- Associate Prof. Dr Vijanth Sagayan Asirvadam, Coordinator UTP-Amity Collaboration
- Prof. (Dr.) Mohamed Ibrahim Abdul Mutalib, Universiti Teknologi Petronas (UTP), Malaysia gave a talk on 11th International Conference–CONFLUENCE' 2021 themed on "Cloud Computing, Data Science & Engineering" 28-29th Jan, 2021
- Amity university Kolkata has formulated a research project to be submitted in collaboration with UTP on Resilience Building

5) Open University

- Dr John Domingue from Open University has been conferred with Honorary Professorship at ASET 2019.
- A team also visited at Amity Dubai and AUUP for discussion and attending the CONFLUENCE 2020 and CONFLUENCE 2021.
- Dr John Domingue has also been assigned a Ph.D scholar from AITT as a Co-guide.
- Dr. Siddharth Pandey has received funding to purchase scientific equipment from Open University for MARS station at Ladakh.

6) Columbia University Medical Centre, New York, USA (Radiation Oncology)

- Prof. Tom Hei came to Amity Lucknow Campus to give a key note address in the International conference," Impact of Environment on Women's Health" Organized by Amity Lucknow Campus and NIEHS, North Carolina, USA.
- Prof. Tom Hei every year hosts 22 students of Amity university, from different Amity campuses and Universities for a day and give them tour of the department with experimental support for Amity students who are opting for SAP

7) **The Ohio State University, Columbus, USA**

- Dr. Rattan Lal has been conferred with Honorary Doctorate in 2020, Dr. Ratan Lal Participated in the webinar on International Soil Day.
- Meetings and Discussions have been held with Prof. Rattan Lal, for Developing a Proposal for Opening-up a Centre of Excellence at Amity.
- Organised Joint Seminars under the Clauses of the MoU.

6.2 CONFERENCE/WEBINARS/ VISITS

- Amity among various other initiatives for facilitation of cross fertilization of ideas and thoughts, regularly organizes visits/ lectures for igniting the research acumen of its brilliant and dynamic faculty members/ researchers.
- The group has organized more than 1050 webinars/ Lectures of global relevance during the year during the lockdown period for keeping its faculty members and researchers updated with recent technological advancement in their field of research.
- In addition to this, 293 Conferences, Seminars, workshops and FDPs were organized using online mode.

GLIMPSE OF COLLABORATIVE ACTIVITIES UNDERTAKEN BY AMITY UNIVERSITIES ATTACHED AS ANNEXURE – VI(B)

6.3 HONORARY DOCTORATES/PROFESSORS

Amity University awards Honorary Doctorates to recognize and appreciate those whose life and work exemplify professional, intellectual, or artistic achievement. These distinguished persons have made significant contributions to society and Nation.

Amity University has so far bestowed 185 Honorary Doctorate degrees to distinguished persons who have made a mark at National and International level for their outstanding research & academic contributions and leadership out of which 12 were awarded in 2022.

In addition, the University has also awarded 25 Honorary Professorships to renowned Scientists, Industrialists, Technocrats in the year 2022 taking the total figure of Honorary Professors to 330.

The details of Honorary Doctorates and Honorary Professorship awarded for the year are shared below:-

LIST OF HONORARY DOCTORATE				
AUUP Noida Campus				
S. No.	**Name**	**Designation/ Position/ Organisation/ University at the time of Award**	**Award**	**Awarded on**
1	Mr. Vikas Singh	Sr. Advocate, Supreme Court of India & President of Supreme Court Bar Association	Doctor of Laws	12-Nov-22
2	Dr. Prathap C. Reddy	Founder, Chairman Apollo Hospital Group	Doctor of Science	11-Nov-22
3	Dr. Samir V. Kamat	Secretary, Deptt of Defence Research and Development and Chairman Defence Research and Development Organisation (DRDO)	Doctor of Science	11-Nov-22
4	Dr. M Srinivas	Director, All India Institute of Medical Sciences(AIIMS)	Doctor of Science	10-Nov-22
5	Mr. Chander Prakash Gurnani	Managing Director & Chief Executive Officer of Tech Mahindra	Doctor of Phlosophy	10-Nov-22

6	Mr. Maroof Raza	Indian Defence Analyst	Doctor of Philosophy	10-Nov-22
7	Dr. Matthew L. Meyerson	Professor of Genetics and Medicine, Dana Farber Cancer Institute and Harvard Medical School and Director, Center for Cancer Genomics, Dana Farber Cancer Institute	Doctor of Science	03-Mar-22
8	Dr. Robert A. Weinberg	Daniel K. Ludwig Professor for Cancer Research, Massachusetts Institute of Technology (MIT)	Doctor of Science	02-Mar-22
9	Prof. Andrew D. Hamilton	President, New York University, USA	Doctor of Science	24-Feb-22
AUUP Dubai Campus				
S. No.	**Name**	**Designation/ Position/Organisation/ University at the time of Award**	**Award**	**Awarded on**
1	Dr. Azad Moopen	Founder Chairman and Managing Director of Aster DM Healthcare	Doctor of Science	10.03.2022
2	Prof. George E. Holmes	President & Vice Chancellor of University of the University of Bolton	Doctor of Philosophy	10.03.2022
Amity University Kolkata				
S. No.	**Name**	**Designation/ Position/Organisation/ University at the time of Award**	**Award**	**Awarded on**
1	Mr. T.V. Narendran	CEO & Managing Director of Tata Steel Limited	Doctor of Philosophy	06.12.2022

LIST OF HONORARY PROFESSORSHIP

AUUP Noida Campus

S. No.	Name	Designation / Position/ Organisation / University/ at the time of Award	Institute	Date of Award
1	Dr. Broumi Said	Regional Center for the Professions, Education and Training, Casablanca Settat, Morocco, Laboratory of Information Processing Faculty of Science, Ben M'Sik University Hassan II, Casablanca, Morocco	AIIT	13-Oct-22
2	Prof. Virinder S. Parmar	Faculty in Nanoscience at the CUNY graduate Center and in Chemistry at Lehman College & Medgar, Evers College, The City University of New York (CUNY, USA)	AICCRS	07-Oct-22
3	Prof.(Dr.) Harold Goodwin	Emeritus Professor and Responsible Tourism Director, University of Place Management at Manchester, Metropolitan University	AITT	15-Sep-22
4	Dr. Alex Casson	Associate Professor, Department of Electrical and Electronic Engineering, The University of Manchester, Manchester, England, United Kingdom	ASET	26-Aug-22
5	Dr. Lotte N.S. Andreasen Struijk	Head of Center for Rehabilitation Robotics, Department of Health Science and Technology, Faculty of Medicine, Neurorehabilitation Robotics and Engineering, Aalborg University, North Jutland, Denmark	ASET	26-Aug-22
6	Prof. Peter Han Joo Chong	Professor & Associate Head of School (Research), School of Engineering, Computer & Mathematical Sciences, Faculty of Design & Creative Technologies, Auckland University of Technology, New Zealand	ASET	25-Aug-22

7	Dr. Vivek Lall	Chief Executive General Atomics Global Corporation, San Diego County, California, USA	ASET	25-Aug-22
8	Dr. Jon Jenkins	Research Computer Scientist, AST Data Analysis, Kepler Mission Analysis Lead, Co-I, TESS Mission Data Processing Lead, Co-I, TESS Science Processing Operations Center Manager, SBG/SISTER Ames Pipeline Lead, NASA Ames Research Center, USA	ASET	25-Aug-22
9	Dr. Naceur DJEBALI	Professor, Centre of Biotechnology of Borj- Cedria BP 901, Hammam - Lif 2050 Tunisia	AFAF	20-May-22
10	Prof. (Dr.) Giulio Antonini	Professor, University of L'Aquila, Italy	ASET	11-Mar-22
11	Prof. (Dr.) Anthony Ghiotto	Associate Professor, Bordeaux Institute of Technology France	ASET	11-Mar-22
12	Prof. (Dr.) Timothy O' Farrell,	Professor of Wireless Communications, Sheffield, UK	ASET	11-Mar-22
13	Prof.(Dr.) Manos M. Tentzeris	Professor Emmanouil	ASET	11-Mar-22
14	Prof. (Dr.) Ashok Agarwala	Professor of University of Maryland, College Park, Computer Science	ASET	10-Mar-22
15	Dr. Jugdutt Singh	Chief Scientist & Chief Advisor for Digital Economy, Sarawak Government Malaysia	ASET	04-Mar-22
16	Dr. Tarek Sobh	President of Lawrence Technological University	ASET	04-Mar-22

17	Dr. John M. Carroll	Distinguished Professor and co - Director of Penn State's College of IST's collaboration and Innovation Laboratory. Director, Laboratory for collaboration and Innovation, Pennsylvania, State University USA	ASET	04-Mar-22
18	Dr. Roger B. Dannenberg	Professor Emeritus of Computer Science, Art & Music, Carnegie Mellon University USA	ASET	03-Mar-22
19	Dr. Biao Huang	Professor at University of Alberta, Canada	ASET	03-Mar-22
20	Prof. (Dr.) Bhiksha Raj Ramakrishnan	Professor, Carnegie Mellon University, USA	ASET	28-Jan-22
21	Prof. (Dr.) Samir Shah	Department of Decision Sciences & MIS, Drexel University, USA	ASET	28-Jan-22
22	Prof. (Dr.) Shiaofen Fang	Chair, Department of Computer and Information Science, Director, Indiana University Purdue University, USA	ASET	28-Jan-22
23	Prof. (Dr.) Jansuz A. Kozinski	Dean and Professor, Lakehead University	ASET	27-Jan-22
24	Prof. (Dr.) Anant Agarwal	Founder and CEO of edX, Professor, MIT, USA	ASET	27-Jan-22
25	A. Hafeezur Rahman	SCIENTIST at DRDO, CVRDE	AIDT	10-Jan-22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Chapter – 7 RESEARCH ECOSYSTEM

7.1 RESEARCH CENTERS & CENTERS OF EXCELLENCE

I) Amity University has also established research centers & Centers of Excellence in niche areas to provide impetus to research activities in certain niche areas. The campus-wise list of such centers is shared below: -

a) Amity University Uttar Pradesh Noida

- Amity Food & Agriculture Foundation (AFAF)
- Amity Center for Translational Research (ACTR)
- Center of Excellence for Artificial Intelligence
- Amity Institute of Genome Engineering (AIGE)
- Amity Centre for Bio Control and Plant Disease Management (ACBPDM)
- Amity Institute of Herbal Research and Studies (AIHRS)
- Amity Centre for Agricultural Extension Services (ACAES)
- Amity Centre for Soil Sciences (ACSS)
- Amity Centre for Carbohydrate Research (ACCR)
- Amity Centre for Spintronic Materials (ACSM)
- Amity Centre for Astronomy and Astrophysics (ACAA)
- Amity Centre for Electrochemical Energy Research
- Amity Institute of Oceanography & Atmospheric Sciences (AIOAS)
- Amity Institute of Water Technology and Management (AIWTM)
- Amity Centre for Antarctic Research and Studies (ACARS)
- Amity Centre for Environmental Health and Sciences
- Amity Mega Centre for Natural and Man-Made Calamities
- Amity Centre for Interdisciplinary Research (ACIDR)
- Amity Centre for Yoga Education, Therapy and Research (ACYTER)
- Amity Centre for Cancer Epidemiology and Cancer Research (ACCECR)
- Amity Centre for Nano Medicine (ACNM)
- Amity Society for Nuclear Security
- Amity CIMA Centre of Excellence
- Centre for VUCA Studies (CVS)
- Reiki Foundation Center for the Science of Happiness
- Centre of Excellence for Sustainable Development
- Centre for Media Studies
- Centre for Cyber Forensics and Information Security
- Centre for Excellence in Photonics and Optoelectronics

b) Amity University Haryana

- Centre for BRICS Studies
- Amity Centre for Innovation In Education
- Yunus Social Business Centre (AUH-YSBC)
- AUH-E-Cell & IIC
- Centre for Financial Analytics
- Amity Centre for Linguistics Studies
- Nobel Laureate Kailash Satyarthi Centre for Child Rights & Development
- Amity Centre for Stem Cell
- Amity Centre of Excellence in Bio-Energy
- Amity Centre for Robotics and Artificial Intelligence
- Amity Centre for Bio-Energy and Bio-Fuels
- Amity Centre for NanoScience & NanoTechnology (ACNT)
- Amity Centre for Ocean Atmospheric Science and Technology (ACOAST)
- Amity Centre for Air Pollution Control (ACAPC)
- Amity Centre of Excellence in Indic and Sanskrit Studies
- Amity Herbal Centre for Medicinal Plants and Traditional Knowledge
- (AYUSH-Amity Herbal Garden and Medicinal Plants Distribution Centre)
- Kiran Majumdar Shah Centre of Affordable Innovation

c) Amity University Rajasthan

- Amity Center for Positivism & Happiness
- Amity Centre for Ocean, Atmospheric Science & Technology (ACOAST)
- Yunus Social Business Centre (YSBC)
- Amity Center for Water Studies and Research (ACWSR)
- Amity Center for Nanobiotechnology and Nanomedicine (ACNN)

d) Amity University Madhya Pradesh

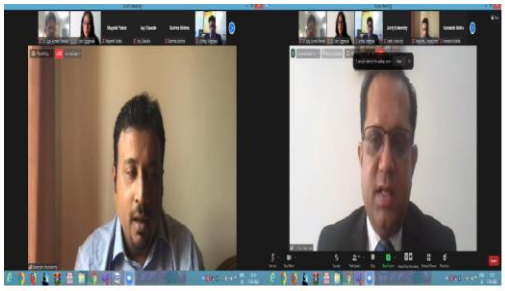
- Amity Centre of Excellence for Environmental Conservation and Biodiversity of Madhya Pradesh
- Amity Centre for Detection of Fake News and Disinformation
- Amity Centre of Excellence for Chemical, Biological, Radiological and Nuclear (CBRN) Mitigation
- Amity Centre of Excellence for Nanobiotechnology and Alternative Medicine
- Amity Centre of Excellence for Smart City-Gwalior

e) Amity University Chhattisgarh

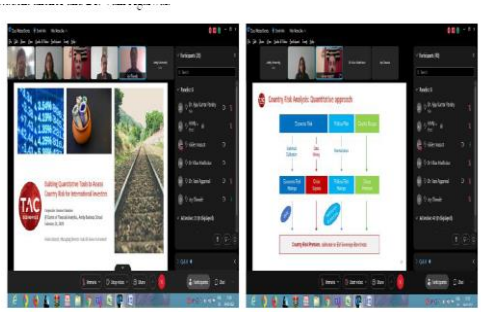
- Centre of Excellence on Tribal Studies / Development
- Centre of Excellence in Ayurvedic Medicine & Research
- Centre of Excellence on Robotic Process Automation (RPA) Technologies
- (In Association with Automation Anywhere, Inc. USA, UiPath)"
- Amity Centre of Excellence for Laws Relating to Intellectual Property Rights (IPR)
- Centre of Excellence on Gender Studies

f) Amity University Mumbai

- Centre for Computational Biology and Translational Research (CCBTR)
- Amity Centre of Excellence in Astrobiology
- Centre for Proteomics & Drug Discovery (CPDD)
- Centre for Nanoscience & Nanotechnology



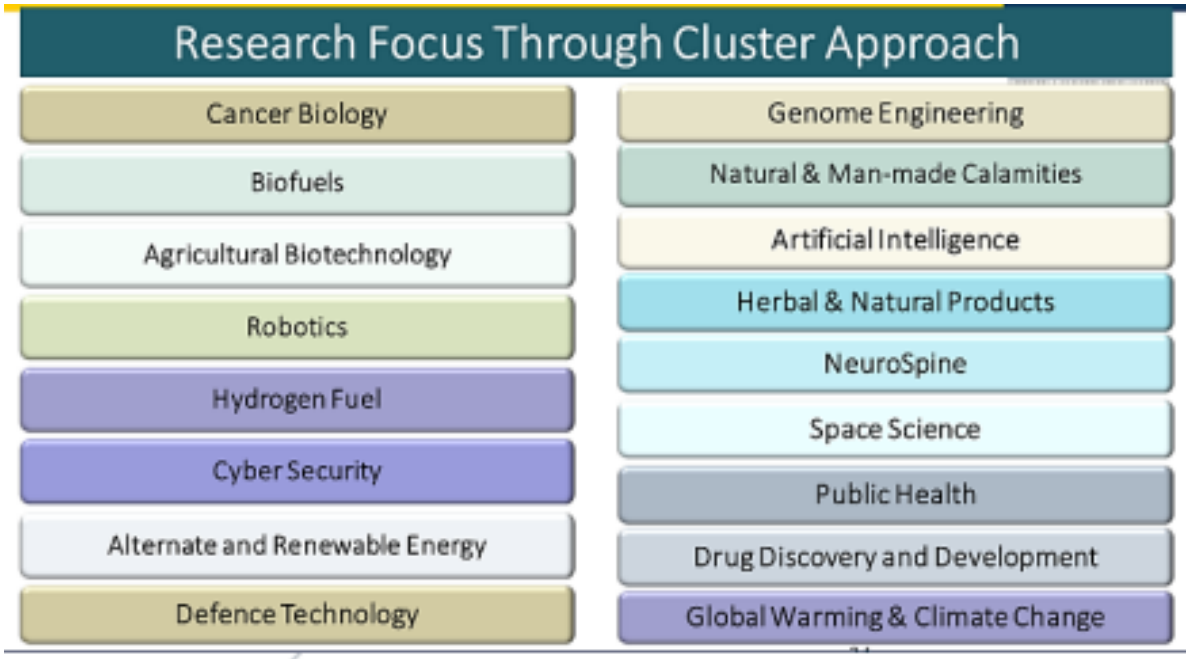
The Expert talk session initiated by Amity Haryana ABS Centre for Financial Analytics on 17th.February.2022 with Mr. Debanjan Chakraborty, VP, Digital Advisory, Edelman.



The Expert talk session initiated by Amity Haryana ABS Centre for Financial Analytics on 24th.February.2022 with Mr. Vivien Massot, MD, TAC Economics India.

7.2 Research Clusters

- Research Clusters in areas of great national and global importance have been established and are effectively functioning to act as force multiplier for synergy in Amity Group.
- Presently, 17 Thematic Clusters are functional with the focus on the interdisciplinary research and innovations in Science & Technology. These clusters are formed to bring together our brilliant faculty members, researchers, scholars, and students who share common research interests.



7.3 Pathbreaking Scientific Achievements Deliberation

Incredible efforts of Amity Faculty members, Scientists, Researchers and Technocrats who have contributed immensely in gaining global recognition in research have led to tremendous achievement by Amity University in specific research areas.

In order to give a focused understanding to these notable contributions, a forum has been established to recognize the efforts of the Scientists and also to understand the unique research work Amity Scientists have done, its impact globally and future prospects of the research.

PROCESS:

- Such interaction will be organized once in two months for two hours.
- There will be 4 Amity Researchers in each Interaction who will be allotted a time slot of 30 minutes each, during which they will deliberate on their research.
- During each interaction there will be two expert scientists per topic, who will be invited from outside who will further add value through their thoughts and reflection on the specific research, by providing experienced and valuable inputs to the Amity Scientists on further expansion of the research.
- Considering that there will be no classes in the evening on Thursdays, these interaction can be held on last Thursdays of alternate months starting from Feb'2022.
- For such interaction the name of the Scientists will be identified from all Amity Campuses who have achieved unique research breakthrough in particular areas.
- The following are the interactions undertaking by the forum in 2022:-

Date/ Month	Amity Researcher	Scientific Achievement
19th May 2022	**Dr. Subrajit Biswas**, Professor, AIMMSCR, AUUP	**Survivin**
	Dr. Manoj Garg, Associate Professor & Ramalingaswami Fellow, AIMMSCR, AUUP	**ICMR-Shakuntala Amir Chand Award By ICMR for** Excellent translational research in the field of **Pancreatic cancer**
	Dr. Dhruv Kumar, Associate Professor, AIMMSCR, AUUP	**Herbal Nano Inhaler**
	Dr. Amit Kumar Pandey, AP-I, AIB, AUH	**Mechanistic role of lncRNAs in various cancers namely Breast, Ovarian and Glioblastoma** leading to 5 research projects and publications in high impact journals
External Experts	1. **Dr. Shailendra Asthana, PhD**, Principal Scientist, Drug Discovery Research Centre (DDRC), Translational Health Science and Technology Institute (THSTI), (An autonomous institute of the Dept of Biotechnology, Govt of India)	

<table>
<tr><td></td><td colspan="2">2. Dr. Pawan Kumar Maurya, Deputy Director - DDU KAUSHAL Kendra, Professor, Department of Biochemistry, Central University Haryana
3. Prof (Dr) Thomas Kaufmann, PhD, University of Bern, Switzerland
4. Prof (Dr) Shibnath Mazumder, Professor, Dean & Proctor, South Asian University, New Delhi
5. Rajender K Motiani; D.V.M., Ph.D. Assistant Professor, Wellcome Trust/DBT India Alliance Intermediate Fellow, Laboratory of Calcigenomics and Systemic Pathophysiology, Regional Centre for Biotechnology, Faridabad
6. Durga Prasad Mishra, Scientist, Cell Death Research Laboratory, CSIR-Central Drug Research Institute, Lucknow
7. Prof. Gautam Sethi, Department of Pharmacology, Yong Loo Lin School of Medicine, National University of Singapore
8. Yury P. Rubtsov, PhD, Senior Researcher Molecular Oncology Lab, Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian, Academy of Sciences, Russian Federation, Moscow</td></tr>
<tr><td rowspan="4">25th August 2022</td><td>Dr. Atul Thakur, ACNT, AUH</td><td>N95 mask</td></tr>
<tr><td>Dr. Dattatray J Late, HEAD, CNN, AUM</td><td>Frontier area of 2D hybrid nanomaterials for novel device technology.</td></tr>
<tr><td>Dr. Kamal Rawal, Associate Professor, AIB, AUUP</td><td>AI Platform for vaccine development</td></tr>
<tr><td>Dr. Shivani Verma, Assistant Professor, AISST, AUUP</td><td>First prize in dare to dream contest titled AI based detection of person based on physiological parameters.</td></tr>
<tr><td>External Experts</td><td colspan="2">1. Prof. Sandesh R Jadkar, Head, Department of Physics, Savitribai Phule Pune University (Formally University of Pune), India
2. Prof. Subhash Kondawar, Department of Physics, Rashtrasant Tukdoji Maharaj Nagpur University,
3. Shri Prateek Kishore, Director TBRL Chandigarh
4. Shri Dinesh Kumar, Managing Director, Design-Innova Pvt ltd, New Delhi
5. Dr. Sushil Chandra, Scientist G & Head, Biomedical Engineering, INMAS, DRDO
6. Dr Savitha D K, Scientist F, CAIR, Bengaluru
7. Dr Harish Sahu, Scientist, Scientific analysis group, DRDO</td></tr>
</table>

1st December 2022	**Dr. Ujjaini Das Gupta**, AP-III, AIISH, AUH	**Decoding the intricacies of sphingolipid signaling in tumor progression**
	Dr. Seema Garg, Associate Professor, Dept. of Chemistry, Amity Institute of Applied Sciences, AUUP Noida	**Green synthesis of photocatalyst**
	Dr. Era Upadhyay, Associate Professor, AIB, AUR	Studies on global burden of diseases leading to **5 high impact publications in LANCET**
	Dr. Abhishek Verma, Associate Professor, AIARS(M&D)	**Solar Thermal Energy Storage System"**
External experts	1. **Dr. Amit Dutt**, Principal Investigator, Scientist G, ACTREC, Tata Memorial Center, Navi Mumbai 2. **Dr. Bushra Ateeq,** Associate Professor & Joy-Gill Chair Biological Sciences and Bioengineering IIT Kanpur 3. **Prof Sameer Sapra**, Professor Dept of Chemistry IIT Delhi 4. **Dr. Pravin P. Ingole**, Associate Professor, Department of Chemistry, IIT Delhi, New Delhi. 5. **Vaidya Mita Kotech**, Professor and Head, Department of Dravyaguna, National Institute of Ayurveda, Jaipur 6. **Dr Pawan Tiwari**, Associate Professor, School of Excellence in Pulmonary Medicine, Netaji Subhash Chandra Bose Medical College, Jabalpur (MP) 7. **Prof. P. K. Bhatnagar** Retd. & Visiting Professor, Delhi University South Campus 8. **Dr. Vineet Tyagi**, Senior Assistant Professor, Head, and Dean R&D, School of Energy Management, Shri Mata Vaishno Devi University, (State University), (J&K), India.	

The deliberations are attended by all relevant Faculty members, Ph.D scholars and students of Amity Universe.

7.4 Extension Activities

In its efforts to bring the knowledge generated at various labs at Amity, we have been undertaking various extension activities in the campus as well as in nearby villages.

The University also promotes regular engagement of students with the neighborhood community for their sensitization & holistic development through various activities such as blood donation, health Camps, farmers' training, environmental awareness, teaching the underprivileged, working with NGOs, etc. wherein students participate voluntarily. Various awareness programs, workshops, roadshows are conducted on cleanliness, digital literacy, environment, health & hygiene, women empowerment, gender sensitization, animal care, elderly health, disability, women empowerment. The impact of such exposure has led to sensitizing students towards social, legal issues & availability of social remedies for matters like domestic violence, dowry, child abuse, old, refugees and displaced persons. They have further become aware about conservation of water, environment preservation, careful driving on highways, concern for elderly and their special needs which has impacted them in holistic development of personality as they appreciate the complexities existing in society and need for empathy, positive approach, teamwork & balanced approach towards various issues. This has also led to the development of skills such as social, problem solving, communications, analytical & perceptual. Farmer & rural women training at KVKs for storage of agricultural produce at farm sites to minimize post-harvest losses, production of value-added products has led to economic advancement through increased income.

The University has undertaken 280+ such activities in the year 2022.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18-12-2022/रविवार/दोपहर 12:00 बजे
सुनिए कार्यक्रम बालमंच
1-चर्चा:सजग रहो,सुरक्षित रहो,गणित को बनाएं
मित्र
2-कवितापाठ:डॉ.दीपेन्द्र पाण्डेय
मुलाक़ात बाल लेखक के साथ-
मास्टर रिद्धिमन प्रताप सिंह,
प्रस्तुतकर्ता:ममता उपाध्याय


AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY CLINIC
"WORLD HEARING DAY"

GLIMPSE OF EXTENSION INITIATIVES UNDERTAKEN ATTACHED AS ANNEXURE - VII

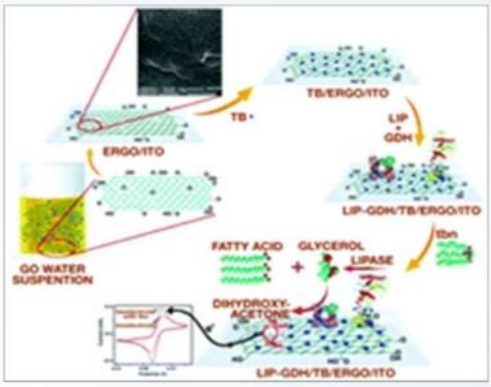
Chapter – 8 RESEARCH HIGHLIGHTS

AMITY UNIVERSITY UTTAR PRADESH NOIDA

- **Bienzymatic reusable reduced GO-based biosensors for electrochemical sensing of cholesterol and triglyceride c**

Product Features and Characteristics

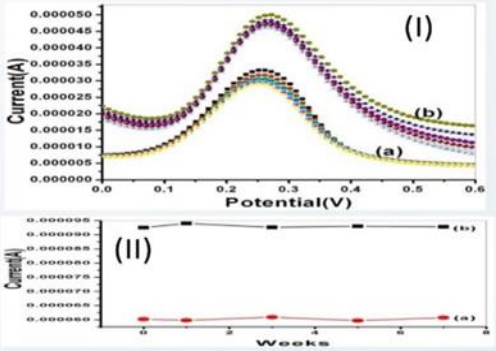
- Novel ERGO platform has been explored to fabricate a triglyceride (TG) biosensor via co- immobilizing of lipase (LIP) and glycerol dehydrogenase
- Detect tributyrin in the range of 50–400 mg dL-1 , high sensitivity of 29 pA mg-1 dL, low response time of 12 sec, tested with serum samples
- Novel amperometric cholesterol biosensor based on bienzyme system such as cholesterol oxidase (ChOx) and horseradish peroxidase
- Offer wider linearity (35 to 500 mg/dl), higher sensitivity (4.22 µAmM-1), high shelf life (8 weeks), low response time (19s)



Schematic presentation of formation of LIP-GDH/TB/ERGO/ITO electrode for Triglyceride sensing

Need and Demand

- Level of cholesterol and triglyceride in serum are important parameter in the diagnosis and prevention of heart diseases
- The risk of CAD and hyperlipidemia necessitates estimating the amount of triacylglycerols in blood
- Existing cholesterol biosensors suffer from low reliability, poor shelf life and low sensitivity and interference from other oxidisable species such as ascorbic acid (AA), uric acid (UA), and acetaminophen
- Developed sensor offers smart, simple, sensitive, rapid response and online monitoring strategy for common man usage



(I) DPV curves for reusability testing for Cholesterol biosensor (current vs. potential plot with 100 mg/dl analyte for 8 times)

(II) Shelf life measurement for 8 weeks

Unique Selling Points (USPs)

Developed sensor offers smart, simple, sensitive, rapid response and online monitoring strategy for common man usage

- **Electrochemical device for sensing of Aflatoxin B1 in Groundnut extract: Amity Center for Nanomedicine**

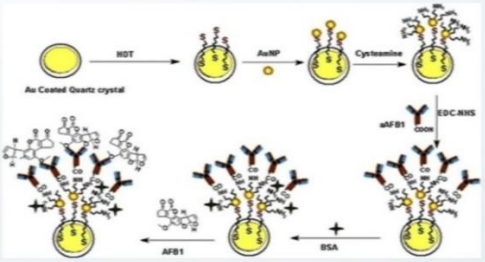
Product Features and Characteristics

- Handheld electrochemical sensor for rapid detection of Aflatoxin B1 with a linear range of 15 to 60 ppb and a sensitivity of 7.853 count ppb-1 cm-2
- Validated by LC-Ms/Ms by IARI, Accuracy level +/- 12% with LC-MS/MS
- Based on a novel self-readable smart sensing Aflatoxin B1 immunoprobe

Hand-held electrochemical device connected to self readable immunoprobe

Need and Demand

- Aflatoxin B1 is identified as group 1 carcinogenic(IARC) and also causes immune weakness, reproduction deficiency, malnutrition, and growth impairment
- Indian Council of Medical Research (ICMR)-Lucknow stated 21 per cent of groundnut in India is unfit for human consumption due to aflatoxin
- Rapid detection and affordable sensor for detection of AflatoxinB1 in ground nut extract is highly needed from socio-economic point
- Argentina ($875M), United States ($594M), Brazil ($320M), and Sudan are also huge exporters of groundnut, developed device projects huge demand in these countries



Schematic illustration of immunoelectrode antigen and antibody interaction

Unique Selling Points (USPs)

- Rapid detection and affordable sensor
- Total detection time 30 min including ground nut extract

- **Mobile App integrated hand-held organophosphate pesticide sensor: Amity Center for Nanomedicine**

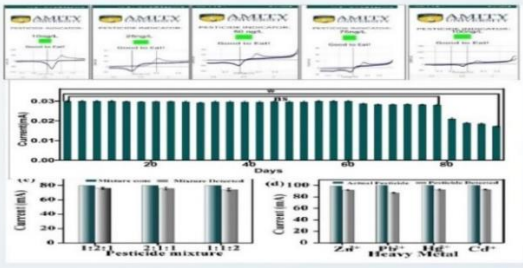
Product Features and Characteristics

- Rapid hand-held ,mobile app interfaced Electrochemical sensor for quantitative detection of Organophosphate pesticide in vegetable extract
- Operates over a sweeping potential for detection of OP (upto 9.8 ng L^{-1}) ,mixtures of OP and spiked sample vegetable extract (deviation < 15%) over linear range (10–100 ng L^{-1}) with high sensitivity (6.39 μA ng^{-1} Lcm^2), short detection time (10 min)
- Validated with standard potentiostat, and possess remarkable stability for 3 months

OP detection Hand-held sensor with plugged in OP probe and connected to mobile phone by BLE

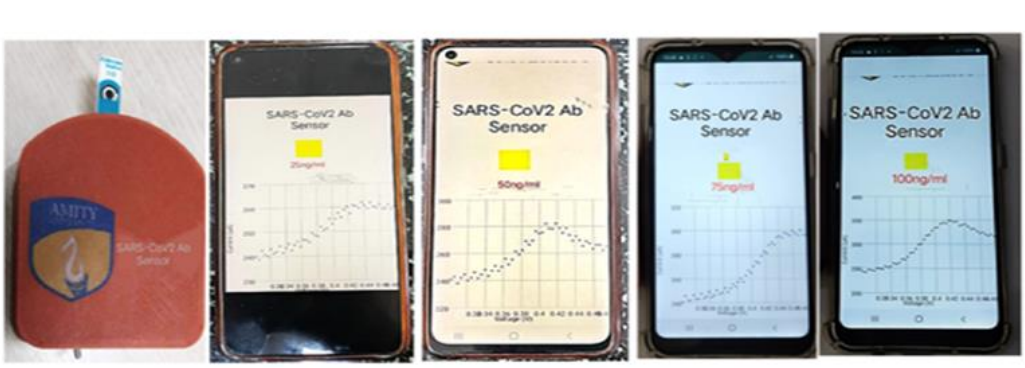
Need and Demand

- OP is neurotoxin and banned by Environmental Protection Agency (EPA)
- Despite of the fact, high efficacy, low cost, and easy availability, global market consumption of OP pesticide is predicted to reach 94.76 million by the end of 2027
- Existing commercially available sensors are qualitative, while OP tends to accumulate so their precise level (quantitative) detection is mandatory
- Boon for on-site detection of OP by farmers, safety regulators, supply chain retailers and even common man through a mobile app



(a) Detection of different concentration of OP pesticide (b) stability of OP probe (c)Detection of OP mixture(d) Study of interference of heavy metal ions

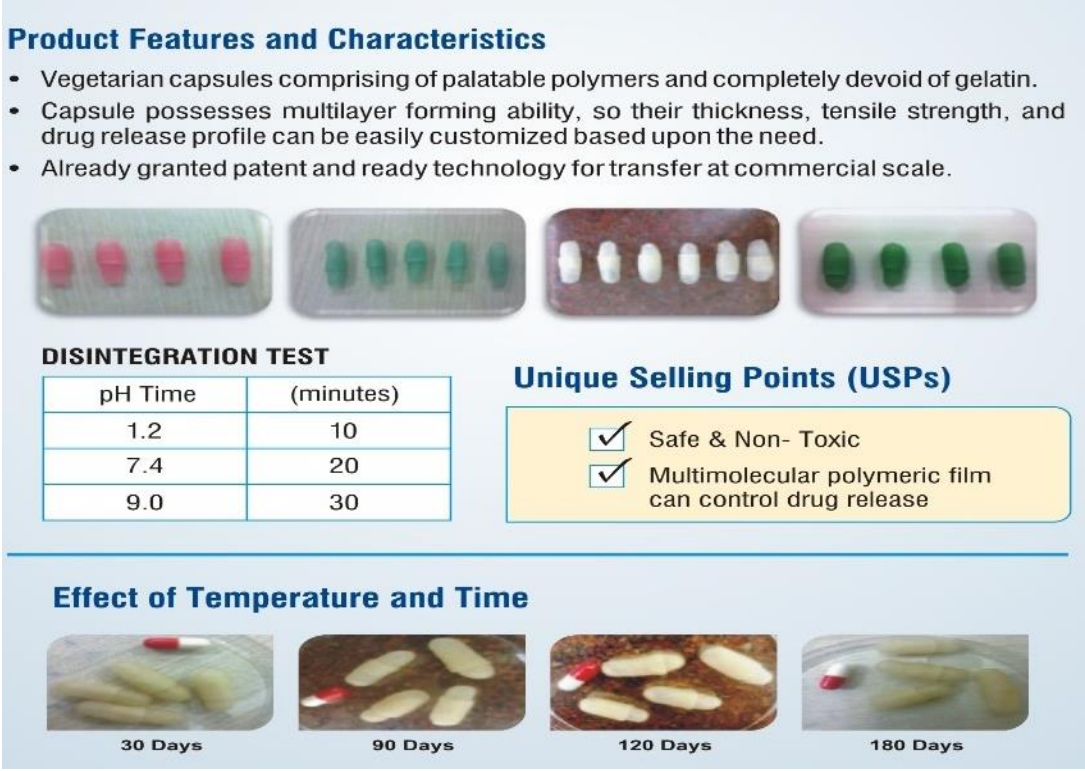
- **SARS-CoV-2 Antibody Sensor: Amity Center for Nanomedicine**



Mobile app integrated Handheld immunosensor for SARS-CoV-2 Antibody Detection

A novel mobile app integrated hand-held electrochemical immuno-sensor for rapid, on spot, quantitative detection of SARS-CoV 2 antibody. An in-house miniaturized potentiostat has been fabricated and integrated to an immunosensing probe connected to a smart phone via Bluetooth interface. The fabricated immunosensor can detect COVID-19 antibody within sensing range 10-100ngml^{-1}, sensitivity 0.539×10^{-4} mA ng^{-1}ml mm^{-2}, LOD 3.09 ngml^{-1},LOQ 9.27ngml^{-1} and linearity of 0.99575. The interference of the device in presence of the antibodies; SARS-CoV Ab, H3SKE-INFLUENZA HA1 Ab[M] (inf 1Ab), PINDA-INFLUENZA HA1 Ab [Rb] (inf2 Ab) and Dengue Ab is 8.77%, with an exception of Dengue Ab which shows an interference of 12.3%. Also encouraging result have been recorded on testing the different concentrations of SARS-CoV2 Ab spiked in serum of different blood groups B+ve and O+ve (interference <10%)). The sensor is additionally equipped with features like autocalibration and patient history management. The fabricated sensor can perform on-site detection of COVID 19 using patient sample within 20-25 minutes, and display the result on a mobile screen, make it user friendly and holds a great promise for commercialization.

- **Vegetarian Hard Capsules: Amity Institute of Phytochemistry and Phytomedicine (AIP&P) & Amity Center for Carbohydrate Research (ACCR)**



- **fNovel Edible Film: Amity Institute of Phytochemistry and Phytomedicine (AIP&P) & Amity Center for Carbohydrate Research (ACCR)**

A thin piece of material that may be consumed and serves as a barrier to the food's ability to absorb moisture, oxygen, and solutes is known as edible film. The substance can be applied as a continuous layer between food components or as a complete food coating. Edible films have the potential to be employed with food as a gas aroma barrier and can be created as food coatings and free-standing films. In recent years, edible films and coatings have drawn a lot of attention due to their advantages over synthetic films.

ADVANTAGE

- The fact that edible films can be consumed along with the packaged goods is their greatest benefit over conventional polymers.
- There is no packaging to discard, and even if the films are not watched, they may still help lessen the impact on the environment.
- These films are decomposed more quickly because they are manufactured only from edible, renewable elements.
- As long as packaged foods contain various ingredients, such as bioactive substances, these films can enhance their organoleptic qualities
- Small amounts of food that are currently not individually wrapped due to practical considerations, such pears, beans, nuts, and strawberries, can be packaged using films.
- They can also be used to modulate the rate at which preservatives diffuse from the surface to the interior of food in a related application.
- The use of edible films in combination with non-edible films in multi-layer food packaging materials is another potential application. The inner layers in direct touch with the food components in this scenario would be the edible films. Making edible films results in reduced waste and pollution.
- Small amounts of food that are currently not individually wrapped due to practical considerations, such pears, beans, nuts, and strawberries, can be packaged using these films.
- They can also be used to modulate the rate at which preservatives diffuse from the surface to the interior of food in a related application.
- The use of edible films in combination with non-edible films in multi-layer food packaging materials is another potential application. The inner layers in direct touch with the food components in this scenario would be the edible films.
- Making edible films results in reduced waste and pollution.

- **Eco friendly mulch films from agro-waste/recycling of Plastic: Amity Institute of Phytochemistry and Phytomedicine (AIP&P) & Amity center for carbohydrate Research (ACCR)**

Plastic mulch films, especially in the Indian market, mainly consist of low-density and linear low-density polyethylene, which do not readily biodegrade. As a result, these polyethylene-based mulches must be retrieved and disposed of after usage.

As a result, agricultural plastic mulch films are often contaminated with soil and are not accepted by many recycling facilities. Indeed, the presence of microplastics in farmlands resulting from nondegradable mulch film is a severe soil threat that hinders the sustainable development of agriculture. To address this critical problem, we in Amity University are collaborating with Technical University Munich wherein they will investigate different biopolymers extracted from native Indian Agro-waste properties to develop novel, cost-effective, environment-friendly mulch films and will develop biodegradable plastic mulch. The raw material utilized for making this mulch film is indigenous.

जागरण विशेष

तकनीक के प्रयोग से किसानों की राह हो रही आसान

नोवल मल्च से खेत होंगे सुरक्षित, लागत कम

सौ भाषाओं में किसानों की सहायता करेगा एप

Mulch film is made using polysaccharides extracted from seeds of Leguminous plants as such and different compositions of Mulch films are made using synergistic composition utilizing recyclable plastic.

Commercially available mulch film cost around Rs.150-180/Kg Whereas Biodegradable mulch film being developed at Amity Costs around Rs.100-120/Kg. Further, biodegradable mulch films also help reduce water consumption, ensure that nutrients and fertilizers remain close to crops or plants, and prevent fruits and vegetables from getting directly into contact with soil.

Novel mulch film (a) will maintain a conducive microclimate for plant growth, (b) will be flexible to allow mechanical installation, (c) will remain intact during the majority of the cropping season, (d) it will undergo complete degradation after soil incorporation or composting, (e) will have no adverse impact on the environment, and (f) will be very economical to be a competitive alternative to polyethylene mulch film.

- **Mosquito Repellent: Amity Institute of Phytochemistry and Phytomedicine (AIP&P) & Amity Center for carbohydrate Research (ACCR)**

Mosquito-borne diseases are those spread by the bite of an infected mosquito. Diseases that are spread to people by mosquitoes include Zika virus, West Nile virus, Chikungunya virus, dengue, and malaria. Hence there is constant need for new innovations in the field of Mosquito repellents.

01 Dec 2022 Hindi Hindustan - Noida - Page No - 02

पानी और तेल का मिश्रण मच्छरों पर वार करेगा

■ आतीष खाना

नोएडा। दिखने में छोटा, लेकिन जानलेवा 'मच्छर' वक्त के साथ ज्यादा खतरनाक होते जा रहे हैं। हालात कुछ यूं हैं कि बाजार में उपलब्ध महंगे कीटनाशक भी मच्छर पर असरदार साबित नहीं हो पा रहे हैं। ऐसे में सेक्टर-125 स्थित एमिटी विश्वविद्यालय के शोधार्थियों ने ऐसा फार्मूला तैयार किया है, जो पूरी तरह हर्बल पदार्थों से बना है और 75 प्रतिशत तक मच्छरों को मार गिराने में सक्षम है।

मलेरिया रिसर्च इंस्टीट्यूट द्वारका की जांच रिपोर्ट के अनुसार पानी और विभिन्न हर्बल तेल के मिश्रण से बना फार्मूला 75 प्रतिशत तक मच्छरों को मार गिराने में सक्षम है। यह मिश्रण टिट समेत अन्य कीटनाशक स्प्रे और दवाईयों की तरह मानव शरीर के लिए बिल्कुल भी हानिकारक नहीं हैं। स्प्रे करने के बाद इसका दिनभर असर रहता है। शोधार्थियों ने फार्मूले को तेल और लोशन के रूप में तैयार किया है।

एमिटी इंस्टीट्यूट ऑफ फाइटोकेमिस्ट्री और फाइटोमेडिसिन की निदेशक डॉ. हर्षा खर्कवाल ने बताया कि कोरोना काल के बाद मच्छरों का प्रकोप बढ़ गया है। मच्छरों से बचाव के लिए यह करीब चार वर्ष से फार्मूला तैयार में जुटे थे। इसे बनाने में डॉ. अमित, डॉ. भूपेश, डॉ. निरुपमा और डॉ. सुधाष चंद का भी सहयोग रहा। यह फार्मूला पारंपरिक औषधीय पद्धति से बना है। इसे पानी के अलावा नीम, यूकेलिप्टस, लेमन ग्रास समेत अन्य छह प्रकार के तेल से मिलाकर बनाया गया है। खास बात यह है कि इसमें 80 प्रतिशत पानी और मात्र 20 प्रतिशत तेल शामिल है। डॉ. हर्षा के मुताबिक नीम के तेल में एजाडिरेक्टिन, निम्बिन, निम्बिडिन और निम्बोलाइड। यूकेलिप्टस के तेल में साइमीन और

तेल और पानी से मिश्रण तैयार किया।

शरीर पर नुकसान नहीं

यह हर्बल पदार्थों से बनाया गया है, इसका मानव शरीर पर कोई नुकसान नहीं होगा। स्प्रे के अलावा इसे लोशन के रूप में भी विकसित किया गया है। इसे पानी में डिलाइल की तरह कुछ बूंद पानी में मिलाकर भी इस्तेमाल किया जा सकता है।

दावा: जोड़ों के दर्द से छुटकारा दिलाएगा तेल

डॉ. हर्षा खर्कवाल ने टीम के सहयोग से जंगली धान (खरपतवार), बांस की जड़, बेल की छाल आदि से एक खास तेल भी तैयार किया है। यह गठिया, जोड़ों में दर्द और सूजन से राहत दिला सकेगा। इन औषधियों को पानी में उबालने के बाद तिल के तेल में उबालकर रिफाइन किया गया है। तेल में शामिल औषधियों का आयुर्वेद में बाला की जड़ी का उपयोग जोड़ों के दर्द के लिए किया जाता है।

8-सिनोल (टेरपेन) आदि। सिट्रोनेला में यूजेनॉल, सिट्रल और लेमन ग्रास में गेरानियल (थियूट्रल), नेरल (थियूट्रल) आदि गुण पाए जाते हैं।

At Amity we have come up with a novel blend of oils along with other additives which can be formulated in different forms like cream, sprays, candles, Infusers etc.

The raw materials for extracting the oils is available in plenty and is economic in its costing. It is very efficacious as it kills around 80 % of mosquitoes. The unique blend of oils Raw material is aavailable in plenty Quickly starts working Kills around 80 % of mosquitoes

Our formulation being a novel blend of oils can be formulated in different forms thus enhnacing its commercial viability.

- **Oil for Muscle Pain: Amity Institute of Phytochemistry and Phytomedicine (AIP&P) & Amity Center for Carbohydrate Research (ACCR)**

Muscle Pain Oils available in the market give temporary relief and take long time for therapy and mostly in allopathy steroids and painkillers are given whereas in Amity innovation. we have used oils which if used consistently relieves one of the pain completely.At amity we have come up with a formulation which is novel blend of oil. All the oils together have a quick therapeutic effect. You have to take few drops of the oil and massage it for 5 minutes and it starts showing it effect by reducing inflammation and relieving one of the pain.

Novel blend of oils cost of preparation is low Oils are mostly cold pressed and few are extracted Quick action All the oils have been supported with literature.

- **Herbal Mosquito Repellent Agarbatti: Amity Institute of Herbal Research & Studies**

Technology Highlights

- ✓ Effectively repels mosquitoes.
- ✓ Contains herbal extracts & essential oils.
- ✓ Pleasant fragrance and long-lasting effect.
- ✓ Comprises base materials containing herbal ingredients that are safe and effective, pleasantly perfumed, do not irritate the skin and effectively repel mosquitoes.
- ✓ The extracts are processed with a suitable natural carrier base and can be used in the form of Agarbattis, Coils, Cones, Spray.
- ✓ The herbal mosquito repellent has no side effects and is suitable for external application.
- ✓ The effectiveness of the herbal mosquito repellent is best observed when it subjected to sustainable burning as in case of Agarbatti, Cones etc.

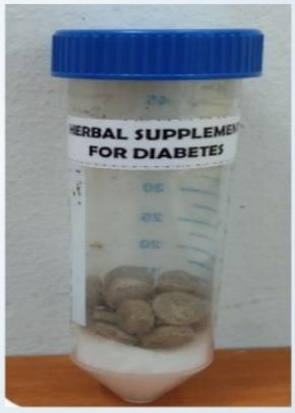
Technology advantages (USPs)

- ✓ Low smoking & Cost Effective
- ✓ Can be manufactured even at small scale and cottage level
- ✓ Can be used in form of Agarbatti, Dhoopbatti, and Cones
- ✓ Suitable for rural areas
- ✓ No Power supply is required
- ✓ Natural & Ecofriendly

- **High end dietary Supplement for diabetes: Amity Institute of Phytochemistry and Phytomedicine (AIP&P) & Amity Center for carbohydrate Research (ACCR)**

Product Features and Characteristics

- Uniquefiber blend, all designed to facilitate normalization of blood glucose
- Formulation comprises of novel fibers fortified with suitable vitamins, minerals, and whey proteins as a source of crucial nutrients.
- Nutritional supplement which can be reconstituted to a variety of caloric densities.
- Appropriate for patients with normal gastrointestinal function for prevention and correction of Diabetes.

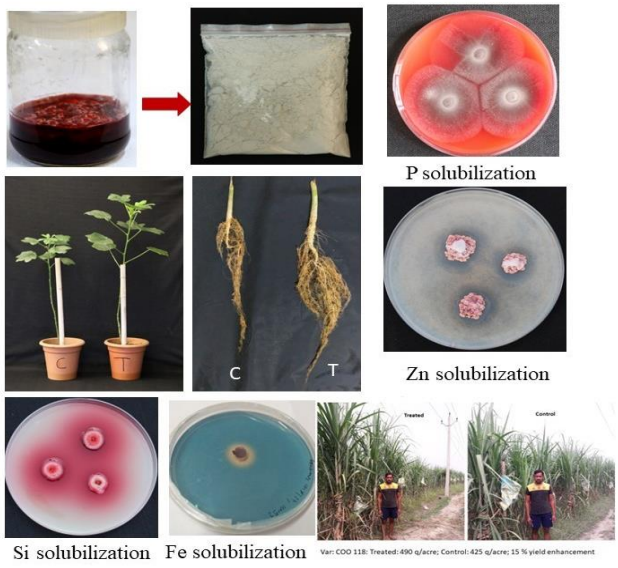


Unique Selling Points (USPs)

- No side efects
- Cost effective
- Safe to use

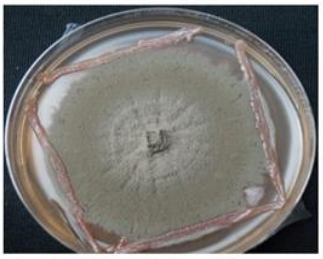
- **HNB9 Formulation (A consortia of novel plant growth promoting fungus): Amity Institute of Microbial Technology**

- ***Talaromyces albobiverticillius (formerly known as T. purpureogenus)*** **HNB9** is an axenically cultivated, novel root colonizing patented phosphate solubilizing fungal strain
- Colonization of plant roots by fungus results in pronounced growth enhancement and crop yield
- The fungus has exhibited various plant growth promoting (PGP) activities like phosphate, zinc, silica, iron solubilization and auxin production etc.



Development of a Novel Bioagent Consortia for Agriculture

- ***Talaromyces albobiverticillius (formerly known as T. purpureogenus)*** **HNB9** is an axenically cultivated, novel root colonizing patented phosphate solubilizing fungal strain
- ***Bacillus subtilis*** MB 2 NAIMCC-B-01316 is a moderately salt tolerant, phosphate solubilizing and auxin producing strain
- Co cultivation of the bacteria with fungi increases fungal spore count and size significantly
- Colonization of plant roots by the consortia results in pronounced growth enhancement and crop yield
- The consortia is nontoxic and has the potential to be a multifunctional bioagent in agriculture



Dual Culture Interaction

Root treatment of Rice plantlets

Treatments	Control	HNB9	HNB9+Bs
Yield (Qt/Acre)	18.34	26.26	29.64

Final Yield data of rice variety PB1718

Development of a Novel Biopesticide for Agriculture

- ***Talaromyces albobiverticillius (formerly known as T. purpureogenus)*** **HNB9** is an axenically cultivated, novel root colonizing patented phosphate solubilizing fungal strain
- *Metarhizium anisopliae* and *Beauveria bassiana* are incompatible entomopathogenic fungi
- Co-Cultivation of *M. anisopliae* and *B. bassiana* with the fungus HNB9 resulted in positive interaction between the two incompatible entomopathogenic fungi.
- Colonization of plant roots by fungus results in pronounced growth enhancement and crop yield
- The consortia has potential to be wide range insect biocontrol agent in agriculture.

After 20 days of inoculation, lysed hyphae of *M.anisopliae* is observed

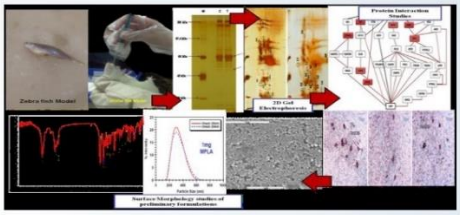
Microscopy of lysed portion on PDA plate confirmed dead hyphae of *M.anisopliae*

Bi and Tripartite interaction: After 20 days no lyses of *M.anisopliae* is observed due to *B.bassiana* in the presence of Culture Filtrate/HNB9

- **Filomicelles of combination drugs for the treatment of Brain diabetes: Amity Institute of Biotechnology**

Product Features and Characteristics

- Formulation which prevents Type 3 Diabetes having cerebral symptoms by means of a combination therapy using Metformin and Epicatechin
- The invention involves usage of Filomicelles prepared from biocompatible polymer PHA/PHB for effective drug delivery to the target receptor
- Present invention provides a method of using Metformin and Epicatechin
- The combination primarily uses Filomicelles of Metformin along with Epicatechin
- Provides the target drug delivery to brain insulin receptor to increase brain insulin sensitivity



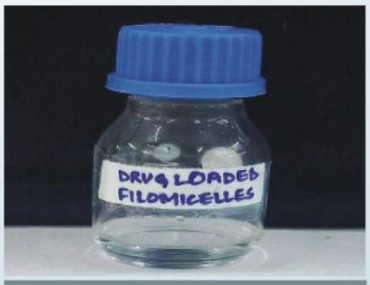
Schematic representation of preliminary work done on Type 3 Diabetes A) model development B) Proteomic Analysis C) Protein Interaction Studies D) IHC images. E) Surface Morphology of preliminary formulations

Need and Demand

- Type 3 Diabetes should be **treated as a clinical entity. As there is no drug available in the market for this pathology, the proposed drug will offer a solution for this disease.**

Unique Selling Points (USPs)

- PHA/PHB is **biocompatible polymer and non-toxic** for human system, extracted from bacteria and is **cost effective.**
- Metformin and Epicatechin are synergistic drugs and the pair offers a unique combination of **neuroprotection and antidiabetic properties so that a single drug can target this dual pathology.**

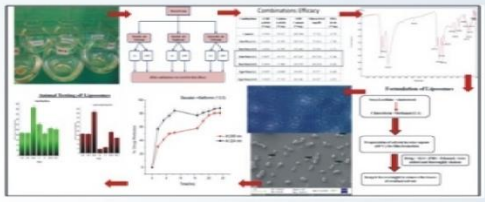


Prepared drug loaded Filomicelles

- **Targeted delivery through novel brain receptors for combating type 3 diabetes: Amity Institute of Biotechnology**

Product Features and Characteristics

- Present invention includes the method of preparation ofliposomes containing metformin and baicalein for the treatment of Type 3 Diabetes.
- Liposomes encapsulated drug combinations will target brain receptors such as Insulin receptor (INSR), Insulin degrading enzyme (IDE).
- It prevents the progression of disease.
- Targets brain receptors using the combination of metformin and baicalein.



Schematic representation of evaluation efficacy of drug combinations and liposome's formulation and characterization

Unique Selling Points (USPs)

- Improved absorption of drug and increased the biological half-life.
- Biodegradable and have the capacity to solubilize hydrophilic and hydrophobic compounds.
- Enhanced the therapeutic efficiency of drugs in comparison to conventional/ traditional methods of drug delivery system.
- Drugs transported through liposomes reached to their target sites without rapid disintegration and with lesser side effects.
- Preclinical studies for Solid Lipid Nano carriers have been performed and human validation will be carried out in future.

Liposomes containing drug combinations

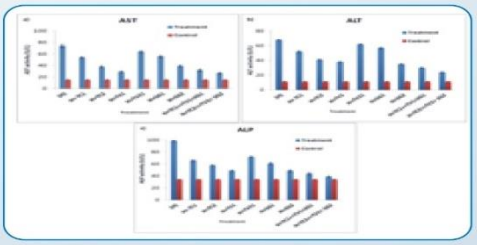
- **Novel Synergistic Formulation for inhibition of tumor growth: Amity Institute of Biotechnology**

Product Features and Characteristics

- A novel synergistic formulation for tumour growth inhibition, comprising therapeutic effective amount of sorafenib hydroxyethylate with vitamin K2 and Trans chalone for tumor growth inhibition in hepatocellular carcinoma.
- Synergistic formulation sorafenib hydroxyethylate has hydroxyethyl group on the main pharmacopore ring forming a cationic derivative.
- Simple, cost effective and user-friendly.

Unique Selling Points (USPs)

- Novel therapeutic formulation that can be taken in the form of tablets, capsules as well as drops
- Pre-clinical trials already complete and clinical validations to be done



General Overview of Insulin Pumps

- **Novel and thermostable protease enzyme for industrial applications**

Product Features and Characteristics

Proteases have applications in several biotechnological processes, research, and many industries including pharma sector. The Protease Enzyme Purified from Ginger variety is-

- Novel
- Significantly High activity
- Source- Ayurvedic herb (Ginger-household spice)
- Thermostable
- Anticancer potential (In vitro)

- Protease enzymes account for nearly 60% of the industrial enzyme market in the world.
- According to Markets and Markets, the industrial enzymes market is projected to reach USD 8.7 billion by 2026.
- The global protease market is projected to grow at a CAGR of 5.8% during the forecast period (2022 - 2027) (Mordor Intelligence Report).
- Acc.to Market research future-Proteases Market is expected to grow at a 5.5% CAGR and reach USD 5,762.9 Million by 2030

Industrial Application Development Avenues

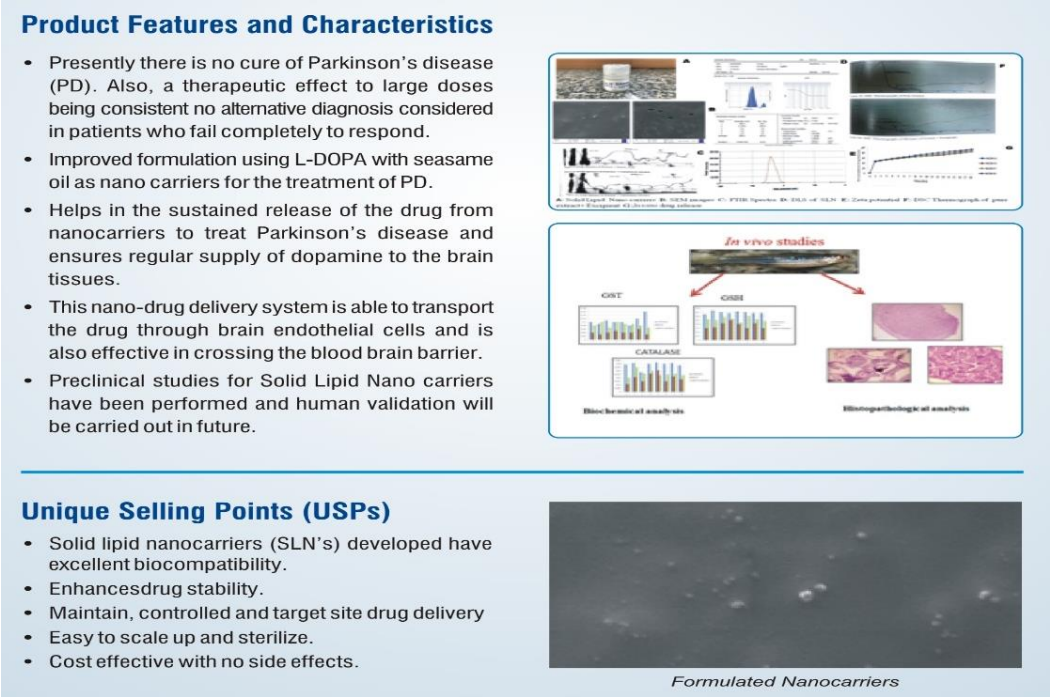
USP in relation to Industrial Sectors
A novel thermostable protease enzyme from plant source (household spice) with significantly high specific activity
USP in relation to Pharma sector
A novel thermostable protease enzyme from plant source (household spice) with significantly high specific activity exhibiting substantial cytotoxic effect against Human Breast Cancer Cells

Unique Selling Points (USPs)

The Novel Protease candidate have applications in several biotechnological processes, research, and industries including-

- Food processing
- Detergent
- Breweries
- Textile
- Leather
- Dairy
- Baking
- Beverages
- Poultry
- Infant Formula
- Bakery
- Soy
- Silk
- Meat
- Chemical
- Industrial Waste Mgmt.
- Silver Recovery
- Pharmaceutical Industries

- **Novel composition of Natural L-DOPA for the treatment of parkinson's disease: Amity Institute of Biotechnology**



- **DrugX Platform- Artificial Intelligence-Based drug repurposing system: Center for Computational Biology and Bioinformatics (CCBB), Amity Institute of Biotechnology**

  Artificial intelligence (AI) enabled drug repurposing, has potential to shorten the time and reduce the cost compared to de novo drug discovery. Creation of heterogeneous networks: SARS CoV-2 Interactome-An expert curation strategy was combined with a text mining system to screen over 552700 relevant abstracts. We obtained 107 interactions amongst the pertinent genes, 820 interactions between genes and drug molecules, 4045 interactions between drug molecules and side-effects and 8403 interactions amongst the drug molecules. Utilizing all these interactions, we constructed 5 heterogeneous networks covering the molecular pathophysiology of the COVID-19. These networks include CoV-Human, CoV-CoV, drug-CoV, drug-drug, and drug-side-effect. We also obtained a scale-free multi-layer network of 189 nodes and 554 edges, composed of 20 SARS CoV-2 genes, 148 human genes, 7 drugs, and 14 side-effects. Further, we deployed an automated docking pipeline on several drugs and targets to identify network-based binding propensities [Rawal et al 2022].

Artificial Intelligence-based Multi-Modal Pipeline: We also developed a multi-modal pipeline named Cov-DrugX (http://drugx.kamalrawal.in/drugx/) to repurpose drugs for COVID-19 treatment. It incorporates several independent modules used for ranking and characterising the drugs. Each module utilises data from diverse sources, such as the DGIdb, DrugBank, SIDER, etc. We have labelled these modules as DL-200, D-Side_Effect, D-Target, D-Gene_Expression, D-Dock, D-Circuit, D-AI_ranking, and D-Symptoms. We have incorporated a deep-learning (DL) system (multi-layered neural network) in modules such as DL-200 and graph neural network in D-AI_ranking. A new scoring mechanism is introduced to standardise heterogeneous outputs generated by different modules.

We have shown applications of COV-Drug-X on COVID-19 related drugs such as molnupiravir, ritonavir, cilostazol, and rabeprazole. Further, we have conducted screening of 2700+ FDA approved drugs and identified ramipril, imatinib, mitoxantrone, and rifampicin as the top-ranking hits. Next, we also screened large chemical and drug libraries using our platform. This exercise has revealed cyclosporine as one of the top-ranking candidates. To support our predictions, we created evidence against each top-ranking hit using the literature search [Verma and Rawal et al 2022].

- **Vaxi-DL system-web-based deep learning (DL) software: Center for Computational Biology and Bioinformatics (CCBB), Amity Institute of Biotechnology**

We have developed a web-based deep learning (DL) software that evaluates the potential of protein sequences as vaccine target antigens. The software provides four different pathogen models which enable the user to choose a specific model according to the query sequence. The four different DL pathogen models (bacteria, protozoa, fungi and virus) were trained using Positive (antigenic sequences) and negative (non-antigenic sequences) datasets.

Vaxi-DL is a web-based tool for the identification of potential vaccine candidates (PVCs) in bacterial, fungal, protozoan, and viral pathogens. It is the first server that incorporates deep learning-based strategies. The system

is designed to evaluate multiple biological and physicochemical features of pathogenic proteins to identify ideal PVCs. We tested the predictive ability by internal k fold cross-validation on training sets and by external validation on test sets. We found that accuracies range from 92% to 96% in various validation datasets. We compared the performance of Vaxi-DL with other already available tools such as VaxiJen. In the bacterial model, Vaxi-DL performed better than VaxiJen in terms of validation accuracy (Vaxi-DL: 95%; VaxiJen: 82%), sensitivity (Vaxi-DL: 96%; VaxiJen: 91%), and specificity (Vaxi-DL: 96%; VaxiJen: 72%). Similarly, in the viral model, Vaxi-DL has shown better accuracy (Vaxi-DL: 92%; VaxiJen: 87%), sensitivity (Vaxi-DL: 92%; VaxiJen: 91%), and specificity (Vaxi-DL: 92%; VaxiJen: 82%).

- **Vaxelan system: Center for Computational Biology and Bioinformatics (CCBB), Amity Institute of Biotechnology**

  https://vac.kamalrawal.in/vaxelan/v2

  We have designed and developed a new computational system to discover and analyse novel vaccine targets leading to the design of a multi-epitope subunit vaccine candidate. The system incorporates reverse vaccinology and immuno-informatics tools to screen genomic and proteomic datasets of several pathogens such as *Trypanosoma cruzi*, *Plasmodium falciparum*, and *Vibrio cholerae* to identify potential vaccine candidates (PVC).

- **Novel machine learning based tool to triage patients requiring panel based NGS testing in a resource constrained setting: Center for Computational Biology and Bioinformatics (CCBB), Amity Institute of Biotechnology**

  Our study suggests that routine CT imaging combined with a fully automated lung nodule analysis artificial intelligence system can predict EGFR genotype and identify patients with an EGFR mutation in a cost effective and non-invasive manner. The performance metrics of the AIPS model for both the Indian and the White population suggest that CT imaging provides information that complements clinical factors. AIPS could be a good supplement to biopsy sequencing because the EGFR genotype predicted by AIPS was significantly associated with patients' EGFR mutation status.

Patients confirmed to have an EGFR mutation by both gene sequencing and AIPS showed precise prediction of EGFR mutation status. By contrast with previous artificial intelligence-based studies, AIPS detects lung nodules, characterises five features using deep-CNN, and predicts the EGFR genotype. It showed promising performance in the validation dataset of the Indian population, unlike the majority of the models trained and validated either in the White or Chinese population.

We assessed the generalizability of the AIPS model because the EGFR mutation rate differs between ethnicities [Recondo et al., 2018; Wu et al., 2020; Leonetti et al., 2019]. Hence, we trained the model using data from an Indian population and tested it using data from a White population; AIPS performed promisingly in these different populations. Additionally, the AIPS model was trained with all types of lung cancer instead of only adenocarcinoma cases, eliminating the need to identify adenocarcinoma when using this system. AIPS is fully automated and does not require any time-consuming CT imaging annotation, which is more convenient for use in clinical practice. Most importantly, we found that genotype can be obtained from the lung nodule. Consequently, mining lung-nodule information should have great potential in analyzing lung cancer.

Although AIPS was trained to predict EGFR genotype, the strong associations between the deep learning features and many other genes could show the potentiality of AIPS in predicting multiple gene markers in lung cancer.

- **Building integrated pipeline for cancer genome analysis: Role of mobile genetic elements in cancers: Center for Computational Biology and Bioinformatics (CCBB), Amity Institute of Biotechnology**

  Mobile genetic elements (MGEs) comprise a major portion of the human genome and are essential for genetic diversity. We aim to use genome next-generation sequencing data and appropriate bioinformatics tools to accurately identify the insertion sites of MGEs in the human genome. Herein, we introduce the MeX pipeline for the localization and annotation of MGEs in paired-end sequencing data. It requires the reference genome sequence, MGE sequence assembly and paired-end sequencing reads. We evaluated

MeX on high depth (>75×) Illumina HiSeq data produced at the Broad Institute (NA12878) against human genome 38-built (including only chromosome 1, 10 and 11) and Alu elements assembly. We could identify 78 reference and 1 non-reference Alu insertions in the NA12878 sample. Upon annotation, it was found that the non-reference Alu element was in the 3' UTR region of the RNF2 gene. Out of 78 reference insertions, 42 were in the intronic region, 7 in the upstream region, 5 in the downstream region, 1 in the 3' UTR region and the rest were not associated with any gene. MeX showed high performance for the identification and annotation of MGEs in genome samples. This study showed that MeX is a robust and powerful tool for identifying and annotating MGE insertions. It may also serve as a valuable tool to study the phenotypic changes resulting from transpositional events in cancer genomics.

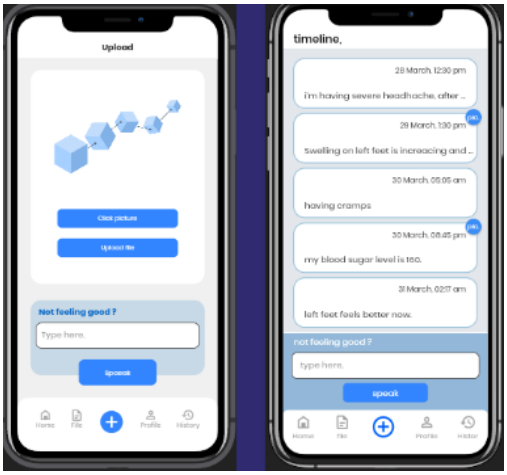
- **A healthcare service providing platform focused on consultation and creating a centralized digital health database: Amity Institute of Biotechnology**

  Trying to solve a problem of Low Doctor Patient ratio, Lack of interoperability and lack of health insights by focusing on convenience, Accessibility, Efficiency and precision through our app which contains a health profile.

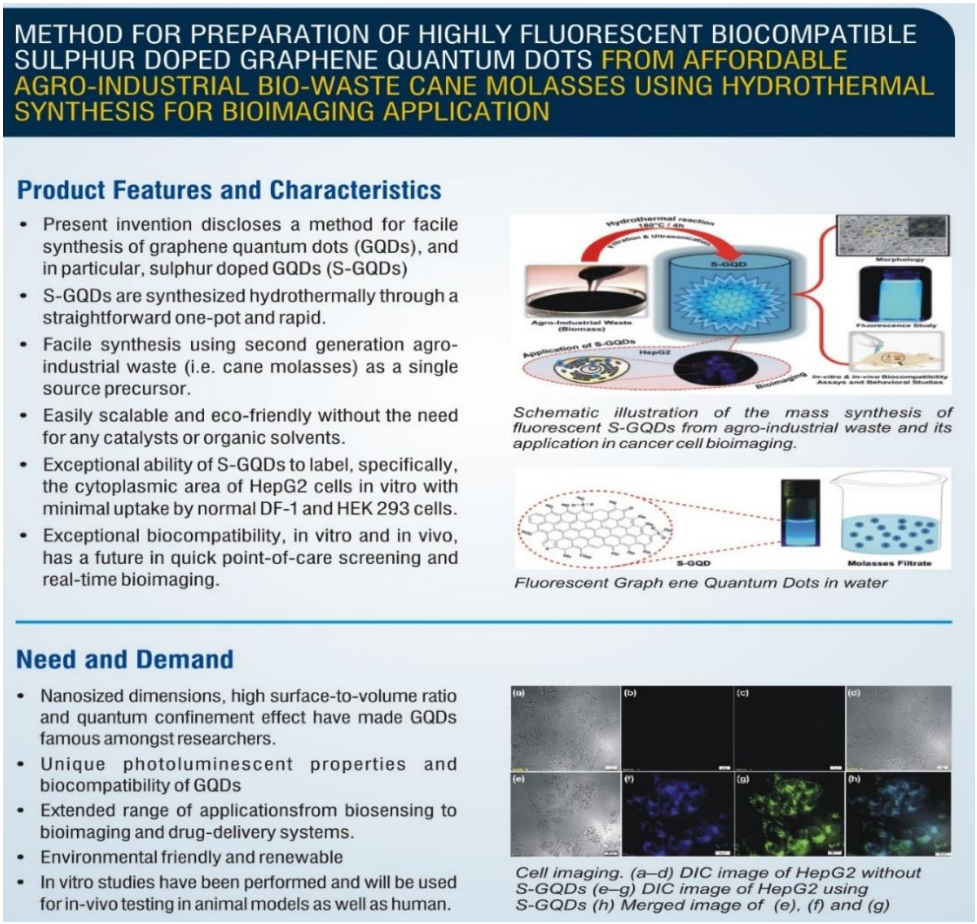
Our Services:

- Secured medical records accessible any time anywhere.
- A central health database with a personalized dashboard for self-monitoring and doctors' knowledge.
- Telehealth facilities improve access to care, health outcomes, and geographical barriers.
- Track and monitor medical conditions pivotal in preventive, promotive, and curative health.
- Seamless transfer of patient records from one service provider to another.
- It uses common data definitions.
- Patients can independently create their health profile.
- It takes in all types of patient data.
- The medical record is accessible to all parties involved in care but with only patient allowance.

- The system includes templates and expert systems for each medical condition.
- Patients can store and share ongoing treatment progress or complications with a single click.
- The system architecture makes it easy to store and share information.



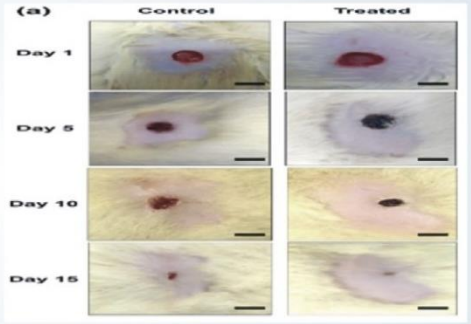
- **Highly Fluorescent quantum dots from bio-waste for bioimaging applications: Amity Institute of Click Chemistry Research and Studies**



- **N- Doped carbon nano sheet based hydrogel composite for wound healing: Amity Institute of Click Chemistry research and studies**

Product Features and Characteristics

- Hydrogel nanocomposite for biomedical and/or pharmaceutical applications of non-biodegradable polymeric hydrogels containing antimicrobial two dimensional (2D) carbon nanosheets (CNS) as fillers.
- Provide pH-responsive composite composition of material in which nanosized 2D carbon sheets are uniformly dispersed in polymer matrix
- The composite may be used as carrier for therapeutic agent for long duration and as a dressing for topical wounds, cuts, etc. on human body and. Accelerates diabetic wound healing.
- Increased mechanical strength, good viscoelastic properties and could slowly release the therapeutic payload at a particular pH in a controlled fashion.
- Can control wound moisture, absorb inflammatory cytokines and dead cells from the wound and form a barrier to the microbes.
- Facilitate quicker proliferation and migration of epithelial cells, fibroblast and keratinocytes to the wound bed leading to faster wound healing.



(a) In vivo study depicting control and hydrogel nanocomposite treated photograph of Wistar rat wounds at days 1, 5, 10, 15. Control (Panel I) Treated (Panel II). Scale bar 10 mm.

Synthesised hydrogel nanocomposite

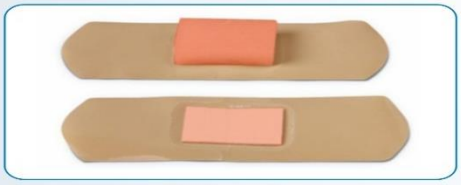
Unique Selling Points (USPs)

- Medicament to treat diabetic wound leading to improved patient condition.
- Can decrease chances of amputation and other complications.

- **Bandages for immediate pain relief and accelerated healing: Amity Institute of Pharmacy**

Product Features and Characteristics

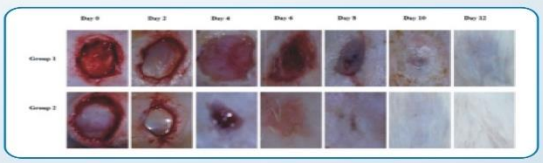
- Novel quad layer bandages for immediate relief from pain and wound healing.
- Quad layer bandage including; local anaesthetic, metal nanoparticles coated with nerve stimulants, adhesive backing and fluid absorption layer, will accelerate the process of wound healing,along with superior antibacterial action.



Novel Quad layer Bandage

Need and Demand

- Indian is among country with high number of wound injuries.
- Most of the currently marketed products only provide antiseptic and antibacterial property.
- Even after applying bandages to user, He / She suffers from pain related to injury. Our product provides immediate pain relief.



Wound Healing Activity in Animal Model

Unique Selling Points (USPs)

- Provides immediate pain relief
- Superior antibacterial action
- Accelerated wound healing process
- Cost Effective

- **Discovery of Sanal Flow Choking and Streamtube Flow Choking: - Paradigm Shifts in Central Science for Resolving Century-long Unresolved Problems in Physical, Chemical and Biological System**

  Amity Institute of Aerospace Engineering proved conclusively the occurrence of the phenomenon of streamtube flow choking due to the *sonic-fluid-throat* effect in both internal and external flows at a critical total to static pressure ratio. The fundamental understanding of the causes and consequences of the boundary layer blockage persuaded flow choking (Sanal flow choking) in internal flow system and Streamtube flow choking in both internal and external flow systems received considerable attention in the global scientific community because the concept of *sonic-fluid-throat* effect due to these flow choking phenomena helps for resolving century-long unresolved problems in physical, chemical, and biological systems. Connected findings are published in various flagship journals [(*Physics of Fluids* (2022), *Nature Scientific Reports* (2021), *Circulation Research* (2022), *Global Challenges* (2021)]. After invoking the laws of thermodynamics researchers across the country corroborated through *closed-form analytical, in vitro, in silico* and *in vivo* studies that all flowing fluids (including water and blood) are compressible and viscous, and the flow choking occurs at a critical pressure ratio in any fluid flow system irrespective of the incoming velocity. The theoretical discovery of the phenomenon of Sanal flow choking and/or Streamtube flow choking in real-world fluid flow systems encompasses disruptive technologies at the cutting edge to elucidate numerous unanswered research questions in central science and it further sheds light on exploring the causes of environmental and supernova explosions. Lead researchers from Amity University will be presenting the flow choking concept at the 2023 NASA human research investigators' workshop at Texas, U.S.A, during February 2023. It will accelerate the prestigious human space flight research project of India.

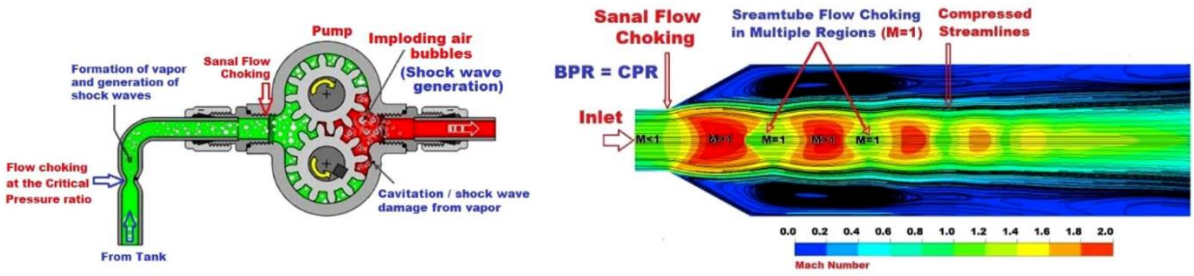


Fig.1 Demonstration of Sanal flow choking and Streamtube flow choking (Physics of Fluids, 34, 2022) https://doi.org/10.1063/5.0086638

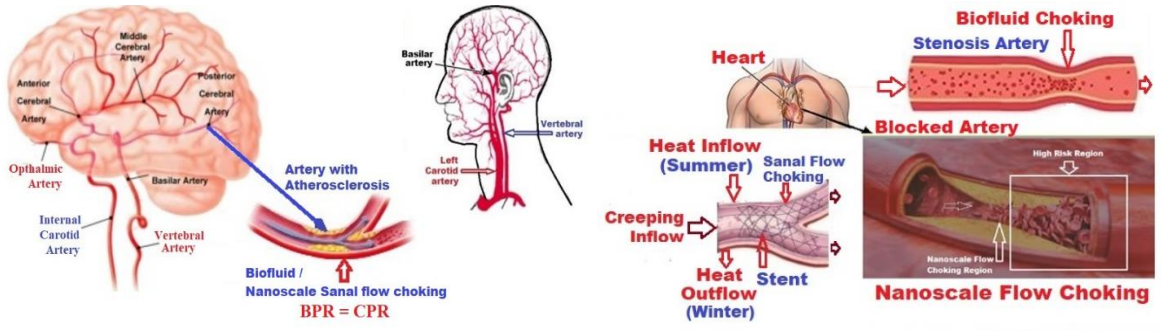


Fig.2 Demonstration of Sanal flow choking in circulatory system (Physics of Fluids, 34, 2022; https://doi.org/10.1063/5.0105407; (Scientific Reports, 2021; https://www.nature.com/articles/s41598-021-94450-8).

- **Milk thistle leaves for treatment of diabetes: Amity Institute of Environmental Toxicology, Safety and Management**

  Insulin resistance relates to a chronic condition when body cells are unable to sense insulin resulting in high blood glucose levels, leading to type 2 diabetes mellitus (T2DM). One of the reasons is misregulation of insulin signalling mechanism. Protein tyrosine phosphatase-1B (PTP1B) has been observed to play a key role in signalling cascade. Therefore, drugs targeting PTP1B inhibition are getting attention. *Silybum marianum* (milk thistle) leaves are chosen as herb with a rich source of phytochemicals with medicinal properties for studying PTP1B inhibition and docking was performed with silydianin, naringenin, and eugenol of milk thistle which showed high binding energy (-8.2, -6.8, and -4.8kcal/mol respectively) for PTP1B inhibition. Further in-vitro studies conducted with leaves extract showed increased glucose uptake by yeast cells. PTP1B inhibition was studied by mixing protein and substrate with methanol extract of milk thistle. Measuring optical density of suspension indicated inhibition of PTP1B. Optical density of extract with substrate and protein were found to be in decreasing indicating PTP1B inhibition. The results signify the potential of the extract in treating insulin resistance by increasing glucose uptake and inhibiting insulin resistance and diabetes.

  After extensive review, it was observed that though the plant is a traditional herb with many medicinal properties, not all plant parts have been studied for anti-diabetic properties. PTP1B inhibition using phytochemicals present in milk thistle leaves were not explored much. The focus of the present invention is to

extract the active compounds from the leaves of the milk thistle plant and observe its efficiency in increasing glucose uptake and inhibiting PTP1B protein, thereby ameliorating insulin resistance. The new application will be beneficial for preparing diabetes medicament.

Phytochemicals from milk thistle were docked with PTP1B and binding energies were analysed . Optical density for PTP1B inhibition assay was measured by mixing substrate, protein, and extract. Decreasing optical density signifies PTP1B inhibition. Increase in glucose uptake by yeast cells in the presence of extract was studied. Increasing optical density signifies increase in glucose uptake by the cells

- **Pocket size Silver Nano based water purifier (Amity Institute of Advanced Research Studies (Materials & Devices), Noida)**

  A recent World Health Organization (WHO) and United Nations International Children's Education Fund (UNICEF) report finds that 2.2 billion people, more than a quarter of the global population, live far below contemporary standards for safe water and sanitation. Although access to drinking water has improved, the World Bank estimates point out that 21% of communicable diseases in the country are related to unsafe water.

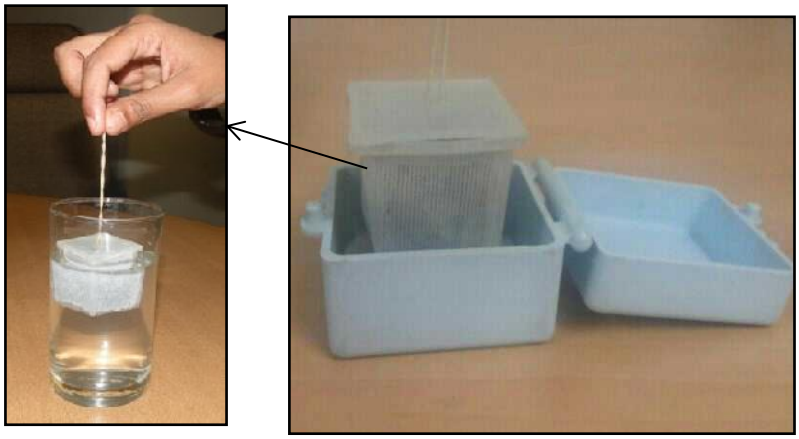
  Scientists at Amity University have generated Nano silver particle based concrete pebble and developed a **"Pocket friendly Water Purification Device"** like a tea bag requiring to be dipped in a glass of water for 2-3 minutes, to turn it into clean drinking water. The product is likely to be priced at an unimaginably low cost as compared to other products in the segment.

  The green technology based device is reusable, economical and easy-to-carry, first of its kind water purifier based on silver nano embedded porous concrete pebbles. The Eco-friendly purifier provides around 99 % decontamination of microbial load in the treated water. The device has very good reusability and its efficacy remains the same even after 500 uses of the same pebbles within a time span of 6 months. The Purifier can kill microbes without consuming any energy. It can be reused to cleanse nearly 1000 liters of water in a time span of six months.

  The device is bio-fouling resistant and has been tested and Certified by NABL accredited labs. The portability, re-usability and affordability of the system

makes it usable in rural & remote areas and low cost makes it affordable by even marginalized strata of the society.

The Purifier can also substitute bottled water. Just dip the purifier in a glass of water for few minutes and the water is free from microbes. The device has a potential to capture international market also since clean water is need of the hour globally.



Reusable water purifier using silver nano embedded porous concrete pebbles based on green technology

- **WALL MOUNTED WATER PURIFIER**

DEVELOPED USING NANO SILVER CANDLE UNDER WTI PROGRAMME (DST)

The water purifier had won the prestigious award of Power of Idea-2012 a programme conducted by The Economic Times in partnership with the Department of Science & Technology (DST), Government of India and IIM Ahmedabad. The technology has also been awarded Leaders in Innovation

Fellowships (LiF): 2015 conducted by RAEng, London, UK. The Water Purifier device was also selected in the first best 40 innovative technology from all over India by National Innovation Foundation & Indian Council of Medical Research for the Exhibition in "Festival of Innovation" at Rashtrapati Bhavan, New Delhi.

- **Self -sustained system for Generating electricity while wastewater remediation (Amity Institute of Advanced Research Studies (Materials & Devices), Noida)**

Industrial wastewater is one of the major causes of environmental pollution leading to depletion of aquatic flora and fauna. Approximately 80% of all wastewater is discharged into the waterways across the globe which has been a major cause of concern as it harms the health of all organisms, as well as the environment. Amity University endeavors to make use of its scientific strength for the benefit of mankind and society by taking its technology from Lab to Land.

An innovative technology has been developed for Generation of electricity from industrial waste water and self-cleaning of the same water simultaneously without using any outside power or any chemical. The user has to dip two specially designed electrodes made from different materials in the dark colored industrial waste water. The system is capable of generating the electric power and cleans the water, simultaneously through an electrochemical process.

The experiments have been conducted using a small quantity of waste water at Laboratory scale which resulted in generation of power of about 4 watt which was sufficient to light a LED lamp for four or even more hours as well as cleaning the water. This system is being upscaled and proves itself highly useful for use by the industries before releasing the water into the rivers.

- **Solar Photovoltaic Panels and Agriculture for Optimizing Land Use (Amity Institute of Advanced Research Studies (Materials & Devices) & Amity Institute of Organic Agriculture, Noida)**

Farmers are the backbone of Indian economy. However Farmers are not getting commensurate return for their efforts. To double the income for the farmers, the same agricultural land can be used both for cultivation of crops on the land and harnessing the solar energy using Amity Agri voltaic technology.

Scientists from Amity have conducted extensive research on this Novel application of "AgriVoltaic" Technology which can significantly enhancesthe economic development of our farmers' particularly small and marginal farmers. The research was conducted in a very systematic manner keeping in mind aspects such as optimization of space between two poles of photovoltaic, implementation of pressure at which the water sprinkler has to work, movement of shadows on land, economics of net income which farmers can generate through implementation of Agri-Voltaic system if a farmer possesses one or more acres of land etc.

The advantage of this technique is that same agricultural land is being used for two applications i.e. cultivation and energy generation. The efficiency of solar panel which is prone to heat at the bottom of panel, is also enhanced by moisture and transpiration from plants which cool the bottom of photovoltaic surface removing the heat in the back of solar panel and thereby improving efficiency of photovoltaic panel. The dust which normally settles on the upper surface of the photovoltaics are removed by water sprinkler attached on the top of the solar panel which is kept in inclined position. These water sprinklers also operate using solar energy generated from the same photovoltaic by running water pump. The water after cleaning the surface can be used to irrigate the plants as well.

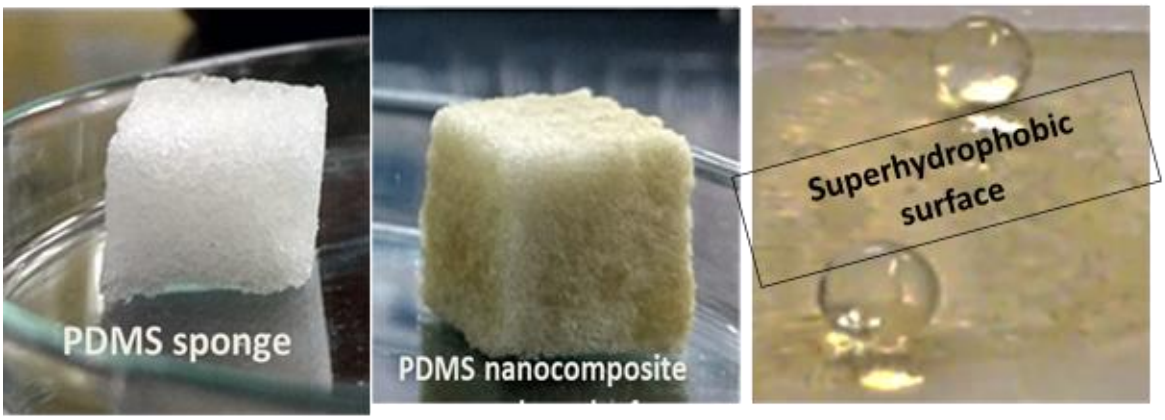
The concept has been selected on priority as one of the two major innovations at the apex level. The team has designed and developed Agri-photovoltaic technology by combining cultivation of food crops and installation of solar photovoltaic panels on the same field. An optimized design of 10KW & 2KW solar power plants on the agricultural land has been developed and tested.This technology can make significant impact on farmers particularly small and marginal farmers who are in large numbers in our country by generating additional income through solar power generated which could be used by farmers for farming as well as own personal domestic use. The rest of the power can be put on grid generating a fixed income every month.

Farm for Agri Voltaic experiments established in AUUP Noida campus

- **Using Nano-based sponge for efficient cleaning of Industrial effluents (Amity Institute of Nanotechnology, Noida)**

  A useful technology has been developed by Amity University for efficient removal of oil, organic pollutant and pathogens from industrial waste water. Smart Sponges have been developed for removal of industrial wastes from water.

  The nanomaterials incorporated in the polymer sponge to improve efficiency are available in nature abundantly, thus proving to be cost-effective method of manufacturing with long-term durability and reusability. The Process developed for preparation of the polymer nanocomposite sponge is relatively simple. The reusable polymer nanocomposite can be used 70 times for oil absorption without much loss in efficiency.



  The sponge is capable of removing floating oil/hydrocarbon from water 6 to 13 times its own weight rapidly and efficiently. The product has been tested on Petrol, Diesel, Benzene, Toluene, Xylene, n-Hexane, DMF, THF, and crude oil.

  The light weight, reusable and flexible sponge remains buoyant and non-leaching even after saturated with oil/hydrocarbon. The team is in process of further upgrading the product making it more industry friendly.

- **E-Nose for rapid detection of toxic gases in manholes (Amity Institute of Advance Research Studies (Materials & Devices), Noida)**

  The death of personnel, working in the manholes due to exposure of toxic gases is a matter of concern since many years. The traditional method of detection of toxic gases requires lab facilities and trained person. The need of the hour is to have on the spot detection of poisonous gases for prevention of health disorders to workers. The technologies developed so far mostly focus on detection of specific gases and do not have any device for continuous monitoring of four to five hazardous gases.

  Amity has developed a low cost, easy to use portable sensor array capable of detecting poisonous gases like carbon monoxide, hydrogen sulfide, and explosive gas like methane in few minutes.

  Our complete electronic integrated system shows the presence of toxic gases using LEDs and alarms. It also provides information of gases which are present beyond the threshold limit. The innovative system has an in-built camera with position tracking system which gives the position and condition of the worker working inside the manhole. The whole device is mounted on the head of the worker which will also provide online status of health and level of toxic gases.


  The device helps in detecting the presence of hazardous gases in sewer-pipeline to offer safe access to sewer-pipeline workers so that the human fatalities, which occur due to the toxic exposure of sewer gas components, can be avoided.

- **Point of care device for on-spot detection of Chromium in water (Amity Institute for Advanced Research and Studies (Materials & Devices), Noida)**

  Chromium (Cr) is one of the toxic environmental pollutants released in the environment due to its wide use in industries. High concentration of Cr (VI) in body causes respiratory irritation, asthma and gastrointestinal irritation and several other harmful effects. Therefore, there is a need to develop a device which can efficiently monitor the concentration of Cr(VI).

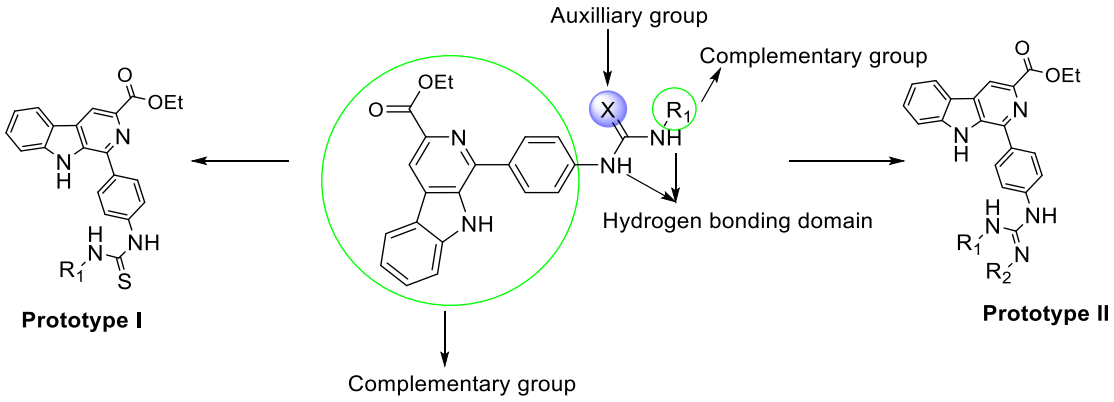
  We have developed a colorimetric sensor for detection of chromium using nanotechnology in water and urine/serum samples of patients. The device is a small meter of a size of mobile phone. It just takes few drops of water and gives the quantity of chromium in water. It is highly useful for an "**Instant detection of chromium**" in water samples.

- **Synthesis of small *Heterocyclic Molecules* using multi-multicomponent approach, Click Chemistry, C-H activation etc. as inhibitors for various targets of malaria and cancer: Amity Institute of Biotechnology**

  Recently, his group prepared a novel thiourea and guanidine conjugated β-carbolines against Plasmodium Strain. The concept was based on natural product derivatives that provided a great relief as most of the drugs is semi-synthetic derivative of the natural products. Among them β-carboline scaffolds are widely distributed in nature and has been tagged as a promising scaffold in

several marketed and upcoming drugs under development. Similarly, Guanidine and thiourea based molecules have also emerged as active antimalarials and drugs available in the market such as Proguanil and cycloguanil etc. However, the combination of guanidine and thiourea with β-Carbolines as conjugated scaffolds still remained to be investigated.

The most challenging aspect associated with the anti-malarial drugs is the development of resistance after certain period. In this context, it was hypothesized that the conjugate of two active pharmacophores might come out as an effective alternative to overcome the resistance in terms of improved activity in resistant strains. In alliance with this concept, two prototypes of *β*-carbolines have been designed (figure 1) where in prototype I guanidine and in prototype II thiourea is conjugated with *β*-carboline. We reported the synthesis of *β*-carboline conjugates having varied substituents for *DHFR* targets based on structure activity relationship. The *in vitro* studies for these derivatives against *Plasmodium falciparum* 3D7 strain shows promising anti-plasmodium activity in micromolar scale. Additionally, *insilico* studies were also performed to validate the *invitro* results and investigating the target based-interactions where 3 major units namely hydrogen binding, complementary and auxiliary unit are found to be responsible for efficient binding.



AMITY UNIVERSITY UTTAR PRADESH, LUCKNOW CAMPUS

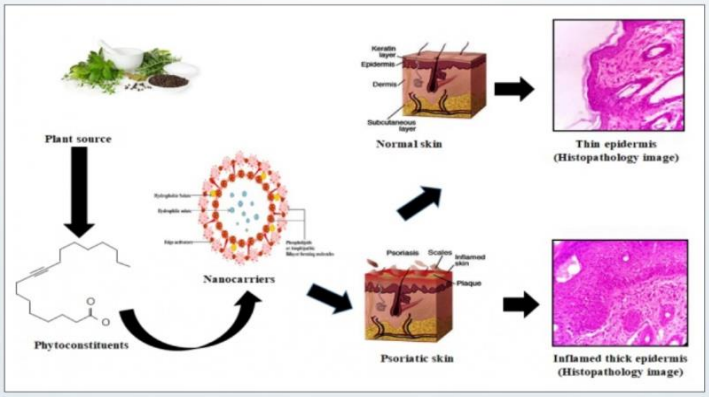
- **Herbal Remedy for Psoriasis: Amity Institute of Pharmacy**

Product Feature and Characteristics

- Herbal product for the treatment of psoriasis which is a chronic inflammatory, multi-system disease associated with considerable morbidity and co-morbidity.
- Majority of patients prefer the topical treatment for psoriasis. The biggest challenge posed by topical treatment is highly resistant stratum corneum which makes conventional creams and ointments reaching deeper layers of skin difficult. Nano formulation is capable of penetrating into deeper layers of skin.

Unique Selling Points (USPs)

- Novel nano delivery system bearing phytoconstituent
- Improved permeation into rigidized psoriatic skin
- Dermatologically tested
- Overcome the limitations associated with conventional formulation available in the market



- **QUIC: APPLICATION OF QUIC PROTOCOL FOR IoT APPLICATION**
  - For decades, TCP has been the transport protocol of choice on the Internet.
  - In recent years, major Internet players such as Google, Facebook and Cloud Flare have opted to use the new QUIC transport protocol.

Expectations

- Expectation of dramatically reduced connection establishment time/latency of QUIC over TCP.
- Expectation of QUIC's improved congestion control over TCP
- Expectation of Multiplexing without head of line blocking of QUIC over TCP
- Expectation of QUIC to deliver an alternative to the well-established security solutions.
- Expectation of speeding up and securing HTTP traffic
- Patented Technology for SAMSUNG R&D

AMITY UNIVERSITY HARYANA

- **RNA extraction free assay for kit development to visually diagnose COVI D-19: Amity Institute of Biotechnology**

  SARS-CoV-2, the causative agent for COVID-19 pandemic, continues to wreak havoc across the globe leading to unimaginable loss of human lives and plunging millions into extreme poverty. This evocative scenario of COVID-19 pandemic has presented a formidable defiance even for most sophisticated hospital settings. There is an urgency to develop simple, fast and highly accurate methods for the rapid identification and isolation of SARS-CoV-2 infected patients. In an effort to address the ongoing challenge, the present study offers a CLEVER assay (CRISPR-Cas integrated RT-LAMP Easy, Visual and Extraction-free RNA) which will allow RNA extraction-free method to visually diagnose COVID-19. RNA extraction is a major hurdle in preventing rapid and large-scale screening of samples particularly in low resource regions because of the logistics and costs involved. Herein, the visual SARS-CoV-2 detection method consists of RNA extraction-free method directly utilizing the patient nasopharyngeal and oropharyngeal samples for reverse transcription loop mediated isothermal amplification (RT-LAMP). Additionally, the assay also utilizes the integration of CRISPR-Cas based system using different guide RNAs of N and E genes along with visual detection via lateral flow readout based dip sticks with unaided eye (~100 min). Together, our CLEVER assay offers a point-of-care tool with no equipment dependency and minimum technical expertise requirement for COVID-19 diagnosis.

AMITY UNIVERSITY RAJASTHAN

- **Bajra Bites: Amity Institute of Biotechnology**
  Developed protocol for the Preparation of Bajra Bites. Being highly nutritive, "Bajra Bites" can be a great replacement for the refined flour products available in the market today.

- **The Inner Cosmos:** ***Amity Institute of Behavioural and Allied Sciences***

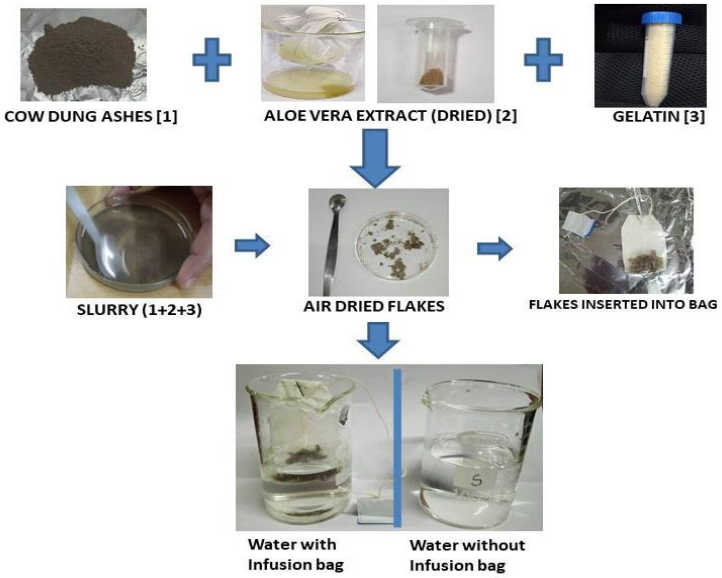
  The "Inner Cosmos" is a café that will not only provide products and services related to food and hospitality but also provide counseling and services for Mental Health promotion. The café will consist of several rooms including kitchen. There will be different rooms/ centers dedicated for therapies, healing techniques and counseling. There will be provision for administration of healing therapies like art therapy, color therapy, relaxation and deep meditation, relieving of aggression etc.

AMITY UNIVERSITY MADHYA PRADESH

- **A COMPOSITION FOR INFUSION BAGS TO IMPROVE THE QUALITY OF DRINKING WATER AND METHOD THEREOF: Amity institute of Biotechnology**

  The present invention relates to the field of development of a composition and method thereof for infusion bags to improve the quality of drinking water. The present invention in particular, the infusion bags containing Aloe vera with cow dung ashes along with little amount of gelatin to obtain hygroscopic powder after air dry. In earlier investigations, use of cow dung ash was reported in the secondary treatment of wastewater to reduce the contaminants along with removal of different heavy metals in water. Cleaning of water using a number of combinations using straw powder, activated carbon based composite materials, nanomaterials, rice husk, manure, plant leaves etc. are reported. In the view of the foregoing disadvantages inherent in the known types of related technology and preparation methods, now present in the prior art, the present invention is to design and develop an infusion bags containing Aloe vera with cow dung ashes along with little amount of gelatin to obtain hygroscopic powder after air dry.

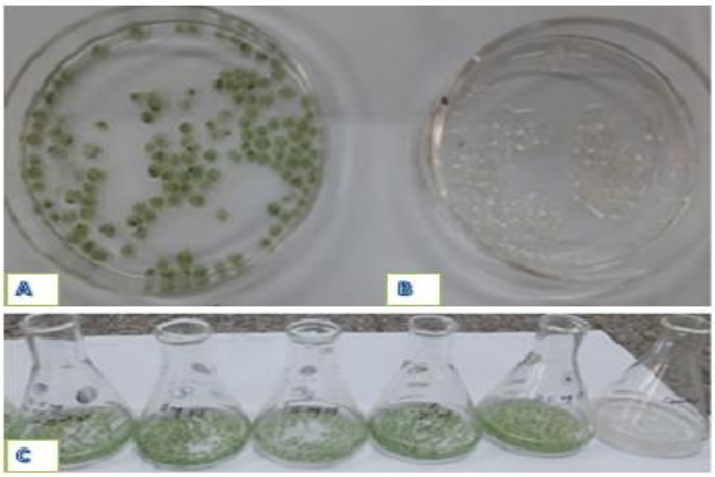
  Another important aspect of the present invention, the storage of mixture is long lasting after addition of aloe vera with cow dung ashes. The concept of infusion bags will facilitate a common man to have drinking water with full of natural minerals in appropriate pH condition. The pH condition is mentioned here because this is also observed that the dissolved oxygen concentration is also improved through cow dung ashes into the drinking water. Hence, this low cost aloe vera and gelatin based infusion bags will therefore increase the quality of daily life of mankind by enhancing the drinking water quality.



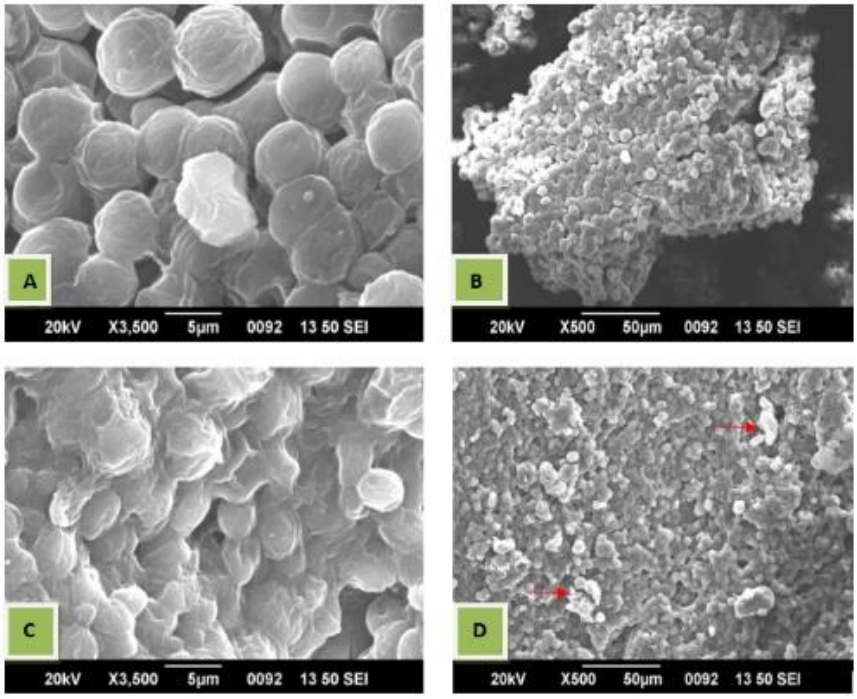
- **MATRIX-COUPLED MICROALGAE FOR ENHANCED BIOSORPTION OF TOXIC NANOPARTICLES AND METHOD THEREOF: Amity Institute of Biotechnology**

  The present invention relates to a matrix-coupled microalga for enhanced biosorption of toxic nanoparticles and preparation method thereof. In the present invention, the algae has been recognized as natural water purifiers. Micro algae have shown their promises due to their capability to absorb toxic metals from the environment. *Chlorella* and *Scenedesmus* are widely used green algae as compared to other species for selective uptake of toxic metals from aquatic system as they can tolerate metals like Copper, Nickel, Cadmium, Lead, Mercury, Titanium, Arsenic and Zinc.

  In the present invention, we have successfully demonstrated the maximum biosorption of ZnO nanoparticles (93.37% and 82.53% respectively with immobilized *Chlorella vulgaris* and *Scenedesmus quadricauda* biomass in sodium alginate beads at optimum operating conditions.



  Immobilization of dried *Chlorella vulgaris* and *Scenedesmus quadricauda* biomass in alginate beads and its application in ZnO NPs removal from aqueous solution. (B) Sodium alginate beads without incorporation of the microalgal biomass, (C) immobilized alginate beads of different concentrations of dried *Chlorella vulgaris* and *Scenedesmus quadricauda* biomass

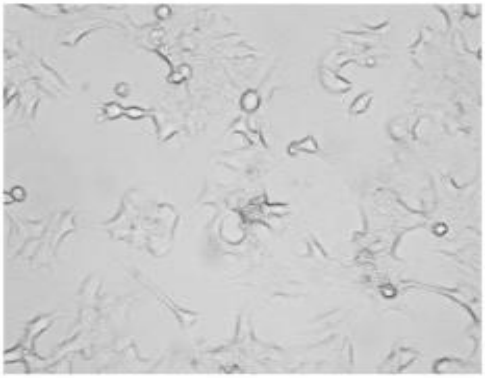


SEM micrograph of *Chlorella vulgaris* biomass (A, B) before and (C, D) after ZnO NPs biosorption from aqueous solution

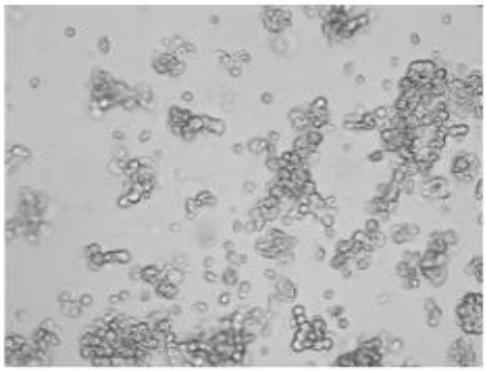
- **pH Dependent Release of Targeted Anti-Cancer Metal Nanofibres Encapsulated in Goat Milk Protein, Poly Vinyl Alcohol and Phytochemicals: Amity Institute of Biotechnology**

  In the above invention, the aim was to synthesise targeted anti-cancer metallic Nano fibres by an eco-friendly approach with maximum efficacy and minimal toxicity towards healthy cells. Biosynthesis of silver nanoparticles could be achieved by encapsulating silver nitrate in protein of goat's milk with phytochemicals and biocompatible polymer Poly Vinyl Alcohol (PVA) by electro spinning technique. Silver nitrate salts along with leaf crude extracts of *Azadirachta indica* and *Calotropis procera*, goat milk and Poly Vinyl Alcohol was mixed in appropriate proportion and spun into nanofibres by electrospinning. These electrospun nanofibers was then used for the assessment of anti-cancer activity against healthy and cancer cell lines. On the basis of comparative analysis, it was found that sample (1.5 ml Cp leaf extract + 7 ml PVA + 1 mM $AgNO_3$ + 1.5 ml Goat milk) showed maximum anti-cancer potency by causing effective toxicity on ovarian cancer without causing adverse or side effects on Normal Healthy Human cells.

- Direct Microscopic images of treated cells captured at 10x magnification were enclosed along with this report. The images are depicted in Figure 4 and 5:



a. SK-OV3 (Control)



b. SK-OV3 (Treated with Std. drug, Doxorubicin)

- **DEVELOPMENT AND REPURPOSING OF CARBAPENEMS ANTIBIOTIC BASED ENCAPSULATED NANOPARTICLES AGAINST MULTI-DRUG RESISTANT BACTERIA: Amity Institute of Biotechnology**

  The present invention relates to the development and repurposing of carbapenems antibiotic based encapsulated nanoparticles. The present invention in particular relates to carbapenems antibiotic based encapsulated nanoparticles against multi-drug resistant bacteria. Moreover, the present invention helps in drug repurposing to control emergence of multi-drug resistant bacteria with currently available antibiotics. Furthermore, the present invention helps to synthesize a novel, emerging, fast and safe alternative treatment option against biofilm forming multidrug resistant bacteria and also provides an insight method for stabilization of nanoparticles.

AMITY UNIVERSITY MAHARASTRA

- **Design, Fabrication and Performance Evaluation of 6 DoF Robotic Arm. (Amity School of Engineering & Technology)**

The main purpose of building this robotic arm was to create an easy to replicate design for other students to make and modify. The 6 DOF robotic arm was made using off the shelf servo motors, a combination of laser cutting 3mm MDF and 3D printing PLA. The software for controlling the robot runs on an ESP32 Wi-Fi and Bluetooth enabled microcontroller which is powered by a 12v wall adapter. The controller is a custom made app made using MIT APP INVENTOR.

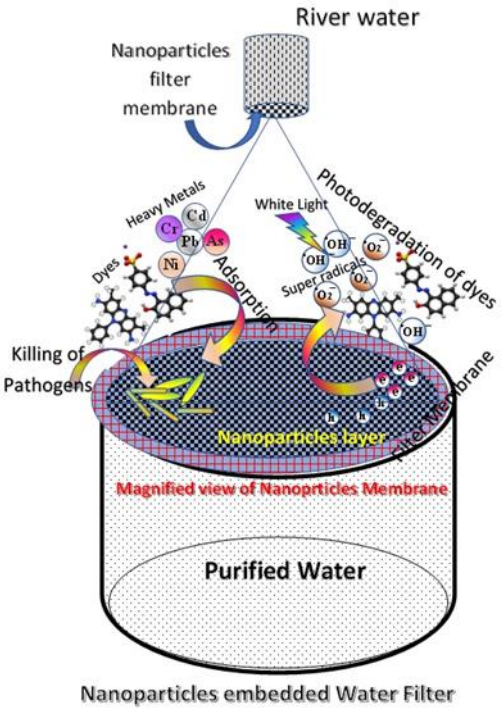
The study and research for the project included researching different types of robots, history, and various control schemes. These control schemes and designs inspired the design of the robotic arm. What makes this different from the other available designs is the extreme modularity that is provided by the laser cut design. Each item is panelized and hence can be modified or replaced as needed according to requirements. The control for each motor also uses standard PWM signals and the actuators can also be replaced. The tool also as a result is very versatile and can be replaced according to needs like drilling, cutting, welding etc.

In the current design, configuration and parts used, the arm has a maximum load capacity of 200 gm when fully extended. The cost of the entire project was also minimized and kept under ₹10,000.

AMITY UNIVERSITY WEST BENGAL

- **Room Temperature Green Synthesized Doped Noble Metal Nanoparticles: Active Material for Water Filter Membrane: Department of Physics**

Nanoparticle membrane filter is an emerging technology for water purification. The effectiveness of membrane depends on the filter pore size, adsorption, photocatalytic and antimicrobial properties of the nanoparticles. Here a successful synthesis of non-toxic metal-doped noble metal nanoparticles by using eco-friendly green synthesis method at room temperature was reported. The materials delivered good adsorption (~30% in dark) and photodegradation (100% under white light exposure) of organic toxic dyes within 90 minutes.

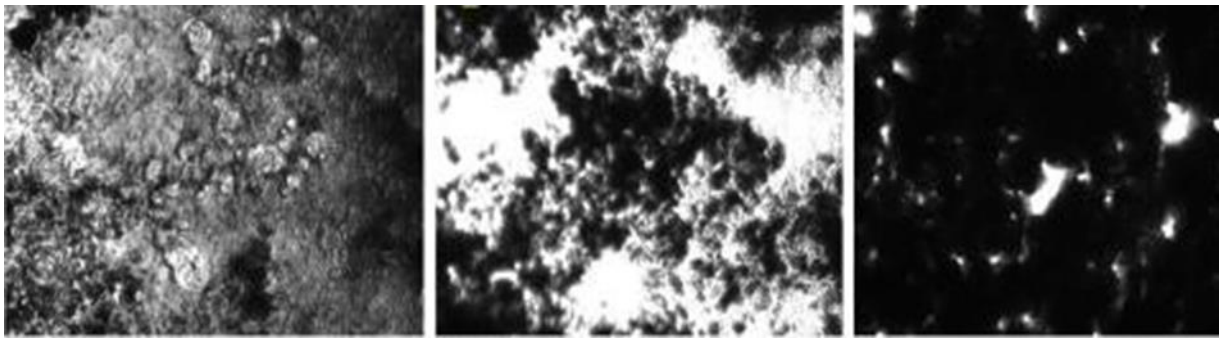


The filter membrane prepared by synthesized doped noble metal nanoparticles can remove the suspended impurity and dissolved impurities very effectively from polluted Hooghly River water. It displays more than 3.5 times improved suspended impurity removal and 6.3 times higher efficacy dissolved impurity removal efficacy relative to bare membrane. Additionally, the microbial impurities were also considerably reduced and the value lies close to the standard desired value. Hence our synthesized doped noble metal nanoparticles embedded membrane has tremendous capability to remove the inorganic and organic waste from contaminated water and make it usable for daily purposes.

- **A Novel Hydrophobic Visible Light Sensitive Antibacterial Organic Salt – AnEfficient Antifouling Agent: Department of Chemistry**

  Biofilm formation is also a major issue in aesthetic materials used in cosmetic surgery, soft tissue fillers, prosthetic valves, breast implants, catheter tubes as well as underwater surfaces suchas ships and submarines. Biocolonization of stone artifacts has also been a matter of concern towards preservation of cultural heritage. Although several coating materials have been reported, antibiotic resistance has emerged as another urgent threat against mankind causing millions of deaths worldwide each year. Antibiotic resistance develops when the bacteria cultivates the capability to fight the drugs and continue to grow. Therefore, the development of novel antibacterial materials is a continuous surge.

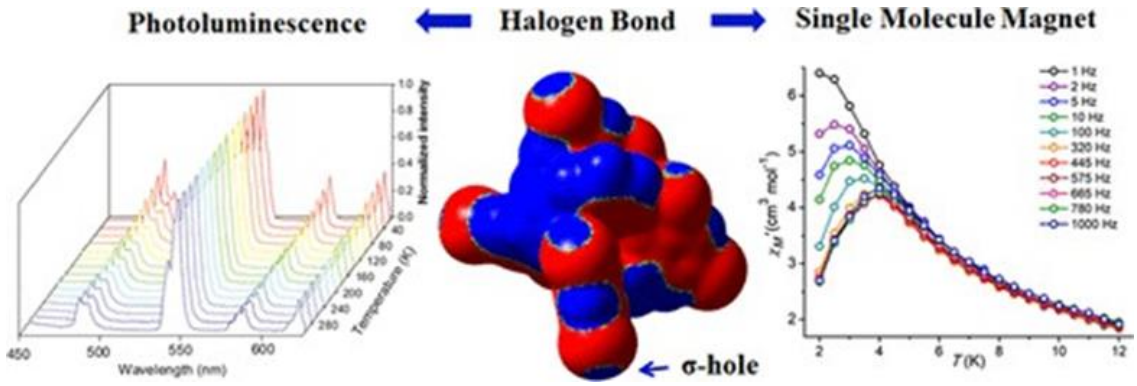
  Herein, we have developed a Novel hydrophobic visible light sensitive antibacterial Ionic Liquid which can serve as an efficient biofilm resistant coating. Besides, the coating are found to exhibit visible light induced self-sterilizing characteristics. These ILs are hence considered to possess tremendous potential for use as antifouling coating materials for biomedical devices, underwater surfaces and cultural heritages.



- **Halogen Bond Mediated Self-Assembly of Mononuclear Lanthanide Complexes: Perception of Supramolecular Interactions, Slow Magnetic Relaxation, and Photoluminescence Properties**

  A series of five new mononuclear lanthanide complexes, using Nd, Tb and Dy as metal ions, were synthesized and structurally characterized by single-crystal X-ray diffraction analyses. Being isostructural in all the five cases, the metal centers are octacoordinated with a triangular dodecahedron (D_{2d} symmetry)

geometry, and it is independent of the halogen substitution (Cl/Br). The close similarity in structures is due to the composite interplay of hydrogen/halogen bond interactions that control the overall crystal packing, yet notable differences in association patterns among the individual ones arise from the subtle stereo-electronic requirement of individual molecules in the three-dimensional (3D) architecture. Hirshfeld surface and density functional theory (DFT) calculations clearly vouch for the importance of the hydrogen bond and halogen bond interactions observed in the structure. Detailed magnetic measurements using direct- current and alternating-current susceptibility measurements show slow magnetic relaxation in Dy analogue, a characteristic feature of the single-molecule magnets (SMMs), which is not shown by Tb and Nd complexes. Steady-state and time-resolved photoluminescence of Tb(III) complexes show a strong ligand-to-metal energy transfer that can be modulated by changing the substitution on phenolic ligands. The results from these analyses indicate that it may be advantageous to consider the subtle role of hydrogen bond (HB)/halogen bond (XB) intermolecular interactions judiciously for the design of SMMs and luminescent materials based on halogen-substituted ligands.



AMITY UNIVERSITY CHHATISGARH

- **Identification and characterization of a novel gene and enzyme responsible for the biodegradation of LDPE from Enterobacter gergoviae TYB1: Amity Institute of Biotechnology**

Low-density polyethylene (LDEP) is a polyethylene thermoplastic, prepared by a catalytic process, containing carbon and hydrogen as backbone elements and has a little branching, giving it stronger intermolecular forces and tensile strength approx. 4550 psi approximately. Microbial degradation of solid polymers of LDPE requires the formation of a biofilm on the surface of polymer, which enable the microorganism to degrade the non-soluble substrate efficiently (Balasubramanian et al. 2010). The present studies focused on the production of biosurfactant by microorganisms play an important role to enhance the degradation by changing the hydrophobic nature of LDPE into hydrophilicity. Identification and characterization of produced biosurfactant by using FTIR, GC-MS, NMR, LCMS, and UV-Spectrophotometer. The production of biosurfactant indirectly enhances the biofilm formation over the LDPE film to degrade LDPE. The biofilm formation will be increased the enzyme production for the degradation of LDPE, which leads to the characterization of enzyme and gene responsible for the degradation by reverse genetic analysis. Genomic analysis of biodegradation process provides the right direction for improving the LDPE degradation by the selected bacteria *Enterobacter gergoviae* TYB1. The novelty of this work is enhancement of biosurfactant production, subsequently it will be increased the biofilm formation on the surface of LDPE which helpful predominantly on the improved production of enzymes. So, it's become a major achievement in these areas of research. It will be useful for the large- scale treatment to complete eradication of polyethylene from environment. This research work support to removal of polyethylene wastes from our ecosystem by the inclusion of LDPE degradation strategies in integrated waste management programme in various industries as well as municipal waste treatment.

In modern lifestyles of human society has employed more plastics and increasing pressure being placed on capacities available for polyethylene waste disposal,

the need for biodegradation of polyethylene wastes has assumed increasing importance in the last few years.

- These studies will be helpful to disposal of polyethylene by the biodegradation of conventional polyethylene by isolated efficient microorganisms.
- The efficient isolates will be included into the plastic wastes managements programs. The polyethylene degrading microorganisms can be reducing the environmental pollution caused by plastic wastes.
- The genomic analysis of plastic degrading microorganism completely lacking, and no any clear evidence are present which will be beneficial for the implementation to solve this major problem.
- The removal of waste plastics from our ecosystem is becoming very overbearing environmental problems. The novelty of this proposal is concerned with the isolation and characterization of a Gene and enzyme/protein in E. gergoviae responsible for the degradation of LDPE.

AMITY UNIVERSITY JHARKHAND

- **Qualitative and quantitative analysis of synthesised nanoparticles and bioactive compounds from plant extracts in phytomedicine application: Amity institute of Biotechnology**

  The synthetic fabrication and analysis of nanoparticles through green approach using different plant extracts of medicinal purpose has drawn the attention of researchers. The attributes such as low costing, simple methodology with less hazardous by-products production, minimal side effects, and wide range of applications interest's clinicians in field of phytomedicine. The wide range of derived bioactive compounds, antioxidants and nanoparticles synthesized from aqueous, organic and inorganic based plant extracts of medicinal plants at an optimised condition emphasizes the potential benefits of these phytoextracts for biomedical practices in human health. The futuristic investigations aim at isolation of pure phytochemicals from and study their medicinal and toxicological effects in in-vivo animal models.

- **Understanding Molecular Mechanism of Regeneration potential in Plant: Amity Institute of Biotechnology**

  One of the defining traits of life and the evolution of species makes regeneration an important area of study in biology. Finding out that some plant or animal species have a high level of regeneration potential while others don't is fascinating. While some plant species can reproduce entirely from seeds and zygotic embryos, others can regenerate themselves using their roots, shoots, or other parts of their bodies. For micropropagation, it is common practice to use explants from shoots, root tips, leaves, cotyledons, anthers, nodes, meristems, and/or embryos. Once transgenes have been inserted into the genomes of various plant species, viable plantlets must be generated from somatic cells. Therefore, it is crucial to understand the mechanisms underlying regenerative capacity in agriculture, both for genetically modified crop plants and non-GMOs. Any crop plant's ability to regenerate more quickly has a very high economic value. In the laboratory, Dr. Dhananjay K. Pandey, Assistant Professor (R&D), Amity University Jharkhand is working on understanding the molecular mechanism behind this regeneration potential in plant using Nicotiana tabacum as model plant (Figure 1) and had obtained significant and novel outcomes that might be utilized to improve the crop plants.

Figure 1: Analysis of regeneration potential in *Nicotiana tabacum* through morphogenesis under *in-vitro* condition

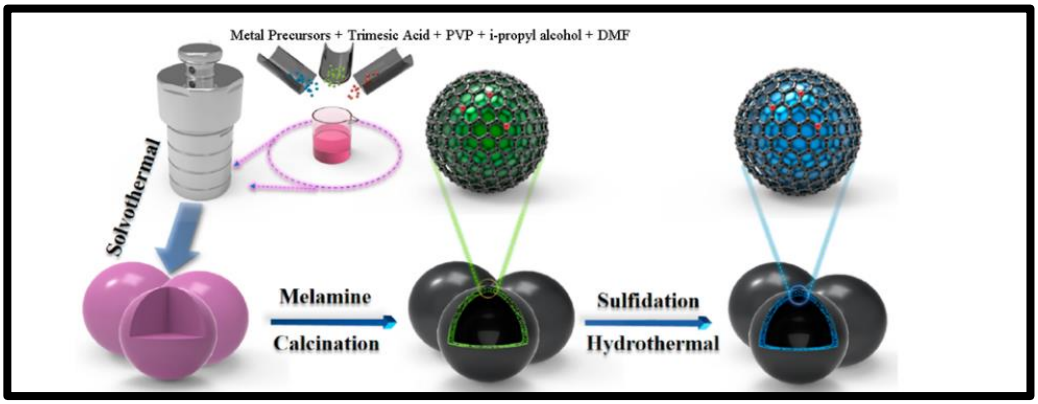
- **Screening of Heteroatom Incorporated Multi-Shelled Nanospheres as Potential Electrocatalysts in Water Splitting: Amity Institute of Applied Sciences**

  Hydrogen, as a zero-emission fuel, considers as a better energy source over hydrocarbon fuels due to their high energy density values, leading to their huge demand as alternative clean energy source in the energy sectors with futuristic view. Hydrogen can be produced electrochemically by splitting water molecules using half-cell reactions such the hydrogen evolution reaction (HER), which takes place in the cathode, and the concurrent oxygen evolution reaction (OER), which takes place in the anode. Even though high purity hydrogen can be produced using water electrolysis (electrochemical water splitting) without any contamination, determining its economic effectiveness has always been considered as very critical, due to high production and investment cost. The role of a potential electrocatalyst is to speed up the electrochemical reaction and to reduce overpotential value, which will further decrease the overall energy consumption. Development of water electrolyzers is of great importance to a broad community of users. In order to reach a high performance, adequate electrocatalysts must be prepared to deliver very fast kinetics towards hydrogen evolution reaction (HER) and oxygen evolution reaction (OER) and have long-term durability. Additionally, these materials should have low-cost and wide availability. The ideal 3D structure of heteroatom incorporated multishelled nanostructured hollow spheres (with large surface area and hollow interior) has potential application in electrochemical energy conversion devices. This project aims at the synthesis of these nanostructured materials with single, double, triple, and quadruple shelled with a controlled exterior shell. The challenges to developing new efficient strategies to fabricate high-quality

multilayered complex structures with different heteroatoms, e.g., N and P, has been considered. The significance of shell number, shell spacing, and exterior shell structure has been correlated with their electrocatalytic performance for HER and OER during water electrolysis in acidic and alkaline media.

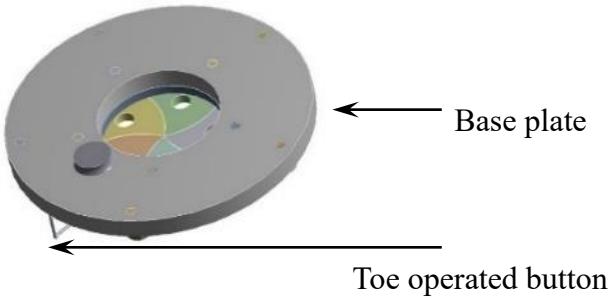
AMITY UNIVERSITY BIHAR

- **Semi-Automatic toe/heel operated water discharge system**



In terms of discharge, the out-flow of grey water from the bathroom or washroom while in use that spills over the floor is a major concern. The *'water drain grating'* that are available in the market, are perforated in nature. And the area of the cut-out is constant for any *'water drain grating'.* If any garbage/dirt is collected on the *'water drain grating'* while in the bathroom or washroom, it becomes difficult for the grey water to pass through these gratings. And in such a case, the dirt must be removed by hand, foot, or tool; once the dirt is removed, only proper graywater flow is possible. To overcome the problems associated with the existing *'water drain grating',* a new device titled "Semi-Automatic toe/heel operated water drain grating with variable discharge" is proposed by having an adjustable area of the cut out in the *'water drain grating' and* being completely toe/heel of foot operated.

- **Helping Hand**



This project aims to improve the facilities that provide care for road accidents. In today's fast-paced world, we are in a hurry to get somewhere, and as a result, many accidents occur, often resulting in instant death. If an injury occurs, crowds gather to see what happens, but no one comes to help them. As a result, we devised a solution to create software in which anyone passing by that road can take a picture or video and upload it to our site, from which we can trace that location and send immediate help from the nearest help, as well as a SOS to the nearest police station.

Chapter – 9 A BIRD'S EYE VIEW OF DIVERSE ACTIVITIES UNDERTAKEN BY ASTIF IN 2022

- **Pathbreaking Scientific Achievements Deliberation in 2022.** A total of 12 brilliant researchers of Amity shared their outstanding research accomplishment in diverse areas under the series which was attended by 23 experts in the related field from Indian and abroad.

- **A platform was created on Amizone for identifying the Most Notable Achievements** of Amity Scientists, Technocrats, Innovators and Researchers. ASTIF had further categorised and set threshold for the accomplishments based on **Publications, Projects, Patents** and **Awards/Fellowships.** The platform will help in creation of a forum to recognize the efforts of the Scientists and also to understand in totality the unique research work by Amity Scientists have done, its impact globally and future prospects of the research.

- **Research Project Management System** on Amizone has been developed for approvals relating to procurement, reimbursement, advance, UC Submissions for AUUP Noida. In 2022, the progress of 203 Projects were monitored. A total of 1188 indents were raised in 2022 which were analyzed and approved for the release of funds. ASTIF is also involved in providing support to PIs for any project related activities. In addition, 50+ cases of refund were also processed.

- **MoUs**
  - ✓ A total of **11 MoUs were initiated by ASTIF** in 2022 namely
    - Centre for Joint Warfare Studies (CENJOWS), New Delhi
    - National Maritime Foundation of India (NMF) New Delhi
    - United Service Institution of India (USI), New Delhi
    - National Institute of Sowa Rigpa, Ladakh
    - Elcom Innovation Pvt Ltd, New Delhi
    - Mahavir Cancer Sansthan and research Centre, Patna
    - Centre for Land Warfare Studies (CLAWS), New Delhi
    - Indian Institute of Technology Guwahati, India
    - Centre for Air Power Studies (CAPS), New Delhi
    - IIT-Hyderabad
    - Trivitron Healthcare Private Limited
  - ✓ Additionally, ASTIF has provided support for signing the 30+ MoU

- **Visit to Amity University campuses** is a regular practice to ascertain the health of the campus specially in the area of research and innovation and support the University's endeavors. In 2022, the team visited Amity University **West Bengal, Rajasthan, Maharashtra, Chhattisgarh, Madhya Pradesh.**

- WASC Senior College and University Commission (WSCUC): 5 years data relating to research of AUUP was prepared and submitted for accreditation.

- Data related to Accreditations such NAAC – AQAR (Criteria III), NIRF, ARIIA, QAA MCR, Write-ups as well as information for Academic council, IQAC & other University level meetings for AUUP was provided.

- Target setting and Monitoring for Research and Innovation at Amity University Campuses for 2022.

- **ASTIF Website showcasing Amity accomplishments was further updated.**
- **The Government of India has released the policy on "Scientific Social Responsibility" which was formulated under the Chairmanship of Dr. W. Selvamurthy.** Letters were sent to various PMO and scientific departments requesting to provide your full support and guidance to effectively implement the policy guidelines.

- Amity Science and Technology Thunder Force (ASTTF) database has been created and updated regularly for all faculty members at Amity including their areas of research and expertise based on Major field of Research, sub-areas of specialization and specific keywords which helps in facilitating various research endeavors of Amity group such as Project Proposal submission, collaboration, webinar, meetings.

- Visits undertaken by Dr. W. Selvamurthy for collaborations:
  - National Food Laboratory, Kolkata, West Bengal
  - Naval Science & Technological Laboratory(NSTL), Vishakapatanam
  - Andhra Pradesh MedTech Zone (AMTZ), Vishakapatanam
  - Defence Laboratory, Jodhpur
  - ICMR-NIIRNCD, Jodhpur
  - Indian Institute of Technology Jodhpur
    Central Arid Zone Research Institute (CAZRI), Jodhpur
  - Naval Materials Research Laboratory, DRDO, Mumbai
  - Bhabha Atomic Research Centre, Mumbai
  - Indian Institute of Technology Bombay
  - Defence Research Development Establishment, DRDO, Gwalior

- Combat Vehicles Research & Development Establishment (**CVRDE**), Chennai
- Indian Institute of Technology, Chennai
- SRM Institute of Science & Technology, Chennai
- **DESIDOC Visit** for collection of books/ monographs for Institutional Library

- **The following actions were taken to promote Amity institute of Defence Technology: -**
  - Meeting with Dr. Samir V. Kamat, Chairman, DRDO
  - Facilitate internship for M. Tech students undergoing internships in various DRDO Labs and other logistic support at DRDO Guest Houses.
  - Support in procuring gun/tank model, placement efforts, workshop on warfare simulation and other important things.
  - Organising Guest Lectures of Experts from DRDO
  - Visits to various Schools in Delhi/NCR to promote B.Tech + M. Tech integrated Defence Technology programme
  - Online meeting regarding starting the course in other AU Campuses.

- Review and monitoring of Directorate of Technology Transfer & DST-TEC
- Institutional Review of Amity Institute of Physiology and Allied Sciences, Amity Institute of Neuropsychology and Neurosciences, Amity Institute Of Indian System Of Medicine, Amity Institute Of Nuclear Science And Technology, Amity Institute Of Geoinformatics And Remote Sensing, Amity Institute of Forestry and Wildlife were undertaken in 2022.
- New Year Greetings and birthday greetings sent to all VCs, senior members and faculty/ researchers of Amity family (1600+) and 200+ external important dignitaries.
- Support was extended for various events across Amity Universe for inviting dignitaries, panelists as well as for successful culmination of the event.
- **Some Events/ Visits/ Webinars organized by ASTIF**
  - Bharat Biotech and Indian institute of Chemical Technology, Hyderabad
  - Dr. S. Ramakrishna, Sr. Principal Scientist and Dr. N. Lingaiah, Sr. Principal Scientist, IICT, Hyderabad
  - Dr. Nakul Parashar, Director along with Dr. T.V. Venkateswaran, Scientist 'F', Division Head: Science Communication Training, Shri Kapil Tripathi, Scientist F, Division Head: Science on Television and Activity Kits and Shri Inderjit Singh, Registrar from Vigyan Prasar
  - Dr. Mohd. Aslam, Consultant (DBT-ILS), Institute of Bioresources and Sustainable Development- Institute of Life Sciences (IBSD-ILS)

Joint Centre, North East Region Biotechnology Program management cell (NER-BPMC)

- Shri R. Appavuraj, Chairperson, Centre for Personnel and Talent Management, DRDO Delhi
- **Panel discussion under Institution's Innovation Council on the topic "National Priorities for Transdisciplinary Research and Innovations" and "Funding Opportunity in thrust areas of Research"**
- Dr. Virinder Parmar, The City University of New York (CUNY, USA) to Amity University Noida
- Delegation from Solid State Physics Laboratory (SSPL), DRDO
- Prof. Amit Bhatnagar, Full Professor (Water Treatment), Lappeenranta-Lahti University of Technology (LUT), Finland visited Amity University
- Prof. V. Ramgopal Rao, Director, IIT Delhi (2016-2021) & JC Bose National Fellow (2016-current), Pillay Chair Professor, Department of Electrical Engineering, Indian Institute of Technology (IIT) Delhi
- Dr. G. S. K. Velu, Chairman & Managing Director, Trivitron Healthcare Group of Companies along with his team on to Amity University
- coordinated of Prof. D. Ravinder, Vice Chancellor of Telangana University to visit Amity University

- **More than 180 presentations and panel discussions were delivered by Dr. W. Selvamurthy.**
- DD SCIENCESHOOT on science day for showcasing Amity innovations.
- Disseminated information regarding Webinars/Conferences/ Workshops, Admission etc. to various faculties/dignitaries.
- Invitations for Honorary Doctorates for Convocation 2022 sent to various external dignitaries.
- E-mails sent to 85+ DRDO officials seeking nominations for DST sponsored online training program on Traditional Medicine- Modern Approaches for Affordable and Accessible Healthcare conducted online from 5th to 9th September 2022.
- Sent New Year greetings and birthday greetings to external dignitaries in various important positions and laboratories.