

BIO-DATA OF DR. R. P. SINGH

NAME

Dr. R. P. Singh

PRESENT POSITION

**Distinguished Scientist & Chair Professor
for Nanoscience & Nanotechnology,
Amity Institute of Nanotechnology (AINT), and
Amity University Uttar Pradesh, Noida - 201 301 (U.P), India
Vice Chairman-Amity Science, Technology & Innovation Foundation(ASTIF)
Former Director, Amity Institute of Nanotechnology
(Former Advisor/Scientist 'G', Dept. of Science & Technology, Govt. of India, New Delhi)
Ph.:0120-4392126 / 130,Mobile : 9810635951**

ACADEMIC QUALIFICATION

M.Sc., Ph.D.(Physics), Post Doctoral Fellow (IIT Kanpur)

AREAS OF SPECIALIZATION

- Solid State Physics, Forensic Science, Instrumentation, S & T Management, Nanoscience & Nanotechnology

HONOURS / AWARDS

- **Fellow of the Institution of Electronics and Telecommunication Engineers (FIETE)**
- **Fellow of the Indian Academy of Forensic Sciences (FAFSc).**
- **Vice President - 'Instrument Society of India (ISOI)**
- **Vice President - Electron Microscopy Society of India (EMSI)**
- **President of the section of Physical Sciences, Indian Science Congress – 2003**
- **Chairman of the 'Working Group on Electronic Instruments' (9th plan) Department of Electronics, Government of India**
- **Member Secretary - 'Working Group on Instrumentation' constituted by Science Advisory Council to the Prime Minister (SAC-PM)**
- **Member Secretary - R&D Instrumentation Advisory Council, Dept. of Science & Technology, Govt. of India**
- **'International Biographical Center', Cambridge included Dr. R. P. Singh in '2000 Outstanding Scientists of the 21st Century', in honour of contribution in the field of Applied Physics & Instrumentation.**

COUNTRY VISITED

China, UK, USA, Austria, Cuba, Pakistan & Romania as member of Scientific Delegations of Govt. of India

BOOKS PUBLISHED

- **'Scanning Electron Microscopy of Burnt electric wires', Scanning Microscopy International AMFO' Hare (Chicago) USA. ISN.0891-7035 Coden:SCMIEU**
- **'Examination of tool marks in the Scanning Electron Microscope'. Electronic Microscopy in Forensic, Environmental and occupational Health Sciences, Eds; S. Basu and J. R. Millette, Plenum Publishing Corpn., 1986, New York and London, pp 209-115**

RESEARCH EXPERIENCE

- 50 Year experience of research/teaching & S&T management.
- Published 100 papers in National & International peer reviewed journals

FUNDED PROJECTS

7 Nos

PATENTS

12 patents

SCIENTIFIC EXPERIENCE

- Principal Scientific Officer, Director, Jt. Advisor, Advisor (Scientist G) (1984-2001)
- Adviser & Head, Instrumentation Development Division, Deptt. of Science & Technology, Govt. of India
- Coordinated National Programmes in the following areas.
 - (i) Analytical Instruments
 - (ii) Medical Instruments
 - (iii) Geoscientific Instruments
 - (iv) Sensors
 - (v) Testing & Measuring instruments
 - (vi) Regional Sophisticated Instrumentation Centers of DST

- 30 technologies of instruments/ systems got developed by around 40 R&D institutions and transferred to Industries for commercialization. Many of the Indigenous instruments are under production.

NANOTECHNOLOGY TEACHING & RESEARCH

- Set up an **exclusive Institution, Amity Institute of Nanotechnology (AINT) for Teaching & Research in Nanoscience & Nanotechnology**; under Amity University Uttar Pradesh.
- Now engaged in teaching & research in the areas of Nano-materials, Nano-sensors, Nano-solar cells, Forensic Nanotech, Green Nanotech etc. He guides for Ph.D in above areas. **Amity Institute of Nanotechnology** is the **Ist Institution of India** started teaching of Nanotechnology programmes; and Dr.R.P.Singh was the **Founder Director** of the Institute.

RESEARCH PUBLICATIONS OF DR. R. P. SINGH, M.Sc. Ph.D.

- 1967** 1. Studies on Etch Patterns of Barium Fluoride Single Crystals.
Japan. J. Appl. Physics 6 (1967), 938-943.
- 1968** 2. Variation in Orientation of Etch Pits on the (111) surface of Barium Fluoride.
J. Crystal Growth (Netherlands) 2 (1968), 373-375
3. Dislocation Structure Around Identations in Barium Fluoride.
Japan J. Appl, Physics 7 (1968), 1167-1170.
4. Propagation of Dislocations in Neutron Irradiated Barium Fluoride Single Crystals.
National Academy of Sciences (37th Annual Session) Ahmedabad 1968.
- 1969** 5. Single Crystal Growth of Barium Fluorochloride by Indirect flux Method.
Crystal Growth (Netherlands), 5 (1969), 70-72.
6. Display of Impurity Precipitation at Dislocations in BaF₂ by Selective Etch method.
Brist J. appl. Phys. 2 (1969), 319-323.
7. Discrepancies in the Etch Patterns on Matched Pairs of Barium Fluoride.
Indian J. Pure & Appl. Phys. 7 (1969), 335-338.
8. Etch Grooves and Stepped Dislocations in Barium Fluoride.
Indian J. Pure & Appl. Phys. 7 (1969), 694-698.
9. Examination of Inhomogenities in BaE2 Crystals by Optical and Electron Microscopy.
Proceedings of Indian Science Congress Association, Bombay 1969.
- 1970** 10. Change in Morphology of Dislocation Etch Pits in Barium Fluorochloride.
Indian J. Pure & Appl. Physics, 8 (1970), 30-32
11. Influence of Colour Centers on Dislocation-etching in Neutron Irradiated BaF₂.
Proceedings of Material Science and Research Bangalore 1970.
12. Quantitative Analysis of Portland Cement by X-Ray Diffraction. A Review of Recent Methods.
Cement Research Institute of India (Publications) New Delhi, 1972.
- 1973** 13. Dislocations in Magnesium Oxide.
Indian J. Technology, 11 (1973), 407-409.
- 1977** 14. Unusal Instrument Marks on Bones.
Forensic Science International (Netherlands) 9 (1977), 109-110

15. Detection of Adulteration in cement.
ISI Bulletin 29 (1977) 233-242
- 1978** 16. Cement and Concrete Analysis - Its contribution in Criminal Investigation.
CBI Bulletin 12 (1978), 1-3.
17. Detection of Adulteration in Cement,
ISI Bulletin, 30 (10) (1978), 355.
18. A New Method for detecting Adulteration in Cement.
'Avishkar' National Research Development Corporation (NRDC), New Delhi
(1978), 219-222.
- 1980** 19. Application of Scanning Electron Microscopy in Forensic Science.
Proceedings of Electron Microscopy Sardar Patel University, Vallabh
Vidhyanagar, 1980, 22-24.
- 1981** 20. Role of Scanning Electron Microscopy (SEM) in Forensic Science.
Proceedings of Indian Academy of Forensic Sciences Madhuban (1981), 27-28.
21. Examination of Head light filaments under Optical and Electron Microscope.
Proceedings of Indian Academy of Forensic Sciences Madhuban, (1981), 27-28.
22. Comparison of Wires by Scanning Electron Microscope,
Proceedings of Electron Microscope Society of India Calcutta, (1982), 61
23. Scanning Electron Microscopy in Criminal Investigation.
Scanning Electron Microscopy - 1982 meetings.
Los Angeles California U.S.A. (presentation)
- 1983** 24. Identification of Portland Cements by X-ray Diffraction.
Vth All India Forensic Science Conference Patna, 1983 (presented)
- 1984** 25. Comparison of Iron samples by Emission Spectrography, X-ray
fluorescence and Atomic Absorption spectrophotometry.
International Association of Forensic Science Oxford, 1984 (presented)
J. Forensic Science Soc (U.K.), 24 (1984), 360.
26. Identification of Wires and the cutting tool by Scanning Electron
Microscope Forensic Science International (Netherlands) 26, (1984), 115-
121.
- 1986** 27. Examination of Tool marks in the Scanning Electron Microscope.
Electron Microscopy in Forensic, occupational & Environmental Health Sciences,
Eds; S. Basu and J. R. Millette, Plenum Publishing Corpn., 1986, New York and
London, pp 209-115.
- 1987** 28. Scanning Electron Microscopy of Burnt electric wires-Scanning Electron
Microscopy - 1986 New Orleans U.S.A. (presented).
Scanning Microscopy (U.S.A.) 1 (1987), 1539-1544.
29. Instruments Maintenance, repair & calibrations –country paper' Proceedings of
SAARC with workshop on instrumentation, maintenance, repair Dec 27-29,
1987 (PCSIR) Karachi

- 1997** 30. Development of Sensor for analytical & medical instruments
Proceedings of the 4th National Seminar of Physics and Technology of Sensors.
Feb 3-5-1997, Page -11
- 2001** 31. Development of SEM, STM and AFM and their application possibilities
Proceedings of Annual Conference of EMSI on Electron Microscopy and Allied
Fields,
Feb. 9.11.2001, Page 6-7
32. Instrument Development Programme of DST
Proceeding of National Symposium on University, Institute and Industry
Interaction.
25th May 2001, Bangalore University, Page 7-8
- 2003** 33 Nanotechnology - An emerging area for future applications.
Proceedings of Indian Science Congress- 2004, Chandigarh, ISC-2004,
Chandigarh
- 2005** 34 Nanotechnology- A Revolutionary Discipline in Health Care, **R. P. Singh**,
Proceedings of 92nd Indian Science Congress, Ahemdabad (2005) P. 193-194
- 2006** 35 Comparison between V shaped & Rectangular Cantilever based on Theoretical
Modeling. Monika Joshi, **R.P Singh**, V.K Jain, Indian Journal of Pure & applied
Physics, 2006.
- 36 Nanotechnology - A Promising Discipline, **R. P. Singh**, Proceedings of Recent
Advances in Process Control & Instrumentation Engineering (RAPCIE 06),
Kurukshetra University (2006) P. 9-13
- 2007** 37 Studies of PVA based Humidity Sensors, Proceedings of Indian Science Congress
– 2007, Annamalai University, 3-7 Jan, 2007
- 2008** 38. ‘Bio & Nanotechnology for future Prospectives’, International Congress of
GCNN and SSNN on Neuroprotection & Neuroregeneration, 3-7 Mar, 08,
Romania
39. Studies of cross linking polymers (PVA & PEG) for Humidity Sensing,
Journal of Nano Research, CINVESTAV, Mexico –June 2008
- 2009** 40. Nanostructures in thin film organic photovoltaic solar cells, Proceedings of
Indian Science Congress – 2009, NEHU Shillong University, 3-7 Jan, 2009.
41. Development of Nanocomposites for Gas Sensing , Proceedings of Indian
Science Congress – 2009, NEHU Shillong University, 3-7 Jan, 2009.
42. Cross Linking Polymers (PVA & PEG) with TiO₂ Nanoparticles for
Humidity Sensing Monika Joshi and **R. P. Singh**, *Sensors & Transducers
Journal, Vol. 110, Issue 11, November 2009, pp. 105-111.*
- 2010** 43. Studies of CNT and Polymer Based Gas Sensor, Monika Joshi and **R. P Singh**,
Sensors & Transducers Journal, Vol. 122, Issue 11, November 2010, pp. 66-71.

44. Biological synthesis of silver nano particles by using onion (*Allium cepa*) Extract and their antibacterial activities, Antariksh Saxena, R. M. Tripathi, and **R.P.Singh.**, Digest journal of Nano materials and Biostructure 5, 427-432, 2010
45. Effect of acetosyringone and callus age on transformation for scutellum-derived callus of rice. R.M.Tripathi, H.S.Bisht, **R.P.Singh.** International Journal of Pharma and Biosciences, Vol-1, 163-171 (2010).
46. High antibacterial activity of silver nanoballs against E.Coli MTCC1302, *S.typhimurium* MTCC 1254, R.M.Tripathi, Antariksh Saxena, Nidhi Gupta, Harsh Kapoor, **R.P.Singh**, B.SUBTILISmtcc1133 and *P.aeruginosa* MTCC 2295 DJ14 B.Vol-5 323-330, 2010
- 2011 47. Biosynthesis of silver nanoparticles using *Ocimum sanctum* (Tulsi) leaf extract and screening its antimicrobial activity, Garima Singhal, Riju Bhavesh, Kunal Kasariya, Ashish Ranjan Sharma and **Rajendra Pal Singh**, Journal of Nanoparticle research, 12, 2981-2988, 2011
48. Formation of Fenugreek (*Trigonella foenum-graecum*) extract mediated Ag Nanoparticles: Mechanism and applications- **R.P.Singh**, S.Magesh, C.Rakkiyappan, International Journal of Bio-Engineering, Sciences and Technology (IJBEST), Vol 2, No3, 64-73, 2011
49. Ginger (*Zinger Officinale*) root extract: A source of silver nanoparticles and their application – **R.P.Singh**, S.Magesh, C.Rakkiyappan, International Journal of Bio-Engineering, Science & Technology (IJBEST), Vol2, No3, 75-80, 2011.
50. Study on encapsulation of ‘Depa’ in Calcium-Alginate microsphere for enhanced repellent efficacy - C. Rakkiyappan, **R.P. Singh**, Arpita Bhattacharya, International Journal of Polymeric Materials, (GPOM-2011-0497).
51. Study of colloids of Ag nanoparticles from *Mentha peperita* leaf extract and their antibacterial effect. **R.P.Singh**, S.Magesh, C.Rakkiyappan-11th IEEE Conference on Nanotechnology August 15-18, 2011 Portland, Oregon, USA, 57-60
52. 20th National Symposium on Recent Advances in Nanoscience, Engineering & Technology at ABV- Indian Institute of Information Technology & Management, Gwalior, India Nov 19-20, 2011.
- 2012 53. Self-stabilized from Green *Murraya Koenigii* and a few applications, **R.P.Singh**, S.Magesh, C.Rakkiyappan, International Journal of Nanotechnology and Applications, ISSN0973-631X, Vol 6, No1, pp 43-51, 2012
54. Ecofriendly biosynthesis of Gold nanoparticle using medicinally important *ocimum bacilicium* leaf extract, Garima Singhal, Riju Bhavesh, A.R.Sharma, **Rajendra Pal Singh**, Advanced Science, Engineering and Medicine, Vol 4, Number 1 , pp 1-5, 2012
55. Mahua (*Madhuca Indica*) leaf extract: A novel mediator for synthesis of silver nanoparticles-**R.P.Singh**, S.Magesh, C.Rakkiyappan, Journal of Bio-Engineering Sciences & Technology, Vol 02, pp 81-86, 2011

56. A microencapsulation strategy for enhanced protection from mosquito bites, Arpita Bhattacharya, **R.P.Singh**, Nanowerk, pp 1-3, 2012
57. Studies on morphological and optoelectronic properties of MEH-CN-PPV:TiO₂ nanocomposites, Punita Singh, O.P. Sinha, Ritu Srivastava, A. K. Srivastava, J. Kaur, **R. P. Singh**, M.N. Kamalasanan Materials Chemistry and Physics, 133, 2012, 317- 323
58. Encapsulation of DEPA in Calcium alginate microspheres, A.Bhattacharya, C.Rakkiyappan, **R.P.Singh**, Proceedings of National Conference on Recent Advances in Polymer nanocomposites, Delhi University-2011
59. Studies on Kaolin-Polymer nanocomposites, S.Menon, V.Pillai, A.Bhattacharya, **R.P.Singh**, Proceedings of International Conference on Emerging Technologies-Micro to Nano 2013, 23-24 Feb 2013, Goa
- 2014**
60. Biogenic synthesis of Silver Nanoparticles using Saraca indica leaf extract and evaluation of their anti-bacterial activity, R.M Tripathi, Deepti Rana, Archana Srivastav, **R.P.Singh**, B.R.Shrivastav, Nanomedicine and Engineering 5 (1), 50-56,2014
61. Chlorpyrifos detection from blood matrix using gold nanoparticles base AChE-MWCNT Modified Graphite Electrode for the Forensic applications, Rejesh Paul, **R.P.Singh**, Malaysian Journal of Forensic Sciences, pp 54-61, 2014
60. Electrochemical synthesis and characterization of gold nanoparticles on synthetic graphite, Rejesh Paul, **R.P.Singh**, J. Chinese Chemical Society (communicated)
61. Immobilization of AChE (acetylcholine esterase) on Au nanoparticle electrochemically deposited on Graphite, Rejesh Paul, **R.P.Singh** Analytical & Bio-analytical chemistry, Springer (communicated)
62. Voltammetric detection of Monocrotophos from Blood serum by Enzyme immobilized Gold Nanoparticles deposited Graphite electrode, Rejesh Paul, **R.P.Singh**, Australian Journal of Forensic Science (communicated)

PATENTS

S.No.	Name of Inventors	Title	Application No.	Date of Submission
1.	Dr. R. P. Singh	Composite polymer film based resistive humidity sensor	498/DEL/2009	16.03.2009
2.	Dr. R. P. Singh	Synthesis of Fenugreek (Trigonella foenum-graecum) leaf extract mediated Ag nanoparticles and their mechanism of formation	2571/DEL/2010	27.10.2010
3.	Dr. R. P. Singh,	Anti-Bacterial effect on Fenugreek (Trigonella foenum-graecum) leaf extract mediated silver nanoparticles	2708/DEL/2010	12.11.2010
4.	Dr. R. P. Singh	Synthesis of Ag nanoparticle from seed extract	3363/DEL/2011	14.11.2011
5.	Mrs.Garima Singhal & Dr. R. P. Singh	Biofabrication of thermally stable Selenium nanoballs using dried Vitis vinifera (Raisin) extract	747/DEL/2012	13.03.2012
6.	Garima Singhal, RP Singh, Mima Kurian	Biosynthesis of silver nanoparticles using Myristica Fragrans (nutmeg) seed extract	3621/DEL/2011	13.12.2011
7.	Dr. O.P Sinha, Charu Vashishth, Dr. R. P. Singh	Process for imparting or enhancing electrical conductivity of polymer matrix with semiconductor nanoparticles	898/DEL/ 2009	01.05.2009
8.	Dr. Arpita Bhattacharya & Dr. R.P. Singh	Prolonged release mosquito repellent formulations	765/DEL/2009	15.04.2009
9.	Dr.Arпита Bhattacharya, RP Singh (AINT)	A micro incapsulation of citronella oil for slow release insect repellent formulation	3962/DEL/2012	21.12.2012
10.	Dr. Sandip Chakrabarti & Dr. R.P. Singh	Method for preparation of catalyst its activity and method for treatment of Textile wastewater	900/DEL/2009	01.05.2009
11.	Ashish Mathur, Harsh Jain, Om Prakash Sinha, R.P. Singh	A novel hand held micro-electrode sensor for detecting fuel adulteration based on micro-fluidic platform	2374/DEL/2013	08.08.2013
12.	Ashish Mathur, Om Prakash Sinha, R.P.Singh	Label free diagnosis of allergy to drugs using a point of care (POC) device based on microfluidic platform	1793/DEL/2013	18.06.2013

R&D PROJECTS

Projects completed

- i. Development of PVA based humidity sensor for MEMS devices –P.I (2004-07)
- ii. Slow Release Insect Repellent Formulations-Co.P.I (2009-11)
- iii. Development of High Barrier Packaging Material for Food Contact Applications using Silver nanoparticles-Polymer Composites-Co.P.I (2009-11)

Projects on-going

- iv. Polymer based Semiconductor nanocomposites for OLED'S (Co.P.I)
- v. Project on X-ray diffractometer from Funds of FIST Scheme of DST , 2009-14 (P.I)
- vi. SIRO status of AUUP 2011-14 sanctioned by DSIR in 2005, and subsequently got renewed after every three year, 2005-08, 2008-11 & 2011-14 (Programme Leader)
- vii. Realisation of a Novel low-cost high optical absorption nano structured design for applications in photovoltaic Solar Cell Device (Co-P.I)

Projects submitted

- viii. Toxicity assessment of Silica coated Gold nanoparticles-Dr.Nidhi Chauhan (PI), Dr.R.P.Singh (Co-PI)-Rs.53.00 lac - DBT
- ix. Development of functionalized Silica-Titania nanoparticles for self cleaning super hydrophobic surfaces- Dr.Arпита Bhattacharya (PI), Dr.R.P.Singh(Co-PI)- Rs.50.37 lac - SERB (DST)

Ph.D STUDENTS

Produced : One- Dr.Monika Joshi – Topic of Thesis :Studies of Polymeric Nanocomposite based sensors for humidity and gas detection

Enrolled: One-Mr.Reject Paul-Topic of Thesis: Development of a nanomaterial based method for the toxicological detection and monitoring of organophosphorus pesticide in Blood, urine and saliva for the forensic applications.

INVITED LECTURES

S.No.	Conference /Seminar	Date (Duration)
1.	Advances in Process Control & Instrumentation Engineering (RAPCIE 06), Kurukshetra University (2006) - Nanotechnology - A Promising Discipline,	23-25 February 2006
2.	Indian Science Congress Association, Vishakhapatnam, Andhra University	3-7 th January 2008
3.	4 th Nanotechnology Conclave 2009 at New Delhi	April 14-15' 2009
4.	India-Finland Workshop on Nanotechnology application organized by CII at Hotel The Grand,	27 th November 2009
5.	Pravasi Bhartiya Divas- 2010 – Seminar on Nanotechnology at Vigyan Bhawan	7 th January 2010
6.	Indo-Australian Solar Energy Workshop organized by AIAERS	9 th -10 th February 2010
7.	EU-India Workshop at India Habitat Center at New Delhi	1 &2 November 2010
8.	International Conference on Forensic Nanotechnology, Gujarat Forensic Science University -Forensic Nanotechnology and its applications (invited talk)	25 th -26 th March 2011.
9.	Seminar on Nanotechnology at Indian Institute of Metals- 'Indian status of Nanotechnology and its future perspectives' (Keynote Speaker)	5 th May 2012
10.	Dynamics of research opportunities in education in India and the Netherlands at AIS, Saket	28 th September 2012
11.	5 th Bangalore Nano	5-7 December 2012

12.	100 th Indian Science Congress Association, Kolkata-Green Nanotechnology and its application in Health Care' (invited talk)	3-7 January 2013
13.	One day Semianr on Fibre/Nanomaterials: Application & Safety, Amity Lucknow Campus –Regulatory science research & innovation in nanotechnology for health care (invited talk)	2 nd February 2013
14.	One day National Conference on Relevance If Nanotechnology in Biology, Hans Raj College,DU – Nanotechnology: An Indian Initiative of Regulatory Science Research and Innovation for Health Care (Invited talk)	1 st March 2013
15.	Amity Institute of Forensic Science 'Application of Nanotechnology in Forensic Science' (invited talk)	15 th March 2013
16.	IIMT Engineering College-Meerut 'Green Nanotechnology and its application in Health Care' (invited talk)	13 th April 2013
17.	Brain Storming Workshop on 'Nanotechnology in Agriculture: Scope and its Current Relevance' at NAAS Complex, New Delhi	23 rd April 2013

INVITED TALK IN FOREIGN COUNTRIES

S.No.	Conference /Seminar	Date (Duration)
1.	Congress of GCNN and SSNN on Neuroprotection & Neuroregeneration, Romania	3-7 Mar 2008
2.	IEEE Conference, International Conference on Nanotechnology, Portland, USA	August 15-18, 2011
3.	Global Summit on Regulatory Science Research and Innovation from at Arkansas, USA.	10-13 August 2011

SEMINAR / CONFERENCE ORGANISED

- a) **National Conference on 'Nanomaterials and Application'** organized on **27-28 May 2005**.
- b) **One day Seminar on 'Nanoscience advances at the interface of biomedicine and technology'** organized on **21st February 2012** (in collaboration with IIT-Khargpur-Prof.S.K.Guha)
- c) **Two day Seminar on 'Nano-Pico Pharmaceuticals & Invivgensome', December 26-27, 2012**
- d) **Organised Science Day on 28 February 2013**

AWARD/RECOGNITION

'**International Biographical Center**', Cambridge included Dr. R. P. Singh in '**2000 Outstanding Scientists of the 21st Century**', in honour of his outstanding contribution in the field of Applied Physics & Instrumentation