

Directorate of Outcome

Outcome Report(Event/Activity Organized @ AUH)

1. General Information

Date: 30th March 2022 **Event Type:** Expert Lecture

Event Title: Expert Lecture by DRDO scientists

Event Theme: Boost the newly launched Defense Technology Course

Venue: D Block Conference Room

Web/Video Link of the Event: https://amityuni.live/85876206436

Organized by: Defense Cluster and Amity Centre of Nanotechnology

In collaboration with: Govt. Agency (Central)

Event Level: Institutional and National (The event was organized on hybrid mode so that all Amity Universe defense cluster people can join)

Student Participation*: 45

Faculty Participation*: No. of Faculty Members from AUH (Dept. wise): 2 ACNT, 1 ASAS, 3 ASET, 1 Dean student welfare, Online participants: 49

Participation from outside AUH*: No. of Students & Faculty Members- NA

(Enclose attendance sheets in given format)

Event Coordinator(s) with designation: Prof. Atul Thakur, Director ACNT Details of Expert/Speaker/Resource Person/Judge:

SN	Country Name	Expert Name	Organizatio n Name	Designation	Specialization	Contact No.	E-mail Id	CV of Expert (Yes/ No)	Major Areas where Amity can Collaborate with expert	Recomm ended by
1	India	<mark>Shri</mark> Prateek Kishore	TBRL, DRDO	Director	Explosives and different nanomaterial s		Kishor e.prat eek@y ahoo.c om			
2	India	<mark>Dr. P.K.</mark> Soni	TBRL, DRDO	Jt. Director	HMX and other explosives		pram odsoni @yah oo.co m			

Criteria of Inviting Resource Person/Judge/Speaker/Judge (Write a paragraph):

For joint collaborations and internships for students of the newly launched course of M.Tech in Defense Technology.

Were the guest known in advance and if yes, from what previous interaction (Write a paragraph)?

As Prof. Atul Thakur has completed one research project with Terminal Ballistic Research Laboratory (TBRL) DRDO, guided some scientists for PhD degree earlier and have since known Shri Prateek Kishore, Director TBRL and Dr P.K Soni Jt. Director TBRL. I appraised these scientists about the Defence Cluster at Amity and invited them to interact with our M.Tech Defence Technology Students, Research Scholars and Scientists. The main motive of this event was to provide exposure and insight into DRDO activities for our M.Tech. Defence Technology students and scientists involved in defence related research and also to explore joint ventures.

2. Outcome of the Event with Time Lines (Proposed/Achieved)

Envisaged Outcome	Tangible/ Intangible	Achieved/ Proposed	Target date & responsibilities (if proposed)	Details of outcome
1. Outcome related to Academia Co	nnect			
a) Collaborations for Research Papers / Conference Papers/ Book Chapter etc.				

b) Collaborations & MOU for Research							
Guidance [PhD, PG & UG (summer							
training, Dissertation)] &							
Projects/Use of Instruments etc.							
c) Collaboration for Funded Projects							
2. Outcome related to Industry Com	nect						
a) Placement							
b) Collaborations for Research Papers							
c) Collaborations & MOU for Research							
Guidance [PhD, PG & UG (summer							
training, Dissertation)] & Projects/Use							
of Instruments		ļ					
d) Collaboration for Funded Projects							
3. Outcome related to Society Outre	ach						
a) Benefit to society in terms of Health							
& Hygiene							
b) Benefit to society in terms of							
Education	<u> </u>						
4. <u>Outcome related to Students Learning & Grooming</u>							
5. <u>Any other</u>							

3. Event Report along with glimpses of the event (Photographs)

3.1 General Introduction of the Event

As an initiative by the Defense cluster, we are organizing two Expert talks by Shri Prateek Kishore, Director, TBRL, DRDO and Dr. P.K. Soni, Jt. Director, TBRL, DRDO to enhance and discuss the defence technology challenges and opportunities which would be very beneficial and embarking for the newly launched course on Defence Technology.

3.2 Inspiration & Objectives of the Event

The objective behind this event was to put together all the people of the defense cluster and to promote connectivity among the experts in defense technology and to share the latest updates by interacting with the specialists in this field.

To enlighten the students of M.Tech Defense Technology and how it would be beneficial and embarking for this newly launched course.

3.3 Brief about the address/talk of speakers

Hon'ble founder president graced the occasion and provided words of wisdom. During his talk he offered Honorary Professor to Shri Prateek Kishore at AUH.

Dr. W. Selvamurthy sir gave the address and concluding remarks by explaining the objectives of forming the defense cluster group are:

- To promote the connectivity among the experts in particularly Defense Technology.
- To give force multiplier effect to the thoughts through interaction of various minds working in a specific area together in functional cluster mode.
- To share latest updates in Defense Technology. Formulation of multidisciplinary integrated projects for submission to the funding agencies.

Prof. Atul Thakur, Director AINT and Chief Coordinator for Thematic Research Cluster - Defense Technology gave the welcome address where he discussed thanked the Hon'ble founder president Sir Dr. Ashok K Chauhan and Hon'ble Chancellor Dr. Aseem K Chauhan to make self reliant India. He explained that this is the 17th research cluster named as "Defense Cluster". This cluster is multidisciplinary and versatile as it comprises of scientists from all the Amity Universe. The objective behind formation of this cluster is to promote connectivity among the experts in defense technology and to share the latest updates by interacting with the specialists in this field. He also explained how this talk will enlighten the students of M.Tech Defense Technology and how it would be beneficial and embarking for this newly launched course.

Shri Parteek Kishore

OS and Director, TBRL Topic - Defence Technologies – Challenges and Opportunities

- 1) Testing and performance evaluation
- 2) Production and processing of high explosive compositions
- 3) Arena layout for lethality assessment of shells, bombs and warheads
- 4) Instrumented ballistics range
- 5) High speed photography for terminal ballistics
- 6) Instrumentation for blast and damage
- 7) 450 KV flash radiography
- 8) Modeling and simulation capabilities
- Products developed by TBRL
- Less lethal plastic bullets
- Exploders for torpedoes
- Fine HMX
- Mechatronic fuse for MMHG
- ESA Fuse for mortars and Bombs
- **Operational Scenario**
- Hit before you get detected
- Hit, beyond survivability
- Detect and disable C4ISR of enemy, before getting detected

Dr Pramod Kumar Soni

 Defence research & Development Organization (DRDO) Terminal Ballistics Research Laboratory (TBRL)

Topic – Curiosity Driven Sciences: Leading to Technology and Product

- Investigation
- Why few of the solid phase transition not studied ??
- Why few phase transition happens only in solution phase, that to in one direction only ??
- What condition lead to formation of less stable polymorphs and is it possible to revert them back to stable form ??
- What are special properties of less stable polymorphs ??
 - Experiments on HMX compounds such as trinitrotoluene (TNT), RDX i.e. silver nitrate etc.
 - Interconversion of various polymorphs i.e. α , β and γ forms of various HMX compounds
 - Solid phase reactions which lead to solid phase transitions: Why only limited transitional phenomenon are studied.
 - Conversion of stable polymorphs into less stable polymorphs under certain conditions.
 - Conversion of γ form which is less stable into more stable β form via energy driven process.
 - Removal of water molecule from the β form to cause phase transformation of β form into γ form

Reported Phase Transformation

Inter conversion of different polymorphs of HMX with temperature Sensitivity to impact: d > g > a > blarge volume expansion (7%) occurs during the b-d phase.

3.4 **'Take Homes' for the Guest and Attendees**

To become self reliant India.

Technology development and product development are equally important. Dedication and sincerity a\is required with a focused approach. Future technocrats should work to achieve these objectives.

3.5 Future plan for utilizing the contacts developed with the Invited Guests

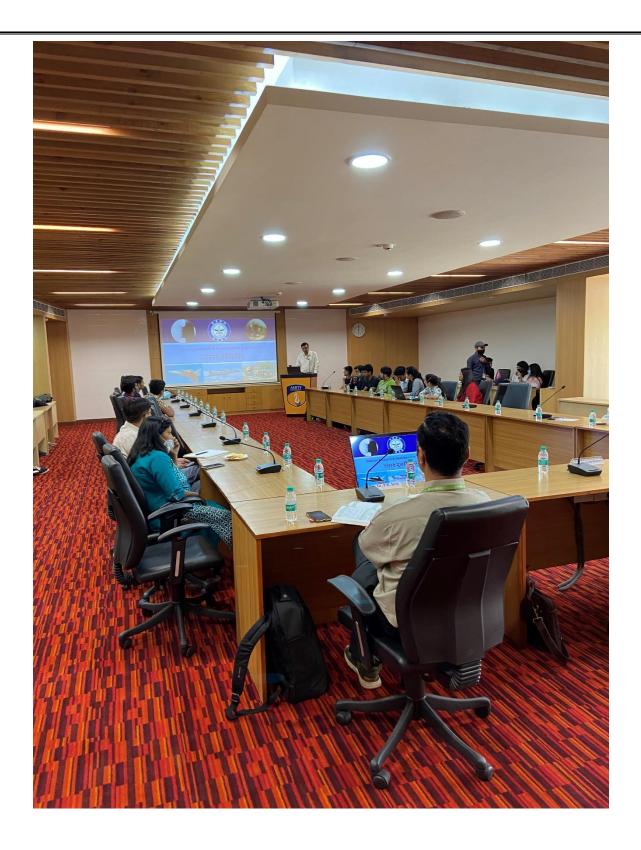
- Visit of our M.Tech. Defence Technology Students to TBRL
- B. Tech/M.Tech Internship at TBRL
- Enrolling TBRL scientists for PhD program at Amity University
- Offer research facilities at TBRL for our students
- Endorse our research projects

• Endorse workshops/seminars

3.6 Budget of the Event(Budget Sanctioned, Total Expenditure & Revenue Generated) NA 3.7 Details of Awards if Any:

Awardee Details	Award / Position / Recognition Secured	Title of Innovation/ Start-up Secured the Award / Recognition	Award/Recognition/ Achievement Received for
NA	NA	NA	NA
3.8 Photographs with ca	ption (also share high r	esolution JPEG files of photo	ographs)
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Defence Technolo	ogies – Challenges & Opportuniti	es	
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	OS & Director, TBRL		
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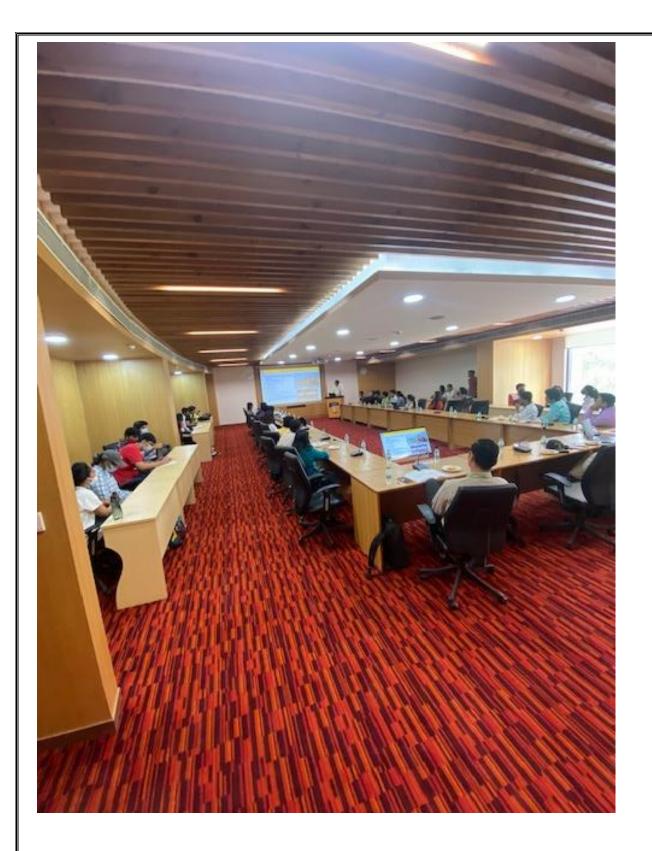








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3.9 Scanned copy of attendance sheets



Expert Lecture by DRDO Scientists

Attendance Sheet

Sr. No.	Faculty Name & Designation	Department / Institute	E-Mail	Phone Number	Signatures
1	Shivanijani (stubut		vallerati diversijari	62-606-	180
2	Aromma Singh (Studa	BSCIT	Aronina single	6305390550 7900940365	Aval
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Expert Lecture by DRDO Scientists

Attendance Sheet

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Attendance Sheet

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Signature of HOI

Stamp of the Department