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DRDO CELEBRATES NATIONAL SCIENCE DAY 2023



National Science Day

28th February 2023 at 1030 hrs

Chief Guest

Dr Rangan Banerjee

Director, IIT Delhi

Organised by

Defence Science Forum (DSF)

Kothari Auditorium, DRDO Bhawan, New Delhi





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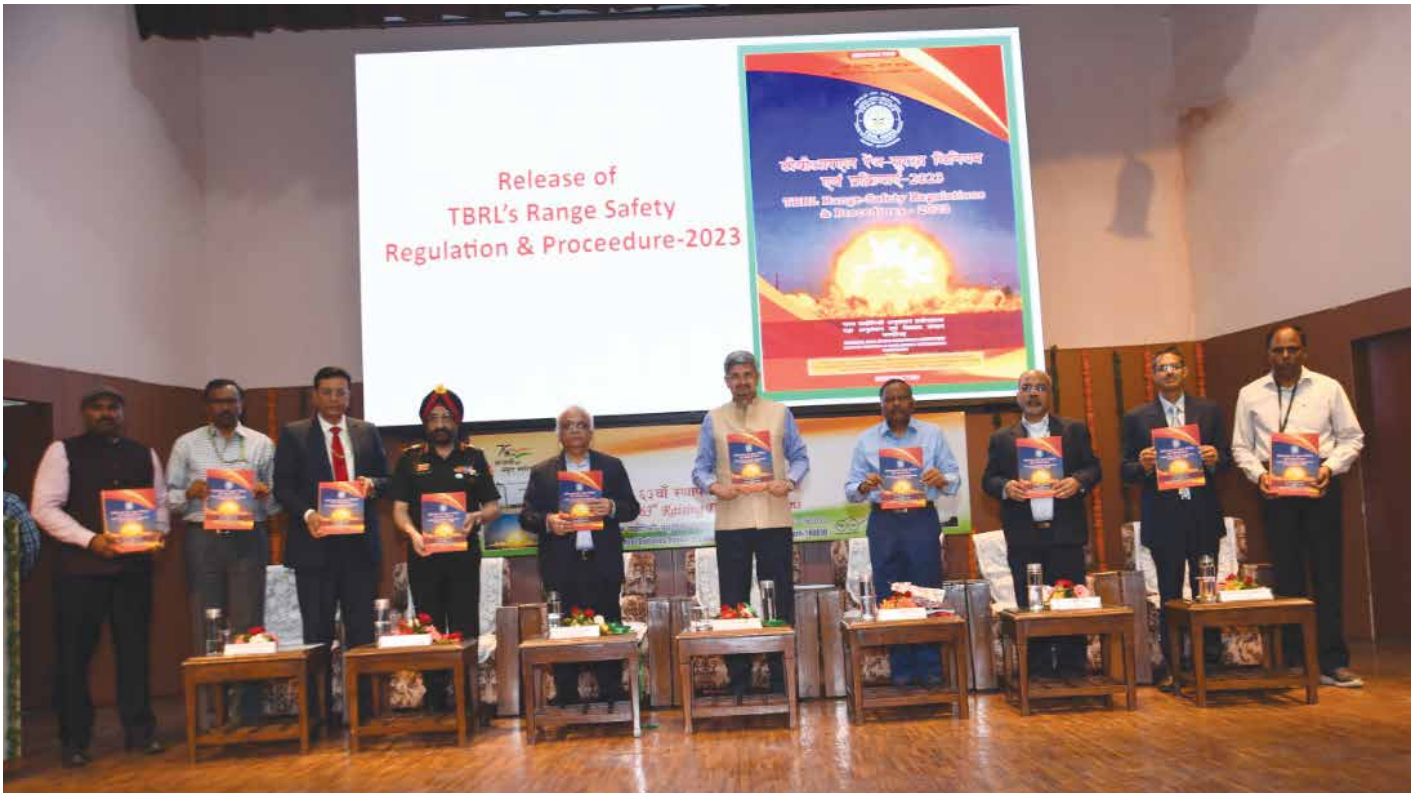
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- Ambarnath** : Dr Susan Titus, Naval Materials Research Laboratory (NMRL)
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Shri ARC Murthy, Defence Electronics Research Laboratory (DLRL)
Dr Manoj Kumar Jain, Defence Metallurgical Research Laboratory (DMRL)
Shri Lalith Shankar, Research Centre Imarat (RCI)
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- Tezpur** : Shri KS Nakhuru, Defence Research Laboratory (DRL)
- Visakhapatnam** : Smt Jyotsna Rani, Naval Science & Technological Laboratory (NSTL)



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DRDO CELEBRATES NATIONAL SCIENCE DAY 2023

Defence Research & Development Organisation (DRDO) celebrated National Science Day 2023 (NSD 2023) through lectures, orations, and open house activities in its laboratories and establishments on 28 February 2023. A special function was organised by the Defence Science Forum (DSF) at DRDO Bhawan. Secretary Department of Defence R&D and Chairman DRDO Dr Samir V Kamat presided over the function. The Director of the Indian Institute of Technology (IIT), Delhi, Prof. Rangan Banerjee, was the Chief Guest for the occasion. Dr G Satheesh Reddy, Scientific Advisor to Raksha Mantri (SA to RM), was also present during the occasion.

The theme of this year's NSD was 'Global Science for Global Well-being'. The DRDO Chairman greeted the scientific community on the occasion and spoke about the importance of commitment to science for delivering quality products/technology to the Services.

Addressing the gathering, SA to RM stated that scientific research is very essential to developing first-of-their-kind products. He stressed that the focus should be on basic science so that newer, state-of-the-art technologies and systems can be developed.

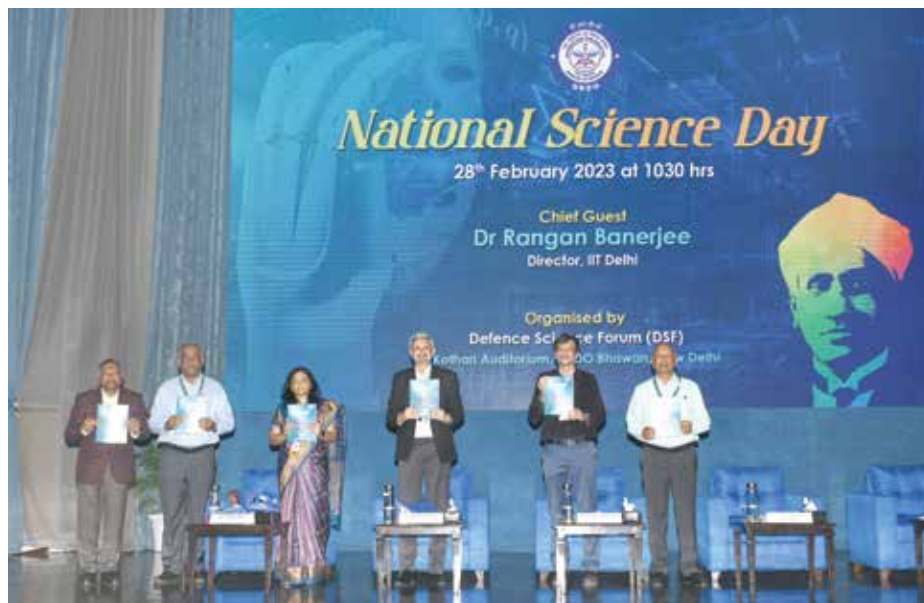
Prof. Banerjee delivered a lecture on 'International Collaborations in Science and Engineering-A View from IIT-Delhi', wherein, he brought out the importance of global collaboration in the field of scientific research

for finding solutions to the world's problems. He emphasised the need to identify synergies and create an enabling ecosystem for the translation of ideas. He highlighted the successful joint research programme of DRDO and IIT-Delhi, which has led to successful research endeavours. He highlighted that DRDO should act as a catalyst, thought leader, and facilitator in key strategic areas of research.

A total of 39 oration papers were received from various DRDO labs/establishments, of which three were selected for presentation at the event as DRDO Science Day orations. Shri Hari Singh, Sc 'F' from Hyderabad; Shri Laxman Mawani, Sc 'E', from Bengaluru; and Shri Kumar Vyonkesh Mani, Sc 'E' from Delhi, delivered the presentations on their respective areas of work in the area of defence research. Dr Banerjee awarded the orators with a medal and certificate for their presentation. DRDO

Science Spectrum, the compilation of all the scientific papers received (for National Science Day 2023), from various DRDO laboratories, was released on the occasion.

National Science Day is celebrated on 28 February every year to commemorate the discovery of the "Raman Effect" in 1928 by Sir Chandrasekhara Venkata Raman, which led to the Nobel Prize being awarded to him in 1930. The purpose of celebrating this day is to enhance scientific temper, promote popularization of science, and encourage innovative activities by infusing scientific temper in the masses and creating a positive scientific research culture. DSF is a platform of DRDO where the scientists of various disciplines interact to foster fellowship, the exchange of ideas with luminaries of different disciplines, and the feasibility and planning of all inter-disciplinary projects where expert opinion is required.





Besides, the celebrations at DRDO HQrs, following laboratories also celebrated NSD 2023 at their respective places.

ACEM, NASIK

The Advanced Centre for Energetic Materials (ACEM), Nasik, celebrated NSD on 28 February 2023. Dr PK Mehta, former DG (ACE) was invited as the Chief Guest. Shri TV Jagadeeswar Rao, Sc 'G' & General Manager, ACEM, and Shri RS Patil, JD, HRD, welcomed the gathering and highlighted the significance of the day. The NSD oration was given by Shri Ehtasimul Hoque, Sc 'C', on 'Rheo-Kinetic Study of Primacene and HTPB-based Composite Propellants'. The Chief Guest also delivered the keynote talk on 'Investigation on the Utilisation of High Energy Propellant Waste in the Manufacturing of Building Materials'. The ACEM Annual Report for the year 2022 was also released by the dignitaries.



CAS, HYDERABAD

Centre for Advanced Systems (CAS), Hyderabad celebrated NSD 2023 on 2 March 2023. Shri BV Papa Rao, OS & Director, CAS, in his speech discussed the contributions made by Indians in the world of science, namely, the invention of zero, the decimal system, algebra, trigonometry, ayurveda and yoga. NSD 2023

oration was given by Shri Ch Srikanth, Sc 'E' on 'Aerodynamic Characterisation of Hypersonic Missiles'. Director, CAS presented a memento to the orator.



DESIDOC, DELHI

Defence Scientific Information and Documentation Centre (DESIDOC), Delhi celebrated NSD 2023 on 28 February 2023. Shri Nishant Kumar, Sc 'E' gave an oration on 'The Future of Web-Development: Latest Trends and Technologies'. He spoke on the emerging technologies that are affecting web-development activity and the technological trends that are going to shape the future of websites and web portals. Dr K Nageswara Rao, Director, DESIDOC, also addressed the DESIDOC fraternity. He talked about the Raman effect and the importance of celebrating the day as NSD.



DIHAR, LEH

Defence Institute of High Altitude Research (DIHAR), Leh (J&K), celebrated NSD on 28 February 2023. On the occasion, Dr OP Chaurasia, Director, DIHAR, highlighted the importance of the day. Dr Vijay K Bharti, Sc 'E', delivered his research work on 'Studies on Camel Physiology and Their Suitability as Pack Animals in High Altitude'. The occasion was presided over by eminent scientist Professor Dinabandhu Sahoo, Director, Centre for Himalayan Studies, and Senior Professor, Department of Botany, University of Delhi, Delhi, who delivered a lecture on 'S&T Impacting Lives'.

Dr Sanjukta Sahoo, Head, Department of Civil Engineering, Kalinga Institute of Industrial Technology (KIIT), Bhubaneswar, also delivered her lecture on 'Climate Resilient Concrete for High Altitude'.



DLRL, HYDERABAD

Defence Electronics Research Laboratory (DLRL), Hyderabad, celebrated NSD 2023 by organising a technical talk by Dr DR Jahagirdar, Sc 'H', Research Centre Imarat (RCI), Hyderabad on 28 February 2023. Smt Lakshmi, Sc 'F', Chairperson gave a speech on the importance of the day. Dr Jahagirdar spoke on 'Trends in Radar-Seeker Technologies'. He spoke about the new technologies in radar-seeker and how to use them in defence



applications. The talks were followed by a Q&A session.



DMRL, HYDERABAD

Defence Metallurgical Research Laboratory (DMRL), Hyderabad, celebrated NSD on 28 February 2023. The oration was delivered by Dr Partha Ghosal, Sc 'G' and Head, Advanced Materials Characterisation Center/Electron Microscopy Group, on 'Development of Nano and Advanced Materials: Exploring the Science by Microscopy Techniques'. His lecture mesmerised the audience, and his elaborate description of the journey of science, with microscopic techniques was very much appreciated by all scientists. Dr R Balamuralikrishnan, OS, and Director presented him the NSD 2023 medal after the oration.



DSP, HYDERABAD

The Directorate of Special Projects (DSP), Hyderabad, celebrated the NSD 2023 on 28 February 2023. Ms Rukmini

Banda, Sc 'F' welcomed the gathering and briefed about the programme. The Hon'ble Chief Guest, Dr Burra G Sidharth, Theoretical Physicist and Astrophysicist and Pioneer of a number of concepts and works graced the occasion. Director, DSP Dr PSR Srinivasa Sastry, and Associate Director Dr Anupam Sharma addressed the gathering, highlighting the importance of the occasion.

Dr Sidharth presented glimpses of the Nobel Prize winner's works and experiments in physics, from classical Raman scattering to the entangled photons of quantum physics. The programme was a great success.



INMAS, DELHI

Dr Rashi Mathur, Sc 'F', delivered the NSD oration 2023 on 'Nano-Bio-Materials: A Materials Science Approach to Their Biomedical Applications' at the Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, on February 28, 2023. She focused on biomedical applications from a material science perspective. She also highlighted the versatility of the materials for diverse applications, from camouflage and stealth to biomedical i21 imaging and therapeutics. Dr Anil Kumar Mishra, Sc 'G' & Director, INMAS presented NSD medal and certificate to the orator.



ITM, MUSSOORIE

National Science Day 2023 was celebrated at the Institute of Technology Management (ITM), Mussoorie, on 28 February 2023. Dr DK Panda, Sc 'F' gave an oration on 'Evolving Algorithm for Multi-Attributes Evaluation of Assault Rifles'. Shri SA Katti, Sc 'G' and Director, ITM, felicitated Dr Panda with a medal and certificate. Director, ITM in his address highlighted the importance of science in our day-to-day lives. He emphasised that every person should have a scientific temper. The event was concluded with a vote of thanks by GP Capt RK Mansharamani, GP Head, Tech Coord.



ITR, CHANDIPUR

Integrated Test Range (ITR), Chandipur celebrated NSD 2023 on 28 February 2023. Shri HK Ratha, Director, ITR in his inaugural address highlighted the importance of S&T in modern life. He said that S&T are inextricably



linked to everyday activities. He broadly elaborated on the practical application of S&T in ITR. Ms B Sucharita, Asso. Director spoke about the theme 'Global Science for Global Wellbeing'. Dr Sourav Kaity, Sc 'F', presented an oration on 'Prioritization of Electro-optic sensors to Track and Improve Accuracy of Moving Object Position'.



MTRDC, BENGALURU

National Science day was celebrated at the MTRDC, Bengaluru on 28 February 2023. Shri Saket Khandekar, Sc 'E' gave the NSD 2023 oration on 'High Voltage Pulsed Powered Systems- A Conceptual Overview'. He was felicitated with the NSD certificate and Medal.



NPOL, KOCHI

Naval Physical and Oceanographic Laboratory (NPOL), Kochi celebrated NSD by organising an invited talk by Prof. (Dr) Mohan Kumar, Founder Director, ACARR,

Cochin University of Science & Technology (CUSAT), Kochi on 'Changing Climate: Causes & Consequences'. He explained the factors influencing change in climate, cause of global warming, and the importance of coastal level management in India.

Dr Mohan kumar also discussed the impact of climate change in agriculture, water resources, fisheries, marine diversity, and human health. Shri Suresh M, Sc 'H' & Officiating Director addressed the gathering and presented memento to Prof. Mohan kumar. Patentees of NPOL in 2022 were felicitated by Officiating Director during the event.



NSTL, VISAKHAPATNAM

Naval Science & Technological Laboratory (NSTL), Visakhapatnam, celebrated NSD 2023 on 28 February 2023. Dr Y Sreenivas Rao, OS & Director, NSTL; Chief Guest Dr V Seshu Bai, Professor Emeritus, School of Physics, Central University of Hyderabad; and Distinguished Guest Surgeon Rear Admiral R Ravi, Command Medical Officer, Eastern Naval Command, were also present on the occasion.

On the occasion, the Transfer of Technology (TOT) of 'Mk-II 200 AH Lithium Ion Battery Technology' was handed over to Shri GSN Murthy, GM, BEL, Pune.

To promote innovations in schools, NSTL provides an opportunity for the students of Mrs Mariyadas UP School to present their invention on 'Wireless Charging of Electric Vehicles Using Wireless Power Transfer'. The project was selected from Andhra Pradesh along with the other seven projects that were selected for the next round among the 4,000 nominations received all over India for the McMillan Budding Scientist Award 2022-23.



TBRL, CHANDIGARH

National Science Day was celebrated at the Terminal Ballistics Research Laboratory (TBRL), Chandigarh on 28 February 2023. The occasion was graced by the presence of Chief Guest Dr Shooja A, OS, and Deputy Director, Trivandrum. The Chief Guest gave an invited talk on 'ISRO Space Odessey' and explained about various space programmes of ISRO. The Science Day oration was delivered by Ms Ritu Khurana, Sc 'F'. She delivered a talk on 'Compressing Development Time of New Explosive Formulations through Detonic Evaluation'.



HANDING OVER OF COGNITIVE BATTERY FOR OFFICER SELECTION TO INDIAN ARMED FORCES

The Defence Institute of Psychological Research (DIPR), Delhi has developed and standardised a Cognitive Battery for Officer Selection (CBOS 1.0) for the selection of candidates into the commissioned ranks of the Indian Armed Forces. CBOS 1.0 is a fully computerised system that includes tests assessing eight cognitive abilities. CBOS is a user-friendly, assessor-independent system with automatic scoring and result generation. A comprehensive presentation on CBOS was made by Dr Gurpreet Kaur, Sc 'F', Principal Investigator.

The CBOS was handed over by Dr UK Singh, OS & DG (LS), to Lt Gen NS Sarna, SM, VSM, Director General Recruiting, IHQ MoD (Army), on 21 March 2023 in the



presence of Dr K Ramachandran, OS & Director, DIPR, and Dr Soumi Awasthy, Sc 'G' & Project Director, as well as other senior

scientists and service officers from the Indian Army and Indian Navy. CBOS 1.0 was handed over to the Indian Navy as well.

DRDO CONDUCTS TWO FLIGHT TESTS OF VERY SHORT RANGE AIR DEFENCE SYSTEM MISSILE

On 14 March 2023, the Defence Research and Development Organisation (DRDO) successfully conducted two consecutive flight tests of the Very Short Range Air Defence System (VSHORADS) missile at the Integrated Test Range, Chandipur off the coast of Odisha. The flight tests were carried out from a ground-based man-portable launcher against high-speed unmanned aerial targets, mimicking approaching and receding aircraft. The targets were successfully intercepted, meeting all mission objectives.



INTERNATIONAL YEAR OF MILLETS

On the occasion of the International Year of Millets-2023, a special programme on 'Millets and their Benefits' was organised by the Estate Management Unit (R&D), Hyderabad on 7 March 2023 at Hyderabad. Eminent speaker Padmashri Dr Khader Vali, the Millet Man of India, delivered a talk and enlightened the scientific community. He advised taking millet to lead a healthy life and avoid various diseases that affect health.

A large number of DRDO employees and their family members participated in the programme which was a great success. Stalls were organised by Rythu Nestham, and millets were sold at a reasonable price. The programme was attended by Shri



GA Srinivasa Murthy, Director, DRDL; Dr Shaikh Ghouse Mohiddin, Estate Manager; and

the Chairman, Rythu Nestham, and Padmashri Y Venkateswara Rao.

LAB SCIENCE COUNCIL TALK AT NSTL

The Naval Science & Technological Laboratory (NSTL), Visakhapatnam, organised its Science Council Meeting on 17 January 2023. As part of the ongoing series of technical talks conducted by the Laboratory Science Council, Sri SL Srinivas, Sc 'E' delivered a talk on 'Non-contact Cross Medium Connection'. Dr K Raghavendra Rao, a veteran film director, and producer, also gave an invited talk. He compared the audience of movies to the users (Army, Navy, & Air Force) of weapons being developed by DRDO laboratories. He suggested the scientific community give the best outputs to the nation with a strong positive attitude. He



concluded his speech by saying, "The creativity of our cinematic world can lead to success with the innovations of your scientific world".

The programme was presided over by Dr Y Sreenivas Rao, OS & Director, NSTL. All senior scientists, officers, and staff participated in the programme.



DEFENCE SECURITY CORPS DAY

The Defence Security Corps (DSC) has an important and vital role to play in safeguarding and protecting the defence installations, depots, and establishments throughout the country, both during peace and war. The threat from within and outside the country has multiplied manifold in recent years, making the task of DSC more challenging and critical. The Defence Metallurgical Research Laboratory (DMRL), Hyderabad, celebrated its 76th Defence Security Corps Day on 26 February 2023. Dr R Balamuralikrishnan, OS & Director, DMRL, along with other distinguished guests of the laboratory and troops of the DSC fraternity attended the event. The



event commenced with a welcome note, was followed by a cultural programme, a motivational

speech by the Director, DMRL, prize distribution, and concluded by Bara Khana with troops.

RAISING DAY CELEBRATIONS

DEAL, DEHRADUN

Defence Electronics Applications Laboratory (DEAL), Dehradun celebrated its raising day on 23 February 2023 with great zeal and passion. To commemorate the occasion, various sports events were organised including cricket, football, volleyball, badminton, table-tennis, field events, etc. Large number of DEAL employees participated in these events. The show stopper was musical chair event in which senior dignitaries participated along with performance by Army band.

Dr BK Das, DG (ECS) in his motivational address urged the employees to give their hundred percent in ushering the nation



in Amrit Kaal. Shri LC Mangal, Director DEAL, outlined the DEAL achievements during 2022 and plan for the coming years.

Awards and citation to the winners were presented by Dr Das, LC Mangal, Shri Ajay

Kumar, Director IRDE, and other dignitaries.

In the evening, a cultural program 'Kalakriti-2023' with inclusive flavour showcasing the diverse culture of our country was presented by the DEAL employees.

INMAS, DELHI

The Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, celebrated its 62nd Annual Day on 3 March 2023. Dr Upendra Kumar Singh, DG (LS), DRDO, was the Chief Guest on the occasion. Dr AK Mishra, Director, INMAS, welcomed the guests and highlighted the extraordinary efforts made by INMAS in various scientific endeavours, including the management of the Covid-19 pandemic. He also elaborated upon the recent achievements of the laboratory and shared the growth path and future vision of INMAS.

The Chief Guest in his address appreciated the exceptional contribution of INMAS in COVID-19 management and therapeutic development. Under the initiative 'Break the Barrier-walk and talk with DG(LS), many INMAS employees from the DRDS, DRTC, and Admin & Allied cadres interacted with him. On the occasion, the Chief Guest felicitated meritorious employees of INMAS for their outstanding contributions. INMAS employees who completed 25 years of service were also felicitated.

ITM, MUSSOORIE

The Institute of Technology Management (ITM), Mussoorie, celebrated its 61st Raising Day on 24 February 2023.

The event was inaugurated by Chief Guest Swami Asimatmananda, Adhyaksha, Ramakrishna Ashrama, Dehradun; Guest of Honor Shri Sangam Sinha, Former Director General, and Shri SA Katti, Director, ITM. In his address, Shri Sinha highlighted the



Dr AK Mishra, Director, INMAS and Dr Upendra Kumar Singh, DG (LS) during INMAS Raising Day Celebrations



61st Raising Day Celebrations at ITM, Mussoorie

importance of ITM towards nation-building.

Thereafter, Chief Guest Swami ji addressed the gathering. He brought out that all our actions must lead to the same goal of nation-building and the well being of everyone on this planet. He also emphasized the famous quote of Swami Vivekananda "Service to man is service to God".

As part of the celebration, various competitions such as photography, slogan, quiz were organised. Hindi magazine, 'Srijan' was also released during the event. Shri Katti thanked the Chief Guest and Guest of Honor for gracing the occasion. The event was concluded with a vote of thanks by Mrs Anita Mohindra, Sc 'F'.



SSPL, DELHI

The 61st Raising Day of the Solid State Physics Laboratory (SSPL), Delhi, was celebrated with immense joy on 1 March 2023. It was marked by the august presence of Dr Samir V Kamat, Secretary DDR&D & Chairman DRDO, and Ms Suma Varughese, OS & DG (MED, CoS & CS), who graced the occasion as Chief Guest and Guest of Honor respectively. In his address, the chief guest expressed a sense of great pride in the accomplishments made by SSPL over the years and wished that, at 75 years of SSPL, DRDO should be known for the achievements of SSPL. Ms Varughese appreciated the efforts made by SSPL and emphasized the need for hours to perform more diligently for



ongoing and upcoming activities. The two esteemed guests also visited the exhibition of SSPL products and appreciated the efforts of the laboratory.

Dr Seema Vinayak, OS & Director, SSPL, addressed the gathering and presented an overview of the laboratory's

achievements in the year 2022. She also highlighted the futuristic activities required to be undertaken by the laboratory. SSPL Annual Report-2022 and Hindi Patrika 'PRATIBIMB' were also released by the dignitaries. Laboratory's Hwas also released on this occasion.

TBRL, CHANDIGARH

Terminal Ballistics Research Laboratory (TBRL), Chandigarh celebrated its 63rd Raising Day on 20 March 2022 at TBRL Ranges Ramgarh, District, Panchkula. Dr Samir V Kamat, Secretary, DDR&D and Chairman, DRDO was the Chief Guest for the occasion. He applauded the role and achievements of TBRL and shared the requirement to increase interactions with industry and academia. In his address he appreciated the role of scientists working in the field of test & evaluation of armaments and protective systems. He further added that the test facilities at TBRL are being extended to Indian Industries, R&D Institutions and Academia to support Make in India.

Dr BHVS Narayana Murthy, DG (MSS) and Shri KS Varaprasad,

DG (HR) were the Guest of Honor. Dr Narayana Murthy while congratulating TBRL, stressed the need to develop next generation technologies. He said, Applied research should be promoted to nurture young brains and talent in all areas. Shri Varaprasad speaking on the occasion lauded the role and contributions of all former Directors who chalked out the vision and provided a road map for future growth.

While welcoming the Chief Guest, Guests of Honor and other distinguish guests, Prof Prateek Kishore, Director TBRL highlighted the achievements in year 2022 and plan for 2023 of TBRL. He brought out the details of interaction with academic institutions and industry. A detailed plan for augmenting

the capacity and capabilities for different technology areas was also presented.

Multimode Hand Grenade (MMHG) developed by TBRL has been inducted into Indian Army; more than 9 Lakhs MMHG have been produced by ToT holders. On this occasion, the Authority Holding Sealed Particular (AHSP) transfer of MMHG was done from TBRL to Controller Quality Assurance (A) in presence of Dr Kamat and Lt General RS Reen, Director General, DGQA.

During Raising Day celebration, employees were recognised for their successful completion of 25 years service in TBRL /DRDO and appreciation certificate were also awarded for noteworthy contributions of employees. The event was concluded with a cultural



programme by the employees of TBRL. During this occasion, former Directors of TBRL, Shri M Balakrishnan, Dr Satish Kumar, Dr Manjit Singh and Directors of various DRDO laboratories and Corporate Directors from DRDO HQs were also present during the occasion.

JCM-III level DRDO Council meeting was also organised on 20 March, 23 under the Chairmanship of Secretary DDR&D and Chairman DRDO. DG (HR), DG (RM) along with Corporate Directors from DRDO HQr and more than 40 officials from official and staff side from different federations attended the meeting to resolve the issue of employees in a cohesive manner.



Handing Over of AHSP of Multimode Hand Grenade to Indian Army during the Raising day Celebrations at TBRL, Chandigarh

NATIONAL SAFETY WEEK-2023 CELEBRATIONS

CAS, HYDERABAD

The Centre for Advanced Systems (CAS), Hyderabad observed National Safety Week (NSW 2023) during 4-10 March 2023. Shri G Ramaguru, OS, Programme Director, Agni & Associate Director, ASL (Retd.), Hyderabad, and Shri G Ananda Murugan, Sc 'F', Group Head Safety of ARDE, Pune, were invited as Chief Guest and Guest Speaker. All the employees of the establishment, including officers and staff of CAS, BDL, and SSQAG, took the safety and health pledge as per the National Safety Council. Shri BV Papa Rao, OS & Director, CAS, wished and highlighted the importance of the safety guidelines provided by DRDO for the integration and



production of strategic systems to avoid unwanted mishaps. He also emphasized the relevance of the theme of National Safety Week 2023 "Our Aim-Zero Harm".

Chief Guest highlighted engineering control measures for safety during Agni system development. Shri Praveen Tandon, Safety Chairman &

Associate Director CAS, delivered a lecture on 'SIMOPS Fundamental' and Guest Speaker delivered a talk on 'Safety Aspects of Ammunitions and Explosive Stores'.

The programme was coordinated and conducted by Shri Kumar Aman Anand, Sc 'D', Head Safety, CAS.



DESIDOC, DELHI

The NSW 2023 was celebrated at Defence Scientific Information and Documentation Centre (DESIDOC), Delhi during 4-10 March 2023. The focus was on building a positive safety culture, motivating employees to make the workplace safer, and promoting the participation of employees in various safety activities. A talk on 'Fire Safety Awareness' was delivered by Shri Pankaj Chawla, Sc 'D', CFEES, on 9 March 2022. On the occasion, Director DESIDOC, Dr K Nageswara Rao advised all the employees to take care of themselves, follow safety norms, and build positive safety environment.

Employees took Safety and Health pledge administered by Mrs Alka Bansal, Head, Safety Division.

A video on 'Safety hazards' was also shown to make employees aware of potential hazards and precautions that can be taken. During the safety week, essay writing, poster making, and slogan competitions were arranged. Shri Narender Kumar, Safety Officer coordinated the events.



Celebration of National Safety Week at DESIDOC, Delhi

DQRS, DRDO HQRS, DELHI

The NSW2023 was celebrated during 4-10 March 2023 by safety professionals working in different cluster laboratories to enhance safety awareness among employees. The Directorate of Quality, Reliability, & Safety (DQR&S), celebrated the inaugural session of NWS-2023 on 6 March 2023 at DRDO HQrs through an online mode. A welcome address was given by Director, DQR&S, Rear Admiral Ranjit Singh,

followed by an address by DG (PC&SI), Dr Chandrika Kaushik. Talks on 'Behaviour-based Safety Approaches' by Dr SP Garg, Advisor HSE, Former Executive Director GAIL (India) Ltd., and 'Regulatory Framework for Occupational Safety and Health' by Shri Sumit Roy, Director (Safety), RLI, DGFASLI, were also organised. Quest Biannual Magazine (6th Issue) was also released during the occasion.



Release of Biannual Magazine 'Quest' during the National Safety Week celebration at DRDO HQrs, Delhi

INMAS, DELHI

As part of the 52nd National Safety Week celebration, a technical presentation was delivered by Ms Dipti Bose, Sc 'F', Centre for Fire, Explosive, and Environment Safety (CFEES), Delhi on 'Fire and Environmental Safety: Issues and Remediation' on 9 March 2023 at Institute of Nuclear Medicine and Allied Sciences (INMAS) in the presence of Director, INMAS and other senior scientists and staff.



Ms Dipti Bose, Sc 'F' being felicitated by Dr AK Mishra, Director, INMAS during Safety Day Celebration at INMAS, Delhi

ITR, CHANDIPUR

The NSW2023 was celebrated at the Integrated Test Range (ITR), Chandipur, on March 10, 2023. Shri HK Ratha, Director, ITR, administered a pledge on safety and health to all employees of ITR and highlighted the importance of safety in range scenarios. Various competitions like quiz, essay, and poster-making competitions were conducted, along with a display of safety banners inside & outside ITR premises. On the occasion, the Target Systems Group of ITR was adjudged the Best Safety Conscious Group for the year 2022-2023. The programme was organised by Dr SK Sahu, Sc 'F' Group Director (FI & ES), Chairman Safety Committee, and his team.



National Safety Week Celebration at ITR, Chandipur

NSTL, VISAKHAPATNAM

Naval Science & Technological Laboratory (NSTL), Visakhapatnam organised NSW2023 during 4-10 March 2023. The celebrations focused mainly on bringing safety awareness at the workplace. Dr Y Sreenivas Rao, OS & Director, NSTL; Shri G Srinivasa



National Safety Week Celebration at INSTL, Visakhapatnam



Rao, Retd. DGM, NTPC; and Sri KTP Rudrappa, Senior Manager, RINL (Vizag Steel Plant) were also present on the occasion. Guest speakers Shri G Srinivasa Rao gave a talk on 'Safety Philosophy

& Risk Management and Shri KTP Rudrappa gave an insightful interactive session on 'Behaviour-based Safety'.

Shri N Ravi Kumar, Head (Safety), Shri R Srihari, Group

Director (Safety), Shri BVSS Krishna Kumar, Associate Director, and employees of NSTL participated in the valedictory programme.

TRI-SERVICES MEET AT DIPR

A meeting with Tri-Services was organised on 19 January 2023, at the Defence Institute of Psychological Research (DIPR), Delhi, to deliberate upon the user's requirements and the way ahead. The meeting was chaired by Dr UK Singh, DG (LS), and attended by Maj Gen DR Rai, VSM, ADG Rtg, Air Vice Marshal S Shrinivas, VSM, ACAS (PO), Rear Adm Sanjay Bhalla, NM, ACOP (HRD), senior representatives from all three Services, and scientists and service officers from DIPR. While appreciating the research



being carried out at DIPR, Tri-Services deliberated upon the new requirements and assured their continued support.

CELEBRATION OF WORLD AUTOMOBILES DAY

On World Automobile Day, the High Energy Materials Research Laboratory (HEMRL), Pune organised one day free vehicle (only four-wheelers) checkup camp on 30 January 2023, at HEMRL premises. The checkup included assessing the general health of the vehicle and recommending any service or maintenance. 32 four-wheelers of different makes and models were checked, and the owners were told what service they might need. Also, Mechanical Transport (MT) technicians explained various techniques to the vehicle owner for safe and efficient driving.





WORKSHOP ON ANNUAL CAPACITY BUILDING PLAN UNDER MISSION KARMAYOGI

Directorate of Human Resource Development (DHRD), DRDO HQrs, in collaboration with the Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, organised a two-day workshop on 'Annual Capacity Building Plan' under Mission Karmayogi on 1-2 March 2023 at INMAS, Delhi. As a Government of India initiative, the Capacity Building Commission (CBC) has been constituted to fulfill the vision of Mission Karmayogi and improve skills and modernise the thinking approach of government employees.

Presentations were made by representatives of the Capacity Building Commission of India.



The workshop was organised for the Training Needs Identification (TNI) of employees of various DRDO laboratories in the northern region. 158 employees

representing DRDS, DRTC, and Admin/Allied cadre from 19 DRDO laboratories participated in the workshop.

HINDI WORKSHOP AT NSTL

As part of the Annual Hindi Programme, Naval Science and Technological Laboratory (NSTL), Visakhapatnam conducted a Hindi Workshop on 13 January 2023 on 'Personal Development through Sant Kabirdas Poems'. Dr Challa Krishnaveer Abhishek, Assistant Professor, Andhra University, Vishakhapatnam, was invited as the Guest Speaker. He was welcomed by Dr GV Krishna Kumar, Sc 'G' & GD (MS, MM, FT). He was honored by Shri PVS Ganesh Kumar, Sc 'H' (OS) & Officiating Director. Shri Vivek Sharma, Sc 'E' & Rajbhasha Adhikari conveyed thanks to the guest speaker, the participants, and the organising team.





COURSE ON TERMINAL BALLISTICS OF FRAGMENTING MUNITIONS

A Continuing Education Programme (CEP) on 'Terminal Ballistics of Fragmenting Munitions' was organised by Terminal Ballistics Research Laboratory (TBRL), Chandigarh during 22-24 February 2023 to impart knowledge to participants on the theory and different requirements of the design of warheads, various critical steps involved in the development, and different performance evaluation techniques.

The course was inaugurated by Shri Pravendra Kumar, a DRDO Fellow. He delivered an invited talk on 'Introduction to Terminal Ballistics'. The course was attended by twenty participants.

Speakers from TBRL and some other DRDO laboratories shared their knowledge and experience on the latest trends in the design & development of fragmenting warheads and performance

evaluation techniques. Other important topics like the selection of explosives, explosive safety, insensitive munitions, and warheads for advanced weapons were also covered.



WORKSHOP ON 'METALLIC BIO-IMPLANTS: ROLE OF ADDITIVE MANUFACTURING'

Defence Metallurgical Research Laboratory (DMRL), Hyderabad organised a one-day workshop on 'Metallic Bio-implants: The Role of Additive Manufacturing' on 6 January 2023.

The keynote lectures were delivered by Dr A Venugopal Reddy, former Regional Director, RCMA (Materials), and Shri S Ramesh Kumar, Sc 'G', DMRL. Prof. Siva Rama Krishna, Osmania University, Hyderabad, and Prof. Falguni Pati, Indian Institute of Technology, Hyderabad, discussed the recent developments in additive manufacturing suitable for various metallic and non-



metallic implants, respectively. A panel discussion was also conducted, which was chaired by Dr G Madhusudhan Reddy, OS & Director, DMRL.

During the discussion, various issues related to the certification of implants were brought up, and the need for a coordinated effort from all stakeholders was emphasised.



COURSE ON EMERGING TRENDS IN COMMUNICATION ANTENNA

A three-day Continuing Education Programme (CEP) on Emerging Trends in Communication Antenna was successfully conducted by Defence Electronics Application Laboratory (DEAL), Dehradun, during 16-18 January 2023.

Total eleven talks were delivered by expert faculties from DRDO, industries (BEL Ghaziabad, RDK Tech Solutions Delhi, and Entuple Ahmedabad), and academia (IIT Roorkee and IMSEC Ghaziabad).

The course covered topics such as an overview of antennas, phased array antennas, EW antennas, THz antennas for 6G communications,



compact antenna test range design, radar cross sections, technology evolution in the fields of radar and SATCOM, etc.

Total 28 participants from various DRDO laboratories participated in the course.

TRAINING ON CBRNe MEDICAL MANAGEMENT

A practical hands-on training on Chemical, Biological, Radiological, and Nuclear, emergency (CBRNe) medical management was organised by the Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi during 30 January 2023 to 2 February 2023.

The four-day training was attended by doctors from various organizations. Dr Upendra Kumar Singh, OS & DG (LS) inaugurated the training workshop along with dignitaries from other life sciences cluster laboratories.

The training was focused on hands-on training. American Heart Association-certified Basic Life Support and Advanced Cardiac Life Support courses were offered to all participants



with a valid certifications. The basic disaster life support course approved by NDLSF, Georgia, USA, was a part of the training programme. The donning of Level-A PPE was demonstrated at INMAS for the first time, which is

critical for the management of a CBRN event at the ground level. The training was a part of the task project undertaken to enhance the national capacity to fight any CBRN event.



ICORT 2023 AT ITR

The 3rd IEEE International Conference on Range Technology (ICORT-2023) was organised by Integrated Test Range (ITR), Chandipur, during 23-25 February 2023. The Conference was held in a hybrid mode with the theme, 'Test and Evaluation of Weapon Systems: A Global Perspective'. Delegates from seven different countries other than India participated in the conference.

ICORT-2023 is the third edition of the biennial international conference, with the first ICORT held in 2019. The conference was inaugurated by Director General (MSS), Dr BHVS Narayana Murthy in the presence of former Director General, Dr VG Sekaran, Director, ITR, Shri HK Ratha,



and several other senior officials from DRDO. The keynote speech was delivered by Dr VK Saraswat, former Secretary DRDO, Member, NITI Aayog & Chancellor Jawahar Lal Nehru University.

An industrial exhibition was also held, in which more than 40 industries and educational institutions from India and abroad displayed their products and technologies.

COURSE ON ADDITIVE MANUFACTURING OF METAL COMPONENTS

The Defence Metallurgical Research Laboratory (DMRL), Hyderabad organised a Continuing Education Programme (CEP) on 'Additive Manufacturing of Metal Components' during 23-25 January, 2023. During the inaugural session, Dr G Madhusudhan Reddy, OS & Director, DMRL, stressed the importance of various metallurgical aspects in improving the quality of products made from additive manufacturing and also highlighted challenges associated with the technology. About 34 participants from various DRDO laboratories attended the course. In the end, the Course Director Shri S Ramesh Kumar, Sc 'G'



conducted the objective test, and participants' feedback was taken.



WORKSHOP ON ADVANCES IN COATINGS AND CORROSION CONTROL

Naval Materials Research Laboratory (NMRL), Ambernath, in association with the CORCON Institute of Corrosion (CIC) and the Association for Materials Protection and Performance (AMPP), organised a two-day workshop on 'Advances in Coatings and Corrosion Control Technologies in Marine Assets' during 23-24 February 2023. The Workshop was inaugurated by Shri PT Rojatkar, OS, & Director NMRL. The workshop was conducted in composite mode, i.e., online and offline modes.

Mr Piotrowski Eric Martin, Global Business Development Manager, AMPP, attended the programme at NMRL. Eminent



personalities from India and abroad delivered lectures on coating and corrosion control technologies during the workshop. The workshop was attended by 68

participants from Indian Navy, Mazgaon Dock, Naval Inspection Agencies, IGCAR Kalpakkam, private industries, and various DRDO laboratories.

AVALANCHE AWARENESS TRAINING TO TROOPS OF 26 PUNJAB REGIMENT

In areas with a lot of snow, the avalanches can make it hard for troops to move around and do other military activities during the winter. This poses a serious threat to their movement and overall health. To enhance troop preparedness, eight officers of the 26 Punjab, the regiment deployed to the Central M Glacier of Siachen as meteorological observers were given two weeks of Cadre training during 16-28 January 2023 at the Defence Geoinformatics Research Establishment (DGRE), MMC, Sasoma. Troops were given technical talks on the collection of snow and meteorological data,



avalanche safety and rescue procedures, health issues in snow-bound areas, and also about avalanche and snow awareness. The training will help them to

perform their assignments in these regions efficiently and will also enhance their preparedness for present and future assignments in the snowbound region of Siachen.



INHOUSE COURSE FOR RETIRING EMPLOYEES OF NPOL

The Naval Physical and Oceanographic Laboratory (NPOL), Kochi organised a two-day training course, In-house Course for Retiring Employees of NPOL (INCREON) for the superannuating employees during 11-12 January 2023.

The course was inaugurated by Dr Ajith Kumar K, Sc 'G' & Director, NPOL. Opening remarks and an introduction to the program were given by Dr A Raghunatha Rao, Vice Chairman, HRD Council of NPOL. The objective of the course was to prepare the participants for an active and productive retirement through lectures by experts. The lecture on age-related health disorders by Dr Jino Joy,



Consultant Geriatrician, Medical Trust Hospital, Kochi, was appreciated by all the participants. In a session on 'The Opportunities of Post Retirement Investment

Plans', Shri Madhavan, Training Officer at State Bank of India, explained investment plans that are beneficial after retirement.

HEALTH CAMP FOR WOMEN AT NSTL

Prior to International Women's Day Celebrations-2023, a Special Medical Camp was organised on 17 February 2023 at Naval Science & Technological Laboratory (NSTL), Visakhapatnam. The Camp was organised by NSTL Mahila Kalyan Manch in alliance with Omni RK Hospital and Agarwal Eye Hospital. Smt Y Lakshmi Rao, the first lady of NSTL along with Dr Y Sreenivas Rao, OS & Director, NSTL inaugurated the Health Camp. On the occasion, Dr James SK Adams of Dr Agarwal's Eye Hospital delivered a health talk on 'Screen Risk'. He advised all the participants to restrict themselves and keep their children away from tabs and mobiles, as far as possible. General Physicians Dr Surya, Dr



Sujana, Dr Pradeep Kumar, Dr Niharika of Omni RK Hospital and the teams from Omni RK Hospital and Agarwal Eye Hospital and

Principal Medical Officer of NSTL Dr TVA Kiranmayi & Team of NSTL MI Room supervised the camp.



APPOINTMENT



Dr R Balamurali krishnan, OS, Defence Metallurgical Research Laboratory (DMRL), Hyderabad, has taken charge of

DMRL as Director with effect from 1 February 2023. He obtained his BTech from IIT Madras, MS and PhD from Carnegie Mellon University, Pittsburgh, USA. Following a three-year post-doctoral stint, also at CMU, he joined DMRL as Sc 'D' in 2001.

He has received numerous awards for his contributions, including the DMRL Technology Group Award (2003), the DRDO Agni Award for Excellence in Self-Reliance in 2005, the Hubert I. Aaronson Fellowship from the Indian Institute of Science in 2010, the DRDO National Science Day Silicon Medal in 2011, the National Metallurgists' Day Metallurgist of the Year Award by the Ministry of Steel in 2017.



Dr Munmun Baisantry, Sc 'D', Defence Geoinformatics Research Establishment (DGRE), Chandigarh has

been awarded PhD from School of Computing and Electrical Engineering (SCEE), Indian Institute of Technology, Mandi (Himachal Pradesh) for her thesis entitled, 'Band Selection Strategies Using Discriminative, Spatial and Functional Variants of PCA for Hyperspectral Image Classification'.



Dr Venkat, Sc 'F' Defence Metallurgical Research Laboratory (DMRL), Hyderabad has been awarded the PhD by

National Institute of Technology (NIT), Warangal in the field of Metallurgical & Materials Engineering.



Dr Ashutosh Panchal, Sc 'E' DMRL has been awarded the PhD by National Institute of Technology (NIT), Warangal in the field of Physics.



Shri Ankit, Sc 'C', Defence Research Laboratory, (DRL) Tezpur has been conferred PhD in the discipline of agronomy for his thesis research

entitled 'Conservation Agriculture and Sulphur Nutrition Effects on Productivity and Resource Use Efficiency of Rainfed Pearl Millet' at the 61st Convocation of ICAR-Indian Agricultural Research Institute, New Delhi held on 24 February 2023.

DRDO CENTRAL ZONE CRICKET TOURNAMENT (2022-23)

Advanced Systems Laboratory (ASL), Hyderabad organised Central Zone Cricket Tournament during 30 January 2023 to 3 February 2023. The event was inaugurated by Dr M Rama Manohara Babu, Director, ASL. Twelve teams from the Central Zone DRDO that took part in this tournament. DRDL, Hyderabad stood as the 'Central Zone winning team' and PXE, Balasore, as the 'runner-up team'. Shri S Kannan, TO 'C', ASL was awarded the "Player of the Tournament title, and SF Complex, Jagdalpur was awarded the "Fair Play Trophy."



NORTH ZONE KABADDI TOURNAMENT AT TBRL

Terminal Ballistics Research Laboratory (TBRL), Chandigarh, successfully organized North Zone (NZ) Kabaddi Tournament during 22-24 February 2023. Total seven teams from various laboratories of North Zone participated in the tournament. TBRL won the North Zone Kabaddi Championship.



VISITORS TO DRDO LABS

DMRL, HYDERABAD

Air Vice Marshal Shri SK Jain, VSM ACAS (MP) visited Defence Metallurgical Research Laboratory (DMRL), Hyderabad on 23 February 2023. He discussed various requirements of Air Force and the support that could be rendered by DMRL with Dr R Balamuralikrishnan, OS & Director, DMRL. Dr Partha Ghosal, Sc 'G' took him around Advanced Materials Characterization Center and was shown the various materials characterization facilities using advanced different types of electron microscopes.



DIHAR, LEH

Shri Parshottam Khodabhai Rupala, Hon'ble Union Minister (Fisheries, Animal Husbandry, and Dairy), Govt. of India, visited the Defence Institute of High Altitude Research (DIHAR), Leh, on 11 March 2023. He visited the experimental farm of DIHAR and took a special interest in the animal technologies of DIHAR. He suggested helping the Animal Husbandry Department of UT Ladakh enhance poultry production by transferring the DIHAR-developed normobaric hatchery technology among the



potential poultry farmers. The double-humped camels of DIHAR were a show stopper during his visit, and he was especially

interested to know about the importance and utility of these camels in remote, high-altitude locations.