

DRDO

NEWSLETTER



www.drdo.gov.in

A Monthly Bulletin of Defence Research and Development Organisation

OCTOBER 2023

VOLUME 43

ISSUE 10

ISSN: 0971-4391

DRDO ACADEMIA INDUSTRY SYNERGY MEET

DRDO Academia Industry Synergy Meet

12 August 2023

DEFENCE LABORATORY, JODHPUR





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Marketing: Tapesh Sinha

43rd Year of Publication



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DRDO ACADEMIA INDUSTRY SYNERGY MEET

Defence Laboratory, Jodhpur (DLJ) organised Prof. DS Kothari Memorial Tech Conclave-2023 (DRDO-Academia-Industry Synergy Meet) on 12 August 2023, with the main focus of providing a common platform for synergetic interaction amongst all the stakeholders in the realization of stealth, camouflage, nuclear radiation, desert warfare support technologies, and products to cater to the requirements of all three services.

A large number of representatives from the Army, Air Force, and Navy participated in the event. About 21 industries displayed the products realized based on the ToTs from DLJ. The

poster presentation of the ongoing 16 CARS projects of DLJ was given by the academia representatives.

The conclave was inaugurated by Dr Sameer V Kamat, Secretary, DD R&D & Chairman, DRDO. Dr Y Sreenivas Rao, Distinguished Scientist & DG (NS&M), was the Guest of Honour during the occasion.

At the outset, Shri RV Hara Prasad, Outstanding Scientist & Director, DLJ welcomed all the esteemed dignitaries and highlighted the role of DLJ in developing strategically important products to meet the requirements of the services. Dr Rao in his address, emphasised fostering a synergetic relationship among

DRDO, industry, and academia to achieve groundbreaking advancements in defence R&D.

In the event, DLJ-developed products were handed over to the Armed Forces by the Secretary, DD R&D and Chairman, DRDO.

Dr Kamat delivered the 30th Prof. DS Kothari Memorial Oration on 'Technology Leadership in Defence: Dream or Reality'.

Further, an engaging panel discussion on 'DRDO-Industry-Academia Collaboration: The Way Ahead' was organised. Experts from industry, academia, services, and DRDO participated and explored the latest advancements in technology and opportunities for joint collaboration.



AZADI KA AMRIT MAHOTSAV

Azadi Ka Amrit Mahotsav (AKAM) is an initiative of the Government of India to celebrate and commemorate 75 years of independence and the glorious history of its people, culture, and achievements. In continuation to the previous issue (September 2023), the following laboratories of DRDO celebrated AKAM by conducting several events and science exhibitions to showcase their products, technologies, and achievements.

The science exhibition was in line with the theme of the AKAM: Growth of the Defence R&D Ecosystem—Way to Atmanirbharta’.

CAIR, Bengaluru

The Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru, celebrated its 76th Independence Day on 15th August 2023. The function started with flag hoisting by Dr Rituraj Kumar, OS & Director, CAIR, followed by the National Anthem. Director CAIR distributed merit awards to the wards of CAIR employees and contract employees.



DL, Jodhpur

An exhibition on the theme ‘Growth of Defence R&D Ecosystem-Way to Aatmanirbhar Bharata’ was

organised at the Defence Laboratory, Jodhpur (DLJ) on 22 July 2023 under the AKAM campaign. During the exhibition, more than 40 technologies and products developed by the laboratory were displayed.

About 2000 visitors, including school students from Jodhpur city and the general public, visited the exhibition and got glimpses of the scientific achievements of the laboratory.



DMRL, Hyderabad

Defence Metallurgical Research Laboratory (DMRL), Hyderabad, celebrated 76th Independence Day on 15 August 2023 at the main building lawns. Dr R Balamuralikrishnan, Outstanding Scientist & Director,

DMRL, hoisted the national flag, followed by the national anthem. Dr Balamuralikrishnan, in his address, traced the progress of the laboratory during the year and highlighted the achievements in various work areas and projects. He also outlined the various events conducted and a number of welfare measures undertaken during the year.



INMAS, Delhi

The Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, organised an open day and outdoor exhibition on 08 July 2023. Over 175 college students from various colleges attended the exhibition. The students actively and enthusiastically visited the



Dr Anil K Mishra, Sc 'G' & Director, INMAS interacting with students during AKAM celebrations at INMAS, Delhi



exhibition. The students also visited various facilities like Animal PET, Human PET, Radiation Countermeasures Laboratory, and Experimental Animal Facility.

On the occasion, Dr Anil Kumar Mishra, Sc 'G' & Director, INMAS, interacted with students. He emphasised that, through translation research, we can all make our nation 'Atmnrirbhar'. In another session, Dr Sudhir Chandna, Sc 'G' explained the importance of S&T in the self-reliance and growth of the country. Besides this, other faculties, Dr Himanshu Ojha, Sc 'E', Dr BG Roy, Sc 'E', Dr Jublee Purkaystha, Sc 'E', and Mr Pradeep Goswami, Sc 'E' also shared their respective domain experiences. Dr Ojha was the nodal officer for the exhibition.

IRDE, Dehradun

Instruments Research & Development Establishments (IRDE), Dehradun, celebrated 77th Independence Day on 15 August 2023 amidst great enthusiasm and patriotic fervor. The event commenced with the hoisting of the national flag by Dr Ajay Kumar, OS & Director, IRDE, followed by the National Anthem. Director, IRDE, addressed the gathering and highlighted the achievements of the nation, with emphasis on the important accomplishments of DRDO since independence. Dr Ajay Kumar released the latest issue of the IRDE Newsletter, 'DRISHTI' (Detection Recognition Identification Search Homing and Tracking with Innovation), on 15 August 2023. DRISHTI is a six-monthly publication of IRDE, which comprises all the news related to IRDE's newly developed products, trials, important events,

visits, retirements, etc. During the release of DRISHTI, Director IRDE lauded the efforts of the editorial team of DRISHTI for bringing out the issue on time.



LRDE, Bengaluru

An exhibition was organised together by Electronics & Radar Development Establishment (LRDE), Microwave Tube Research & Development Centre (MTRDC), and Combat Aircraft Systems Development & Integration Centre (CASDIC), Bengaluru, under the AKAM campaign on 22 July 2023.

During the exhibition, various prototypes, models, posters, videos, and actual systems were showcased. The exhibition was witnessed by school students, college students, and the general public.

Shri Gampala Viswam, DS & Director, LRDE, inaugurated the exhibition. Dr Subrata Kumar Datta, Sc 'H' & Centre Head, MTRDC; Shri CH Durga Prasad,

Sc 'G', Centre Head, CASDIC; Kendriya Vidyalaya DRDO Principal; and Director, Admin O/o DG (ECS) were also present during the occasion.

More than 20 schools brought their students to witness the event. Besides, around 4000 students, 200 teachers, and 500 members of the general public visited the exhibition.

MTRDC, Bengaluru

Independence Day 2023 was celebrated on 15 August 2023 at the Microwave Tube Research & Development Centre (MTRDC), Enclave, Bengaluru, with great enthusiasm. Dr SK Datta, OS & Center Head, MTRDC, hoisted the national flag. He also addressed the gathering. Various cultural events, like fancy dress and singing programs for the children, were arranged. Participants were awarded the prizes.



RAISING DAY CELEBRATIONS

ARDE, Pune

The Armament Research and Development Establishment (ARDE), Pune, celebrated its 65th Raising Day on 2nd September 2023. Dr Samir V Kamat, Secretary DDR&D & Chairman DRDO, honored the event as the Chief Guest and Dr SV Gade, DG (ACE), as the Guest of Honour.

On this special occasion, a technology center named Structures Design Center was inaugurated by the Chief Guest. All the dignitaries took part in the tree plantation activity as part of the tree plantation drive. A sports event (fun games) was also conducted in front of the main foyer of ARDE.

Shri A Raju, OS & Director, ARDE, highlighted in his address various achievements and the progress of several ongoing project activities, as well as briefed about upcoming projects of ARDE and various operational activities. Dr SV Gade appreciated the dedicated work done by all employees of ARDE in producing export-quality weapon systems. He highlighted the export order for the Pinaka Rocket system and orders in pipeline for the Advanced Towed Artillery Gun System (ATAGS). He also mentioned the challenging technological requirements of future projects at ARDE. Chief Guest Dr Samir V Kamat congratulated the ARDE fraternity and appreciated the excellent work done by ARDE to meet the country's defence requirements. He shared his views on the changing nature of R&D in the current scenario and inspired



all to take up new challenges.

A book titled 'Compendium of Technologies for Armaments' and Project Management Execution System software (APEXS) were released by the Chief Guest on this occasion. Lab-level DRDO awards and mementos to those who have completed 25 years of service were presented. Shri KK Kulhare, Sc 'G' coordinated the event and proposed the Vote of Thanks.

DIPR, Delhi

Marking the glorious occasion, Defence Institute of Psychological Research (DIPR), Delhi celebrated its 75th Raising Day on 29 August 2023.

Dr Samir V Kamat, Secretary, DDR&D and Chairman, DRDO, was the Chief Guest of the event, and Dr UK Singh, DS & DG (LS), was the Guest of Honor. The event was also graced by

Dr Suma Varughese, DG (MCC), Shri Purusottam Bej, DG (R&M), Shri Manoranjan Patri, Chairman, CEPTAM, Directors from Delhi-based DRDO Labs/Estt, Corporate Directors from DRDO HQrs, DCDA (R&D), senior scientists, service officers, other distinguished guests, and the DIPR family.

Dr Arunima Gupta, Director, DIPR, welcomed the dignitaries and, while highlighting the sustained research contributions of DIPR, added that the laboratory, established in 1943 at Dehradun as the Experimental Board, has been spearheading R&D in military psychology and has been making significant contributions for the last seven and a half decades in the areas of selection, training, & rendering psychological support to the Indian armed forces. The core mandate and spectrum of the charter of duties of DIPR



include the selection of potential candidates who join the Indian armed forces as commissioned officers. She congratulated each of the past and present members of the DIPR family for their non-parallel contributions during the glorious journey of DIPR and motivated the employees to rededicate themselves and strive together to thrive, flourish, & sustain themselves as leaders driving cutting-edge innovations in military psychology.

Dr UK Singh stressed that since its inception, the mandate of the institute has kept continuously evolving by adding many new dimensions and growing in strength and scope. He also highlighted the new developments being made at the laboratory and complimented the DIPR team for their sustained R&D contributions.

Dr Kamat congratulated the DIPR family for their unstinted efforts over the decades. He urged the scientific fraternity to harness the potential of academia and industry for strengthening AatmanirBharta in defence & for accelerating the development of futuristic technologies. As part of the event, he also distributed awards to children of the DIPR fraternity for their exceptional meritorious performance in academics. Dr Soumi Awasthy, Sc 'G' & Addl Director, DIPR, conveyed gratitude to the Indian Armed Forces for their continuous support and reposing their confidence in DIPR. While reminiscing about the pioneering contributions of great visionaries, leaders, and former colleagues of DIPR, she profusely thanked all the dignitaries for gracing the historic occasion, and the event



was finally concluded with the national anthem.

NSTL, Visakhapatnam

Naval Science & Technological Laboratory (NSTL), Visakhapatnam, celebrated its 54th Raising Day on 21 August 2023. Dr Y Sreenivas Rao, DS & DG (NS & M) was the Chief Guest and Sri BVSS Krishna Kumar, OS was the Invited Guest for the

occasion. The event started with invocation, followed by welcome address by Chairman LRDC-2023, Dr PC Praveen, Sc 'G'. Sri JN Varma, Secretary, NSTL Civil Employees Union, explained in detail the social service activities rendered by NSTL during the previous year. Dr HN Das, Sc 'G' & Chairman, Works Committee, presented the annual report of the Works Committee. Dr Abraham





Varughese, OS & Director, NSTL, explained the genesis of NSTL and its evolution to the present stage of being the state-of-the-art premier naval research laboratory in the country.

On this occasion, players who represented NSTL in various national sports & game activities and officers & staff who completed 25 years of service

were felicitated. The Best Library User Appreciations were also distributed on this occasion. In his speech, Chief Guest Dr Rao congratulated the Team NSTL on completing 54 years of journey towards empowering the nation. He said that not only the Indian Navy but also the entire nation has a lot of hopes for NSTL. He said that NSTL has been making

its best efforts to strengthen the nation with state-of-the-art underwater weapons. This is being guaranteed with the integral support of industries as well as academic institutions.

He wished that with the enrichment of NSTL, Visakhapatnam could become the industry hub for the production of underwater weapons.

HR COORDINATORS MEET AT DRL, TEZPUR

HR Coordinators Meet is organized every year by Directorate of HRD (DHRD), DRDO HQrs to facilitate interaction as well as experience and concerns sharing among DRDO HQrs and HRD Coordinators of the laboratories for the betterment of HR processes & procedures in DRDO. Annual HR Coordinators Meet-2023 was organized during 14-16 September 2023 by DHRD in association with Defence Research Laboratory (DRL) at Tezpur. The HR Meet

was inaugurated by Smt U Jeya Santhi, OS & DG (HR).

Delegates from various DRDO laboratories attended the meet enthusiastically. During the meet, in-depth deliberations were made regarding HR policies and practices of DRDO. Representatives from various laboratories and technical clusters of DRDO also presented their HR related issues and best practices. During the meet, various talks on HRM related topics were also delivered by

experts for knowledge enrichment of the delegates. The delegates were showcased the various R&D initiatives and achievements of DRL. A field visit to Phulwari tea estate was also arranged during the meet.

The event was highly appreciated by all the participants who after refreshing and fruitful stay at Tezpur, went back to their respective laboratories with renewed commitment to make HR more effective in DRDO.





BRAND BUILDING – DMRL IN SCIENTIFIC AND INDUSTRIAL EXHIBITIONS

Defence Metallurgical Research Laboratory (DMRL), Hyderabad, participated in an exhibition AMRIT-2023 (Atmanirbharta in Missile Repairs and Indigenisation Technologies) organised by INS Kalinga during the Missile Technology Conclave-cum-Symposium at Visakhapatnam during 23-24 August 2023.

INS Kalinga is the premier missile base of the Eastern Naval Command, entrusted with the responsibility of storage, preparation, and delivery of missiles to ships and submarines of the Command. DMRL has developed a few strategically important products and technologies for missile systems, which were showcased in the exhibition. The products were selected very carefully after due



diligence and received a very encouraging response.

VISIT OF WINNERS OF STEM QUIZ ORGANIZED BY GUJCOST

21 winners of India's Biggest Science, Technology, Engineering, and Mathematics (STEM) Quiz 2.0, organised by the Gujrat Council on Science and Technology (GUJCOST), along with their mentors, visited Defence Laboratory, Jodhpur (DLJ), on 21 August 2023. The objective of the visit was to provide a platform for students to explore the new and fascinating areas of modern S&T.

Shri RV Hara Prasad, OS & Director, DLJ, along with senior scientists, interacted

with students and motivated the young minds to develop passion in work and contribute towards

the development of the country to become world-class leaders during Amrit-kaal.



24TH E-RESOURCE MONITORING COMMITTEE MEETING AT DLRL

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi organised 24th E-resource Monitoring Committee Meeting at Defence Electronics Research Laboratory (DLRL), Hyderabad on 22 September 2023. The meeting was chaired by Dr M Chakraborty, OS & Associate Director, DLRL, Hyderabad. The meeting is conducted periodically to discuss the issues pertaining to the e-resource service provided by the DESIDOC, Delhi. Dr PVRB Bhogendra Rao, Sc 'G', DRDL, the Chairman of the e-resource monitoring committee and the



members from various clusters were also present. During the meeting, Dr K Nageswara Rao,

Director, DESIDOC, also gave a demonstration on Digital Library of DESIDOC.

VISHWAKARMA PUJA-2023 CELEBRATIONS

DESIDOC, Delhi

Defence Scientific Information & Documentation Centre (DESIDOC), Delhi celebrated Vishwakarma Puja-2023 on 18 September 2023. The auspicious day is devoted to Lord Vishwakarma, who is revered as the universe's celestial constructor.

The day honors the abilities and workmanship of engineers,

artisans, and employees from a variety of industries.

The puja was performed by Dr K Nageswara Rao, Director, DESIDOC and was attended by all officers and staff of DESIDOC.

DMSRDE, Kanpur

Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur, celebrated Vishwakarma

Puja-2023 on 18 September 2023. The TC & HRD Division organised centralised puja in the Printing Press of DMSRDE to seek blessings of Lord Vishwakarma for excellence in the R&D field.

Dr Mayank Dwivedi, OS performed the hawan along with all the DMSRDE fraternity. The event was coordinated by Shri Amit Saraiya, Sc 'F' and Dr Mohit Katiyar, Sc 'E'.





DEMONSTRATION OF LASER DAZZLER TO RAF

Instruments Research & Development Establishment (IRDE), Dehradun, successfully demonstrated hand-held and tripod-mounted versions of laser dazzlers to the Board of Officers (BOO) of the Rapid Action Force (RAF, CRPF) on 4 September 2023. The BOO, consisting of DIG and Commandants from the RAF, appreciated the equipment and expressed that the laser dazzlers would be a force multiplier in assisting the RAF in crowd control tasks.



Sh Rajeev Kumar, DIG RAF and team with Dazzlers

Laser dazzlers developed by the team from IRDE (erstwhile LASTECH) are non-

lethal equipment that can cause temporary irritation in the eyes that are part of the crowd. The

demonstration was arranged by the Directorate of Low Intensity Conflicts (DLIC), DRDO HQrs.

DEMONSTRATION OF FRSD TO ANDHRA PRADESH IB DEPT

Young scientists from DYSL-AI, along with the Directorate of Low Intensity Conflicts (DLIC), interacted and gave a live demonstration of the Facial Recognition System in Disguise (FRSD) to the Andhra Pradesh Intelligence Bureau HQ on 11

September 2023 at Vijayawada. The artificial intelligence-based advanced software technology was highly appreciated by the attendees, and it was brought out that this would be useful in real-time identification of suspected persons under disguise from

the area-wise deployed camera network.

The IB Dept. has requested DRDO to carry out a proof of concept on their existing security infrastructure, followed by full-scale implementation over the entire state.



DYSL-AI and DLIC team with participants from AP Intelligence dept.



DEPLOYMENT OF ANTI DRONE SYSTEM DURING G20

G-20, a prestigious international event hosted by India during 9 and 10 September 2023 concluded recently, wherein several security agencies and government organisations were tasked with providing an anti-drone cover to the designated NCR region. In line with this, DRDO was tasked with deploying a comprehensive anti-drone system and also integrating it with the Command and Control Post of the Central Security Agencies.

DRDO provided technical as well as operational support by deploying the D4 Counter Drone System with 24x7 operations throughout the designated period in conjunction with teams from various laboratories, viz., LRDE, DLRL, CHES, IRDE, DLIC,



Visit of Dr Chandrika Kaushik, OS & DG (PC&SI) at the site

and the production partner, M/s Bharat Electronics Ltd. MHA has appreciated the efforts of DRDO

scientists for their contribution towards the successful conduct of the event.

DEMONSTRATION OF MAN-PACK SDR TO CAPFS

Defence Electronics Application Laboratory (DEAL), Dehradun, has developed a man-pack version of Software Defined Radios (SDRs) for the Indian Army, along with M/s Bharat Electronic Ltd. (BEL), Panchkula is the production agency. Subsequent to the user trials of the SDR, DEAL has arranged demonstrations of the equipment for the CAPFs. Officers from Indo-Tibetan Border Police (ITBP), Border Security Force (BSF), Intelligence Bureau (IB), Sashastra Seema Bal

(SSB), Assam Rifles, and Central Reserved Police Force (CRPF) witnessed the demonstration on 25 August 2023, at BEL's Panchkula facility. The event was coordinated by the Directorate of Low Intensity Conflicts (DLIC), DRDO HQrs.

Shri Mahesh Kalawat, DIG, ITBP, requested DRDO for field trials of the equipment at their north-east deployment locations.



CAPF Officers being briefed about Man pack SDR



HINDI WORKSHOPS

DIPR, Delhi

Defence Institute of Psychological Research (DIPR), Delhi, conducted Hindi workshops on 23 June 2023 & 21 August 2023. The topic of the one-day workshop held on 23 June 2023 was 'Social Media and Hindi'. Dr Alok Ranjan Pandey, Associate Professor and Head, Department of Hindi, University of Delhi, was the Guest Speaker, and during his address, he highlighted the various facets of digital sources, including social media prospects and the emerging challenges of misinformation and fake news.

On 21 August 2023, Dr Govind Kumar, SAO-I, DIPR delivered a lecture on Central Civil Services

(Conduct) Rules. The insightful talk covered the essence of conduct rules, specific Do's and Don't's for Central Government employees, government guidelines, and best practices.

Dr Arunima Gupta, Director, DIPR, felicitated Dr Alok Ranjan Pandey and Dr Govind Kumar,

SAO-I, the guest speakers of the workshops. She said that through these deliberations many new ideas emerge for effectively promoting Hindi and also for streamlining day-to-day official activities. Shri Ashok Kumar, Assistant Director (OL), DIPR, coordinated the events.



DMRL, Hyderabad

A one-day Hindi workshop was organised by Defence Metallurgical Research Laboratory (DMRL), Hyderabad, on 25 August 2023 for Sc 'C' to Sc 'E'. Thirty-five scientists participated in the workshop. Shri Santosh Kumar, Assistant Director, Hindi Teaching Scheme, Hyderabad, conducted the workshop. He delivered a lecture on various important rules related to the official language. He described the use of Unicode for Hindi typing and highlighted voice typing and various smart tools related to Hindi typing.



DMSRDE, Kanpur

A Hindi Karyashala on 'Rajbhasha ka Pragami Prayog evam Manovigyan' was organised by Rajbhasha Karyanvayan Samiti at Defence Materials and Stores Research & Development Establishment (DMSRDE), Kanpur on 23 August 2023. Dr Lalit Kishore Singh, Director, Psychological Testing and Counselling Centre (PTCC), Kanpur was the Invited Speaker

during the Karyashala. He spoke about psychological issues related to the use of Hindi at par with English by the government officials in their day-to-day working. At the end of the Karyashala, Dr Mayank Dwivedi, OS & Director, DMSRDE honored the speaker with a memento. All the Officers and staff of the establishment attended the karyashala. Dr Rakesh Kumar Gupta, Sc 'E' & Rajbhasha Adhikari coordinated the event.





IRDE, Dehradun

Instruments Research & Development Establishment (IRDE), Dehradun, conducted a one-day Hindi workshop on 25 August 2023. The subject of the workshop was 'Role of Science & Technology in the Development of Hindi Rajbhasha'. Shri Neeraj Bhargava, OS, IRDE, inaugurated the workshop by lighting the lamp. In his inaugural address, Shri Bhargava emphasised the importance of S&T in the development of Hindi and encouraged the participants to take advantage of this workshop. Shri LM Pant, Sc 'F' & Vice-chairman, Rajbhasha, introduced the participants and workshop.



Shri Vinod Kumar Taneja, Senior Director (IT) & Head, NIC Training Unit, Lal Bahadur Shastri National Academy of Administration, Mussoorie, was specially invited to deliver the lecture. The workshop

was attended by 48 participants, including officers & staff of IRDE. At the end of the workshop, the vote of thanks was given by Shri Krishna Murari, Tech Off 'C' & nominated Rajbhasha Adhikari.

NSTL, Visakhapatnam

As a part of the Annual Hindi Implementation Programme NSTL, Visakhapatnam, conducted the 1st Hindi Workshop on 31st August, 2023 on 'Rajbhasha Hindi Implementation & Its Importance'. Dr Jayashree Rath, STO and Shri Sampad Guha, STO from NSTL, Vishakhapatnam, were the speakers. Shri Suvro Banerjee,

Chief Administrative Officer, NSTL, graced the occasion with his presence and delivered an opening speech describing the importance of Rajbhasha to the participants. Thirty-three participants took part in the workshop. The workshop was mainly conducted for newly recruited STA 'B's & Technicians in the laboratory.



One Day Workshop on Heart Saver CPR and First Aid

Defence Metallurgical Research Laboratory (DMRL), Hyderabad organised a Heart Saver Cardiopulmonary Resuscitation (CPR) and First Aid course on 24 August 2023 with the aim of training employees of DMRL as first responders in life-saving medical emergencies with minimal available equipment. Employees were trained to learn about scene safety, personal protection, and how to activate

an emergency response system. The program was certified by the American Heart Association, and the lead instructors were Major (Dr) Shashank Kumar Srivastav, Medical Officer, DMRL, and Dr B Vijayanand, Head, Safecare Simulation Lab at the Care Institute of Health Science (CIHS), Hyderabad. On completion of the course, all participants tool the skill test. All candidates received an internationally valid certification

and a Heart Saver Provider Card, which is a license to provide first aid in emergencies worldwide





COURSE ON RECENT TRENDS IN DEVELOPMENT OF COMPOSITE STRUCTURES AT ASL

Advanced Systems Laboratory (ASL), Hyderabad, organized a three-day Continuing Education Programme (CEP) on 'Recent Trends in the Development of Composite Structures' during 7-9 August 2023. The Chief Guest, Shri BV Paparao, DS & Director, ASL inaugurated the course and addressed the participants. Dr Manoj Kumar Buragohain, OS & Associate Director; Dr Anil Kumar, Group Director; Shri K Ramaswamy, Technology Director CPC; Shri P Sundar Singh, Technology Director CPDC; and Shri Rajesh Addanki, Course Director, graced the occasion.

The course provided insight into various aspects of the development of composite structures, right



from material selection, design aspects, product development, testing, and repair technologies. Eighty-seven participants from

19 DRDO laboratories attended the course. Besides lectures from eminent speakers, a visit to the CPDC facility was also arranged.

COURSE ON ARTI. TRIGGERING TECHNOLOGIES FOR MITIGATION OF MOUNTAINS GEO-HAZARDS

Defence Geo-informatics Research Establishment (DGRE), Chandigarh, organised a three-day course on 'Artificial Triggering Technologies for Mitigation of Mountain Geo-hazards' during 21-23 August 2023 with the objective of providing technical know-how to deal with the hazards of snow avalanches and landslides. A total of 25 officers of DRDO, including participants from other DRDO laboratories such as PXE, Balasore, and DGRE's MMC Srinagar, RDC Manali, RDC Tezpur, and RDC Lachung, attended the course. Dr PK Satyawali, OS & Director,



DGRE, inaugurated the course and emphasized the need for learning novel technologies such as artificial triggering and their application in mitigating geo-hazards in the Himalaya. Technologists and practitioners from various DRDO

laboratories delivered scientific talks. Dr Amod Kumar, Associate Director, distributed certificates to participants. Dr Jimmy Kansal, Sc 'F', was the Course Director and Diwakar Sharma, Sc 'E' was the Deputy Course Director.



GROUP TESTING OFFICERS COURSE AT DIPR

A five-week Group Testing Officers (GTO) course was conducted by the Defence Institute of Psychological Research (DIPR), Delhi, during 24 July 2023 to 25 August 2023. Senior officers from the Tri-Services and Coast Guard attended the course. The course had several sessions pertaining to personality assessment, military psychology, and the officer selection system, and the trainee officers were imparted specialised training on group testing techniques for the assessment of candidates for officer cadre. The course also included live demonstrations of some of the identified tasks to provide hands-on experience. On completion of training, successful trainees become GTO/Assessors at the Selection Board.



Dr Arunima Gupta, Director, DIPR, while appreciating the participants for their active engagement during the training and for their positive feedback, complimented the efforts of the

team Training School in conducting the course as part of a series of specialised training programmes organized by the laboratory for training the assessors and competency building.

WORKSHOP ON MILLET DIVERSITY OF NORTH-EAST INDIA BY DRL

A workshop on 'Millet Diversity of North-East India' was held at Duthung village in the West Kameng district of Arunachal Pradesh on 16 August 2023. The objectives of the workshop were to sensitize the public to the importance of millets in terms of food and nutritional security and to improve their production and quality. Various aspects of millets, such as their diversity, cultivation practices, nutritional benefits, value addition, etc., were briefed in the workshop. Further, good agricultural practices on buckwheat and fingermillet were also explained, as these crops



are traditionally cultivated by the locals. A total of 30 villagers participated in the event.

COURSE ON ADVANCED FUNCTIONAL MATERIALS AT DMRL

The Defence Metallurgical Research Laboratory (DMRL), Hyderabad organised a course on 'Advanced Functional Materials: Processing, Characterization, and Product Realization' during 07-09 August 2023. The course was intended to cover a wide range of functional materials, viz., magnetic, magneto-electric, piezo-electric, ferro-electric, micro-wave absorption, and RF transmission. A special emphasis was given on the processing and characterization of functional materials in their nano, thin film, and bulk forms in the context of realizing useful products for strategic applications. Eminent speakers from academia, R&D laboratories, and industries of repute were invited to share their knowledge and expertise with the participants.



The course was inaugurated with a keynote lecture on 'Applied Magnetic Materials: Some Topics of Current and Future Interest' by a renowned professor, Dr KG Suresh, IIT Bombay.

The course triggered a great interest among the scientists and officers, as evinced by the overwhelming participation of about 30 nominees from DMRL and other DRDO laboratories.

COURSE ON PROJECT MANAGEMENT AT DIPR

A three-day special course on 'Project Management' was organised at the Defence Institute of Psychological Research

(DIPR), Delhi, in association with the Institute of Technology Management (ITM), Mussoorie, during 04-06 September 2023.

Dr Arunima Gupta, Director, DIPR, welcomed Shri SA Katti, Director, ITM, and inaugurated the course. During her inaugural



address, Dr Arunima Gupta thanked ITM for their support and complimented HRC and DIPR for their efforts in organising the special course. She stressed that a well-defined and structured mechanism is integral to the success of any

project, and in this direction, the special training module has been designed to highlight and cover comprehensively the multi-dimensional aspects that hold significance for every member of a project team. Shri SA Katti shared his insights with a case study and

interacted with the participants. Many sessions were customized, and informative lectures were delivered providing an overview of various facets of project management, including the challenges, best practices, special provisions, and audit.

COURSE ON POST RETIREMENT BENEFITS

DIPAS, Delhi

A two-day training program was organised by Defence Institute of Physiology and Allied Sciences (DIPAS), Delhi on 4-5 September 2023, for all superannuating officials of DRDO at the zonal level. The program was inaugurated by Dr Manoranjan Patri, Chairman, CEPTAM. Dr Rajeev Varshney, Director, DIPAS delivered the welcome address and the introductory lecture for the training.

The course was attended by around 25 participants from different DRDO laboratories, such as INMAS, DIPR, CFEES, DESIDOC, CEPTAM, DHRD,



IRDE, TBRL.

The training covered topics such as SPARSH for pensioners, pensionary benefits, investment

management, tax management, re-engineering through yoga, stress management, and health & wellness.

DLJ, Jodhpur

A training course of two days duration on 'Post-Retirement Entitlement and Benefits' was organised for Defence Laboratory, Jodhpur (DLJ) employees at the Training Institute during 19-20 July 2023. The course was inaugurated by Shri RV Hara Prasad, OS & Director, DLJ.

The main aim of this course was to highlight the post-retirement benefits and how to lead a healthy post-retirement life.





EXPERIENCE SHARING WORKSHOP ON FEA/CFD AT NSTL

Naval Science and Technological Laboratory (NSTL), Visakhapatnam, organised a one-day workshop on 22 August 2022. The workshop was organised to share the experience of the Indian Navy and NSTL on computational fluid dynamics and finite element analysis application tools for simulation of physical phenomena related to ship design, and analysis.

At the outset, Dr HN Das, Sc 'G, gave opening remarks about the application of CFD in the fields of hydrodynamic research and propeller design. NSTL scientists and Indian Navy officers from WDB, SDG, and DNA participated and presented their work in the respective fields.



During the workshop, CFD in hydrodynamics and propeller design, FEA in the design of underwater bodies and ships, and FEA in the study of underwater shock and explosion using explicit dynamics were discussed.

This was followed by guest

lectures by Ansys-fluent, LSDyna, and MSC software.

A panel discussion was held between the participants and the speakers in the chair of the Director, NSTL.

Shri Tapas Ranjan Panda, Sc 'E', NSTL summarized the event.

KU LIMAYE MEMORIAL LECTURE AT MTRDC

Shri KU Limaye Memorial Lecture was arranged by the Microwave Tube Research & Development Centre (MTRDC), Bengaluru, on 17 August 2023. Dr P Radhakrishna, DS & Director, Electronics Research and Development Establishment

(LRDE) (Retd.), graced the occasion as the Chief Guest and speaker of the event. He delivered the captivative talk on 'Next Generation Radar Technologies'. Dr Sudhir Kamath, DG (MED & CoS) (Retd.), was the Guest of Honour for the event.



Address by the speaker, Dr P Radhakrishna, OS & Director, LRDE (Retd.)



Address by guest of honour, Dr Sudhir Kamath, OS & Director, LRDE (Retd.) DG (MED & CoS) (Retd.)

The National Accreditation Board for Testing and Calibration Laboratories (NABL) has recently accredited Defence Metallurgical Research Laboratory (DMRL), Hyderabad in the field of calibration in accordance with the standard ISO / IEC 17025:2017.



THERMO-STRUCTURAL TEST FACILITY FOR HYPERSONIC VEHICLES

Advanced Systems Laboratory (ASL), Hyderabad, established Thermo Structural Test Facility (TSTF) for Hypersonic Vehicles at Research Centre Imarat (RCI) Campus. The facility was inaugurated by Dr Samir V Kamat, Secretary, Dept. of Defence R&D & Chairman, DRDO, in the presence of Shri U Raja Babu, DS & DG (MSS), Shri BV Paparao, DS & Director ASL, Dr R Balamuralikrishnan, DS & Director, DMRL, Hyderabad, Shri Anindya Biswas, Director,

RCI, Smt J Justina Geetha, Sc 'G' & Project Director, TSTF, and Shri S Ramprasad, Sc 'F' & Deputy Project Director, TSTF.

This unique facility is established to carry out high heat flux and longer-duration thermal tests on various samples and sections during the development and realisation stages of hypersonic vehicles.

The specifications for the test facility are:

- ✘ The facility can provide heat flux (max) up to 150 W/Cm^2 which generates temperature

of the order of $2000 \text{ }^\circ\text{C}$ on the test article

- ✘ 15 numbers of thyristor controls for IR heaters and auxiliary systems
- ✘ 512 data acquisition channels for feedback controls and sensors
- ✘ Test medium can be either air or inert gas
- ✘ Complex test-articles of various sizes can be tested
- ✘ Dedicated 16 MVA power to the test hanger



Dr Samir V Kamat, Secretary, DDR&D and Chairman, DRDO is inaugurating the Thermo Structural Test Facility



Promotions



Dr Amit Bhattacharjee, Sc 'G', Defence Metallurgical Research Laboratory (DMRL), Hyderabad has been promoted to the rank of Outstanding Scientist (Sc 'H'). Dr Bhattacharjee has been the project leader of several ADA-funded projects, including the indigenous development of a high-strength beta titanium alloy, Ti-10V-2Fe-3Al, for structural weight reduction in Tejas; Indigenous development of high-temperature

beta titanium alloy (Timet 21S) cold-rolled sheets, and presently is the project director of indigenous development of titanium alloys and associated manufacturing technologies for AMCA.

Dr Bhattacharjee is a recipient of Agni Award 2007—a team award for contributions in the development of indigenous titanium technology for self-reliance; Two best presentation awards in the IIM Annual Technical Meetings; Engineer of the Year Award (2015) by the Institution of Engineers, Telangana government; DRDO Laboratory Award, Scientist of the Year-2015; DRDO Scientist

of the Year Award-2021; and Fellow of IIM. He has more than 70 publications and reports in national and international journals and two book chapters on titanium alloys in Aerospace Materials and Material Technologies Vol. 1, 2017, Springer, and has guided several PhD students. Dr Amit also served as a postdoctoral fellow at the Ohio State University in Columbus, USA, where he worked on a Federal Aviation Administration (FAA)-funded project. He also taught courses at IIT Kanpur as an adjunct faculty member for one year.

He is presently serving as an Associate Director of DMRL.

Higher Qualification Acquired



Shri Raj Kiran Grandhi, Sc 'F' Advanced Systems Laboratory (ASL), Hyderabad, has completed a PhD from the Indian Institute of Technology (IIT) Kharagpur, West Bengal, for his thesis entitled 'Enhancement of the Control Effectiveness of a Transverse Jet in a Supersonic Crossflow'.



Dr Agraj Upadhyay, Sc 'F', Defence Geo-informatics Research Establishment (DGRE), Chandigarh, has been awarded a PhD from the Indian Institute of Technology, Delhi, on 12 August 2023 for his thesis entitled 'Fracture propagation in weak snow layers and failure of overlying snow slab'.



Smt Kochaleema KH, Sc 'G', Naval Physical and Oceanographic Laboratory (NPOL), Kochi, has been awarded a PhD under the faculty of technology from Cochin University of Science and Technology for the thesis titled, 'Verification and Validation of Temporal Models in Safety-Critical Software Development Cycles: A Unified Modeling Language Approach'.

VISITORS TO DRDO LABS

CVRDE, Chennai

The Hon'ble Union Minister of State for Defence and Tourism Shri Ajay Bhatt, Raksha Rajya Mantri (RRM), has made his maiden visit to Combat Vehicles Research & Development Estt. (CVRDE), Avadi, Chennai, on 05 September 2023. During his visit, the Hon'ble RRM had a meeting with senior scientists and reviewed the progress of on-going projects at CVRDE. Dr SV Kade, DS & DG (ACE) gave a presentation about various achievements and important technology and products developed by CVRDE. Shri V Balamurugan, OS & Director, CVRDE, briefed the present status and improvements of on-going projects.

The Hon'ble RRM has evinced keen interest in the advanced systems developed by CVRDE, and the respective project leaders highlighted the uniqueness of their systems.

The Hon'ble RRM also took

a ride in the MBT (Arjun Mk IA) with crew members and experienced the advanced features of the Indian-made tank.

The Hon'ble RRM appreciated the CVRDE fraternity for its unstinted efforts and contributions to the defence base. Further, he emphasised the importance of enhancing self-reliance in R&D systems and expressed his confidence that DRDO will empower the nation with the 'Make in India' concept.

CAIR, Bengaluru

✧ Brig. Sandeep Sinha, Chairman & Cdr FTM and team visited Centre for Artificial Intelligence & Robotics (CAIR), Bengaluru on 18 August 2023. There was a briefing by Dr Rituraj Kumar, OS & Director, CAIR, followed by discussion and demonstration of technologies developed by CAIR in the areas of intelligent systems, robotics, and geographic information systems.



✧ Rear Admiral Sandeep S Sandhu, NM Chief of Staff, ANC, and team visited CAIR on 28 August 2023. There was a briefing by Dr Rituraj Kumar, OS & Director CAIR, followed by discussion and demonstration of technologies developed by CAIR in the area of command control land and naval forces.



DIPAS, Delhi

Maj. Gen. Atul Khullar, Addl. DGMS (Army), along with Brig. Pawan Dhull, VSM, Commandant, Armed Forces Clinic, visited Defence Institute of Physiology & Allied Sciences (DIPAS), Delhi on 31 August 2023. Director, DIPAS, gave a brief glimpse of the ongoing R&D projects for improving the operational efficiency of the Armed Forces in extreme environments. Maj. Gen. Khullar shared his views on the changing security scenario and its implications on the troop's mental and physical health, as well as the contemporary relevance of DIPAS research, particularly its focus on futuristic technologies as the theater commands take shape. A talk on 'Keeping Mental Aging at Bay' was also delivered by Brig. Pawan Dhull, VSM,



Hon'ble RRM during his visit at CVRDE, Chennai

wherein he touched upon the various aspects of aging and emphasized cognitive activity and sleep and their importance from a military perspective. Maj. Gen. Khullar interacted with the DIPAS scientists and gave valuable insights into projects.



IRDE, Dehradun

Smt U Jeya Santhi, OS & DG (HR) visited Instruments Research & Development Establishment (IRDE), Dehradun on 27 August 2023. Dr Ajay Kumar OS & Director, IRDE, welcomed DG (HR). A JCM-III screening committee meeting was organised on this day. Smt Santhi was the Chairperson of the meeting. The meeting was attended by the Corporate Directors from DRDO HQrs and officials from the union and staff sides to discuss JCM-III points. During the visit, Dr Ajay Kumar presented major R&D initiatives taken by IRDE and technologies developed by IRDE. He also briefed about various products that have been developed by IRDE and inducted into services. Smt Santhi appreciated the efforts of IRDE in developing state-of-the-art systems.

Smt Santhi appreciated the efforts of IRDE in achieving self-reliance in India's defence sector. She wished all the very best to the laboratory in its pursuit of excellence.



Smt U Jeya Santhi, OS & DG (HR) interacting with Dr Ajay Kumar OS & Director, IRDE during her visit to IRDE, Dehradun

NPOL, Kochi

Dr Y Sreenivas Rao, DS & DG (NS&M) visited the Naval Physical and Oceanographic Laboratory (NPOL), Kochi during 24-25 August 2023.

Dr Rao chaired the Executive Board Meeting of the ongoing projects of NPOL. Afterwards, DG (NS&M) inaugurated the 'Onam' celebrations and the cultural fest held at NPOL on 24 August 2023. 'ONAM' is the traditional festival of harvest in Kerala to remember the cultural heritage and unity

of Kerala under the reign of King Mahabali. The celebrations started with a competition on 'Ona-pookalam', the floral design enriched with colorful and attractive flowers. It was followed by Ona-Sadhya, the traditional feast, and a cultural programme started with the 'Thiruvattirakali' by lady employees of NPOL.

On 25 August 2023 Dr Rao also visited the Underwater Acoustic Research Facility (UARF), a division of NPOL at Kulamavu, Idukki.

