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# PM HANDS OVER ARJUN MAIN BATTLE TANK MK-1A TO THE ARMY

The Prime Minister, Shri Narendra Modi handed over Main Battle Tank Arjun MK-1A to the Indian Army, at Chennai on 14 February 2021. PM also laid the foundation stones for several key projects.

Speaking about the industrialisation, the Prime Minister said, India has undertaken a massive effort to become self-reliant in the defence sector inspired by what Mahakavi Subramaniya Bharathi, who writing in the oldest language in the world Tamil said, “Let us make weapons, let us make paper, let us make factories, let us make

schools, let us make vehicles that can move and fly, let us make ships that can shake the world”. Tamil Nadu is already leading automobile manufacturing hub of India and now is evolving as the tank manufacturing hub of India, he added.

On MBT Arjun Mark 1A, the Prime Minister said, I am proud to handover the indigenously designed and manufactured MBT Arjun Mark 1A to the Army. It also uses indigenous ammunition. A tank made in Tamil Nadu will be used in our northern borders to keep the nation safe. This showcases India’s united spirit–

Bharat’s Ekta Darshan. The focus on making India Aatmanirbhar in the defence sector will keep moving with full speed.

The Prime Minister also paid homage to the Pulwama attack martyrs on the anniversary of the attack today and said, “We pay homage to all the martyrs we lost in that attack. We are proud of our security forces. Their bravery will continue to inspire generations.”

Arjun MK1A has been developed by India’s premier defence R&D organisation DRDO. The tank carries 14 major improvements recommended by the Army.





## DRDO CONDUCTS FLIGHT TEST OF SOLID FUEL DUCTED RAMJET TECHNOLOGY

**D**RDO successfully carried out a flight demonstration based on Solid Fuel Ducted Ramjet (SFDR) technology from Integrated Test Range (ITR) Chandipur off-the-coast of Odisha on 5 March 2021. All the sub-systems, including the booster motor and nozzle-less motor, performed as expected. During the test, many new technologies were proven, including Solid Fuel-based Ducted Ramjet technology.

Successful demonstration of the technology has provided DRDO with a technological advantage, which will enable it to develop long range air-to-air missiles. At present, such technology is available only with a handful of countries. During the test, air launch scenario was simulated using a booster motor. Subsequently, the nozzle-less booster accelerated it to the required Mach number for Ramjet operation.



The performance of the missile was monitored using the data captured by Electro-Optical, radar and telemetry instruments deployed by ITR and confirmed successful demonstration of the mission objectives. The launch was monitored by senior scientists of various DRDO labs, including Defence Research & Development Laboratory (DRDL), Research Centre Imarat (RCI) and High

Energy Materials Research Laboratory (HEMRL).

Raksha Mantri Shri Rajnath Singh congratulated the scientists of DRDO, Indian Air Force and the Industry on the successful flight test of SFDR.

Secretary Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy also congratulated the team involved in the successful flight test.

## VL-SRSAM MISSILE SYSTEM LAUNCHED SUCCESSFULLY

**D**RDO conducted two successful launches of Vertical Launch Short Range Surface to Air Missile (VL-SRSAM) on 22 February 2021 from a static vertical launcher from ITR, Chandipur. Indigenously designed and developed by DRDO

for Indian Navy, VL-SRSAM is meant for neutralizing various aerial threats at close ranges including sea-skimming targets. The current launches were carried out for demonstration of vertical launch capability as part of its maiden launch campaign. On both

occasions, the missiles intercepted the simulated targets with pinpoint accuracy. The missiles were tested for minimum and maximum range. VL-SRSAM with Weapon Control System (WCS) were deployed during the trials.

The launches were monitored





by senior scientists from various DRDO labs, viz., DRDL, RCI, Hyderabad and R&D Engineers, Pune, involved in the design and development of the system.

During the test launches, flight path and vehicle performance parameters were monitored using flight data, captured by various Range instruments such as Radar, EOTS and Telemetry systems deployed by ITR, Chandipur.

The present trials proved the effectiveness of the weapon system. Few more trials will be conducted before deployment of



the system onboard Indian Naval ships. Once deployed, the VL-SRSAM system will prove to be a force multiplier for the Indian Navy.

Raksha Mantri Shri Rajnath Singh congratulated DRDO on the successful trials. Dr G Satheesh Reddy, Secretary DDR&D & Chairman DRDO congratulated the teams involved in successful flight test of VL-SRSAM Missile System.

## SUCCESSFUL USER TRIALS OF ANTI-TANK GUIDED MISSILE SYSTEMS 'HELINA' AND 'DHRUVA STRA'

**J**oint user trials of Helina (Army Version) and Dhruvastra (Air Force Version) Anti-Tank Guided Missile (ATGM) Systems were carried out from Advanced Light Helicopter (ALH) platform in desert ranges on 19 February 2021.

Five missions were carried out for evaluating missiles' capabilities in minimum and maximum range. The missiles were fired in hover and max forward flight against realistic static and moving targets. Trials were carried out with warheads against derelict tanks and against a moving target from a forward flying helicopter.

The Helina and Dhruvastra are third generation, Lock-on-Before-Launch (LOBL) fire and forget ATGM that can engage targets both in direct hit mode

as well as top attack mode. The system has all-weather day and night capability and can defeat battle tanks with conventional armour as well as with explosive reactive armour. It is one of the most-advanced anti-tank weapons in the world. The missile systems are ready for induction.

Raksha Mantri Shri Rajnath Singh congratulated DRDO, the Army and Air Force for the achievements. Secretary Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy appreciated the efforts of teams involved in the successful trials.





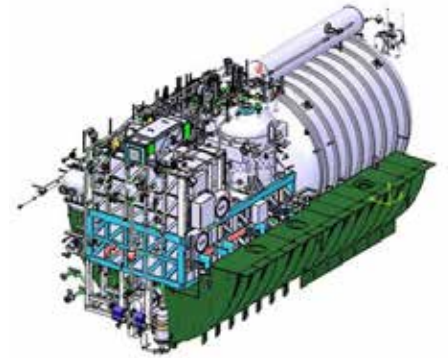
# USER EVALUATION TRIALS OF LAND BASED PROTOTYPE FOR AIR INDEPENDENT PROPULSION SYSTEM FOR INDIAN SUBMARINES

**N**aval Materials Research Laboratory (NMRL), a naval and material science cluster lab of DRDO, has been working on phosphoric acid fuel cell based Air Independent Propulsion (AIP) technology for submarine application under prestigious AIP program. Fuel cell based AIP system is based on NMRL developed fuel cell, hydrogen generation system, high efficient power converter and related accessories technologies. In the fuel cell AIP technology, Phosphoric Acid Fuel Cell (PAFC) is the primary unit that generates electrical power onboard the vehicle. An indigenous hydrogen generator system, first of its kind in the world for submarine application, supplies hydrogen to fuel cell system and rugged

lox system for supply of gaseous oxygen. The PAFC modules consume hydrogen and oxygen to produce electrical power, heat and water. The Fuel cell-based AIP system is primarily a silent power generation unit attached in a section of a Diesel electric submarine to provide underwater submerged endurance. AIP unit works in tandem with the existing battery bank of the submarine and operates underwater as a supplement to the submarine battery power.

NMRL has achieved a major milestone of successful User evaluation trials of Land-based Prototype (LBP) system for AIP for fitments of Indigenous developed AIP plugs in IN submarine. NMRL project team has successfully completed the Endurance and Max

Mode trials of LBP prototype plant for AIP from 14 January 2021 to 28 January 2021 and from 6 March 2021 to 8 March 2021, respectively in the presence of Trial Acceptance Team having members from IN, NMRL and DRDO HQ (DQRS) under User Evaluation Trial. The successful trials have paved the path for induction of DRDO developed AIP plug in Kalvari, IN submarine, during its refit timing.



# DRDO LAUNCHES AAZADI KA AMRUT MAHOTSAV TO COMMEMORATE 75 YEARS OF INDIA'S INDEPENDENCE

*Activities focusing on nation building and achieving self-reliance to be organised in next 75 weeks*

Secretary Department of Defence R&D & Chairman DRDO Dr G Satheesh Reddy launched 'Aazadi Ka Amrut Mahotsav' at DRDO Bhawan on 12 March 2021. Directors General, DRDO scientists and other officers attended the event virtually from all major centres including Bengaluru, Hyderabad, Pune, Tezpur and Visakhapatnam.

Aazadi Ka Amrut Mahotsav has been organised to commemorate 75 years of India's independence and will be celebrated for 75 weeks starting from March 12, 2021 with various themes. Efforts of DRDO will primarily focus on the theme 'AatmaNirbhar Bharat' and the announcements made

will be in the direction of realizing that vision. DRDO will celebrate the Mahotsav throughout the 75 weeks by conducting various activities in the direction of nation building, achieving self-reliance, encouraging scientific innovations, developing human resources and host of other related topics.

Chairman DRDO called upon DRDO fraternity to put special efforts to further support the industry and academia. DRDO will work along with them to achieve the goals of Mahotsav in various ways.

DRDO plans to enhance handholding of startups through

incubation centres for technology development.

Technology proposals from various industries will be processed under the Technology Development Fund (TDF) scheme in larger numbers. Number of Licensing Agreements for Transfer of Technologies (LAToTs) will be increased to greater than 100. ToT to local industry for potable water in NE Regions, Interactions/visits by DRDO scientists to various industries, filing of patents and reaching out to foreign countries to promote export of DRDO products have also been planned in a bigger way over the entire duration of the Mahotsav.







# DRDO CELEBRATES NATIONAL SCIENCE DAY

**N**ational Science Day (NSD) is celebrated every year on 28 February to commemorate discovery of the 'Raman Effect', which led to Indian scientist Sir Chandrasekhara Venkata Raman winning the Noble Prize in Physics in 1930. On this day in 1928, Dr Raman discovered a phenomenon of scattering of photons, which was later known as 'Raman Effect' after his name. The objective of NSD is to promote active involvement of students and teachers in science related activity, encourage students to ask questions and to get doubts cleared in different areas of science and promote their effective participation and enable students to know about the latest developments in the field of science and technology. The theme of NSD 2021 was "Future of STI: Impacts on Education, Skills, and Work".

DRDO HQ celebrated NSD 2021 on 1 March 2021. To mark the occasion, a special function was organised by Defence Science Forum. Principal Scientific Advisor to Government of India, Prof. K Vijay Raghavan was the Chief Guest on the occasion. The function was presided over by Secretary DDR&D and Chairman DRDO Dr G Satheesh Reddy.

In his keynote address, Prof. Raghavan said that there is a significant amount of work being done by DRDO that epitomizes quality science. He appreciated the speed and quality of innovations by DRDO during the pandemic. He stated: "We are a design



driven world, and our two major goals should be designing and manufacturing indigenously." He further said that in this new era of partnership between DRDO and industry, we should have the capability to buy local and make local.

Chairman DRDO in his address congratulated the scientific community for its ongoing quest to achieve excellence and self-reliance. He emphasised the need to concentrate on science in laboratories and academic institutes to come out with state-of-the-art technologies. He highlighted the requirement for a focus group in each DRDO laboratory to work on future technologies. Dr Reddy further said that it is very important for any nation to work on the fundamental side of science for which the universities need to be made stronger so that the nation can come out with quality products. Forty-seven research

papers were received from various DRDO labs/establishments, out of which three were adjudged best. DRDO Science Day orations were delivered by scientists of three DRDO laboratories namely, Advanced Systems Laboratory (ASL), Hyderabad, Aeronautical Development Establishment (ADE), Bengaluru and Defence Research and Development Establishment (DRDE), Gwalior.

Dignitaries released DRDO Science Spectrum, a compilation of scientific papers presented by DRDO scientists at their respective laboratories to commemorate NSD. The publication was brought out by Defence Scientific Information and Documentation Centre (DESIDOC).

The following DRDO labs also celebrated NSD at their respective places.

## ASL, HYDERABAD

Shri M Venkanna, Sc 'F', Technology Director, CLSMC, ASL, Hyderabad delivered NSD Oration on the topic "Combo Gas Generator Development for Underwater Launched Missiles" at DRDO Bhavan, Delhi. The combo gas generator functions as gas generator in canister and as a booster outside the canister. He explained about the design of combo gas generator, grain design, combo gas generator static tests and results, combo gas generator for bigger systems, single gas generator for long range missiles. Prof. K Vijaya Raghavan, presented Silicon Medal and Dr G Satheesh Reddy presented certificate to Shri Venkanna.



## CABS, BENGALURU

Ms Amrita Kashyap, Sc 'D' delivered a talk on "PLM—An Efficient tool for Project



Management of Large Scale Complex, System of Systems and Efficient Implementation of Aerospace Standard Quality Management System."

## DESIDOC, DELHI

DESIDOC, Delhi celebrated NSD on 1 March 2021. Shri Sudhanshu Bhushan, Sc 'E' delivered a talk on "Academic Publications by DRDO Technical Cluster: The last 50 years".



## DFRL, MYSURU

Dr Anand T , Sc 'F', Head, Nutrition, Biochemistry & Toxicology Division delivered the National Science Day oration on "Development and Validation of Detection System for Antibiotic Residue in Food Samples." In his oration, he highlighted about problem of antibiotic resistance in human beings and different methods



of antibiotic residue detection method such as microbiological, chemical & physical assays, immunoassay, whole-cell biosensor and aptasensors. Dr Anil Dutt Semwal, Director, DFRL, presented National Science Medal and Citation to Dr Anand T.

## DIBER, HALDWANI

Dr DK Singh, Director, Uttarakhand Biotechnology Council(UBC), Haldi, Uttarakhand was the Chief Guest during the event. Dr Singh spoke about the activities being undertaken by UBC and sought partnership with DIBER in the ensuing years. Dr Madhu Bala, Director, DIBER complemented Dr Singh for upbringing biotechnology activities at UBC and assured that DIBER will continue to collaborate with UBC within the periphery of defence research. Dr Atul Grover, Sc 'E' was presented with the NSD medal. Laboratory Awards were also presented to the meritorious scientists and staff.



## DIPR, DELHI

Dr Nidhi Maheshwari, Sc 'E' delivered NSD Oration on 'Manokavach App: Innovative Psycho-educational Solution for Combating Stress During Covid-19'. An offline application in Hindi was developed for





countering stress during the covid times.



## LRDE, BENGALURU

Shri P Radhakrishna, OS & Director, Electronics & Radar Development Establishment (LRDE), inaugurated the celebrations and brought out the importance of the Day. Shri S Elayaperumal, Sc 'E' delivered the Science Day oration on "Design of Optimum Digital Beam Forming Array Architectures for Large Phased Array Radars." Director LRDE presented Medal and Commendation Certificate to Shri S Elayaperumal.



## NPOL, KOCHI

Naval Physical and Oceanographic Laboratory (NPOL), Kochi celebrated the NSD on 1 March 2021. Shri S Vijayan Pillai, OS & Director, NPOL, inaugurated the program and addressed the gathering. NSD oration by Shri Ajesh Kumar M, Sc 'E' was on 'Wobbler based acoustic vector sensor for DOA application'. He presented the acoustic and engineering design and the characterization



of wobbler AVS, a novel sensor designed and developed in NPOL.

An online science quiz was

organised and Shri Rahul P Krishnan, Sc 'B' won the first prize.

## NSTL, VISAKHAPATNAM

Dr GA Ramadass, Director, National Institute of Ocean Technology (NIOT), Chennai, was the Chief Guest. Dr Samir V Kamat, DS & DG (NS&M), DRDO, Dr OR Nandagopan, OS & Director NSTL were also present. Dr Ramadass delivered an invited talk on "Ocean Research—A Civilian Perspective." He explained the commitment of NSTL and NIOT to work together in the field of naval research and appreciated the success of the recovery of the Varunastra torpedo, which was a challenge met jointly by NIOT and NSTL.

Shri B Suresh Kumar, Sc 'E' and Mr K Anjappa, Sc 'B' were awarded Silicon medal and Commendation Certificate respectively for their work on Design and Development of FPGA based Shock and Vibration Measurement System.



Dr Samir V Kamat, DS & DG (NS&M), DRDO, Dr OR Nandagopan, OS & Director NSTL, during the national Science Day 2021 celebrations



# NAVY-WIDE WARGAME ON ARNAV SOFTWARE

**N**avy-wide wargame was conducted on Naval Wargaming Software, ARNAV, developed by the Institute for Systems Studies and Analyses (ISSA), Delhi. Using the software, three Naval Commands participated in the wargame and Navy HQ continuously monitored the live game. The wargame exercise was conducted 24x7 for two weeks using the Navy WAN. It was the first time that inter-commands exercise has been conducted between geographically dispersed locations on a wargaming software. Scientists/Officers of ARNAV team participated and supported the exercise for the full period at all the participating locations. ISSA's role was appreciated and recognised by Indian Navy for the successful execution and culmination of Navy-wide inter-



command wargame. Secretary DD R&D and Chairman DRDO, Dr G Satheesh Reddy congratulated ISSA team for their achievements at DRDO HQ.

Shri Arvind Kumar Mahla, Sc

'F' and Smt Ramita Sardana, Sc 'D' were awarded Commendation certificate by Chief of Naval Staff (CNS), Indian Navy for their role in successful completion of the Navy Wide exercise.

# SKILL DEVELOPMENT PROGRAMME ON OYSTER MUSHROOM PRODUCTION TECHNOLOGY

**A** two-day technical Skill Development Programme on 'Oyster Mushroom Production Technology' was conducted at 134 Infantry Bn (TA) Eco by DRL, Tezpur during 18-19 February 2021. Shri Vijay Pal and Shri Balram Das trained the troops and a total of 16 army personnel attended the training programme. The participants were given hands-on training and demonstration in the preparation of mushroom bags for cultivation.

A total of 40 mushroom bags were prepared by the participants. Each participant was provided a

Mushroom Cultivation Technology calendar.



## RAISING DAY CELEBRATION AT ITM

Institute of Technology Management (ITM), Mussorie celebrated its 60th Lab raising Day on 26 February 2021 as per the guidelines of COVID-19. The event was inaugurated by the Chief Guest Shri P K Sharma, OS & Director, DEAL and Shri Sanjay Tandon, OS & Director, ITM by lighting the lamp. The Chief Guest presented Lab-level Cash Award to the officers and staff for the Year 2020 and applauded the efforts put in by ITM in achieving excellence in the field of training. In his address, Director DEAL also highlighted futuristic technology in the domain of communication system.

As part of the celebration, various events such as, photography competition and sports activities were conducted and annual Hindi Patrika "Srijan" was also unveiled during the occasion.



Shri Sanjay Tandon, OS & Director, ITM thanked the Chief Guest for gracing the occasion. In his address, Director ITM highlighted various achievements of ITM and thanked them for their whole hearted support in

achieving targets within time schedule. He dwelt upon all employees to continue their best efforts to achieve excellence in all its endeavors. The event was concluded with a vote of thanks by Col Avinash Sharma.

## NPOL PARTICIPATES IN AERO INDIA-2021

Naval Physical & Oceanographic Laboratory (NPOL), participated in Aero India 2021, India's premier Aerospace and Defence Event, held from 3 February 2021 to 5 February 2021 at Air Force Station, Yelahanka, Bengaluru. NPOL showcased the Low Frequency Dunking Sonar (LFDS) at the India Pavilion which was centered on the theme of 'Rotary Wing Platforms'. The display of LFDS, a sonar system, meant for deployment from rotary wing platforms, drew tremendous attention from visiting delegations

at the 'India Helisphere', because of its significant utility as a very compact underwater sensor system that can be installed on platforms like the Advanced Light Helicopter (ALH). The actual LFDS system was also kept on display beside the ALH in the Static Display Area.

Delegations from various countries visited the NPOL display and evinced keen interests in the product. The most prominent visitors included the hon'ble President of India, the Hon'ble Raksha Mantri, and the Service Chiefs. The exhibition provided

an avenue for showcasing the strength of India in the niche area of sonars.



The Hon'ble President of India being briefed about NPOL's LFDS by Chairman DRDO



# INTERNATIONAL WOMEN'S DAY CELEBRATIONS

## DARE, BENGALURU

Defence Avionics Research Establishment (DARE), Bengaluru celebrated International Women's Day (IWD) on 17 March 2021.

Dr K Maheswara Reddy, Director, DARE presided over the function & addressed the gathering about the theme "Choose to Challenge" and on Women's empowerment. There was a powerpoint presentation on various achievements of DARE women employees.

Various Sports activities were organized for Women employees. Prizes were distributed to winners of various events.



## DIPR, DELHI

IWD was celebrated at Defence Institute of Psychological Research (DIPR) on 8 March 2021. The occasion was graced by Dr Chandrika Kaushik, OS & Director, DISB, DRDO Bhawan. The event included words of wisdom pronounced by the Chief Guest, Director and Senior Scientists of DIPR. The gathering was welcomed by opening remarks of Dr K Ramachandran, Director, DIPR. He appreciated women and their strength in dealing with any kind of challenges. In addition, he spoke about the prevailing mindsets that restrict women in achieving their goals and how overcoming these mindsets can be liberating for everyone. In congruence with the UNO theme "Leading Women during Covid Times" and the International Women's Day theme "Choose to Challenge", the scientists

remembered and celebrated the women achievers of India. Dr Kaushik, the Guest of Honor, enthralled the audience with her

stage presence and eloquence. She urged all the females to endow each other with support and encouragement to rise above.





## NSTL, VISAKHAPATNAM

The IWD Celebrations at Naval Science & Technological Laboratory (NSTL), Visakhapatnam were celebrated in a befitting manner on 8 March 2021 with the active participation of women employees of NSTL.

Chief Guest at the programme was Dr Surya Lakshmi Chellapilla, ADRM (operations), DRM Office, Visakhapatnam and the Guest of Honour was Smt P. Padma Savitri, Scientific Officer-G, Officer-in-Charge, Environmental Survey Laboratory (ESL), Bhabha Atomic Research Centre (BARC), Visakhapatnam. The Celebrations were formally inaugurated by Dr O.R. Nandagopan, OS & Director NSTL; Dr C. Surya Lakshmi; Smt

P. Padma Savitri; Smt Lalithamai Nandagopan, President Mahila Kalyan Manch (MKM); and Ms. G. Palakshi, Sc 'F' & Chairperson (IWD-2021).

Chairperson of IWD-2021 celebrations Ms. G Palakshi welcomed the participants. She exemplified the powerful role of women in Puranas. Also, she gave brief details of the classical dancer Dr. K Shobha Naidu. Dr Nandagopan explained DRDO's initiatives towards women empowerment. He told that women employees in DRDO, are being given due respect and dignity and are playing a vital role in making policies.

Dr C. Surya Lakshmi in her address opined gender biasing will be eradicated by cooperation of men and women only. Smt Savitri appealed to all parents to encourage girls to grow in all fields and to do all types of jobs. On this occasion, Bal Puraskar Awardees Kum. L. Ameya (Pradhan Mantri Rashtriya Bal Shakti Puraskar) and Kum. K.Sahithi (Uttam Jeevan Raksha Padak) were felicitated. Kum. C.Vaishnavi, a student of Ramanath Secondary School was selected as the best performing girl student, she was also felicitated.

Smt. Lalithamai Nandagopan, distributed prizes to the winners women employees as well as spouses of male employees.



## COURSE ON BALLISTICS INSTRUMENTATION

A course on “Ballistics Instrumentation” was organized at Proof & Experimental Establishment (PXE), Chandipur during 15 February 2021-19 February 2021 by both mode-online (SAMMUKH) for external participants and faculties, and class room for internal participants and faculties. Thirty-seven participants from various DRDO labs attended the programme.

Various topics like Introduction to Ballistic Instrumentation, Internal, External and Terminal Ballistic Measurements, Radar and Sensor Signal Processor, Application of BOS Technique Test and Evaluation, Micro



Components in Radar System and Filter Techniques and SCHDA Systems, etc. were covered by expert faculties from IIT, Bhubaneswar; NIT, Rourkela; ITR,

Chandipur and PXE, Chandipur. Dr P K Das Gupta, Sc ‘G’, Offg. Director, PXE inaugurated the CEP and distributed the certificates to the participants on the valedictory function.

## SKILL DEVELOPMENT PROGRAMME ON BANANA FIBRE PRODUCTION

Defence Research Laboratory (DRL), Tezpur organised a workshop on “Use of Innovative Technology for Value addition in Local Resources” on 13 February 2021 at Tippi Village, Arunachal Pradesh. The purpose of the workshop was to impart skill development on banana fiber generation to Tippi Villagers located in West Kameng District of Arunachal Pradesh which would enable them to generate income and enhance livelihood. Dr Sanjai K Dwivedi, Director, DRL, highlighted the importance of skill development of farmers and use of innovative technologies for value addition in local resources and to generate income. Shri Lakhuman Sekang, Chairperson of Tippi



Village and officials of Bhalukpong Block shri S Dususow, Junior Engineer, Shri S Singh, AFA and Shri T Khunjuju, Bazaar Secretary delivered talks and lauded DRL's efforts. Daya Lama, Sc ‘E’ and Dr B Das, TO ‘B’ conducted the event.

Demonstration and training on banana fiber generation, Oyster Mushroom cultivation and Vermicomposting were given to about 60 number of farmers of Tippi Village.





## HINDI WORKSHOP AT PXE

**P**roof & Experimental Establishment (PXE), Chandipur, organized 81st Hindi Workshop for technician group from 17 February 2021 to 19 February 2021. The workshop was inaugurated by Dr H S Panda, Sc 'F', Additional Director & Vice Chairman Rajbhasha by lighting the lamp. In his inaugural address, Dr Panda urged the participants to attend the workshop seriously as this would help them in doing the official work in Hindi with ease. Twenty technicians participated in the workshop. The working methodology on Hindi, the Official Language Rule and Rule about LTC & TA/DA in Hindi too were discussed in detail by the



faculties. In the technical session, information was given in Hindi about uses of radar and sensor in proof and trial. In the valedictory

function, the Additional Director distributed certificates to the participants and appreciated all for making the workshop successful.

## DIBER-ITBP INTERACTIONS IN UTTARAKHAND

**D**efence Institute of Bio-Energy Research (DIBER, DRDO) is a multi-location lab with headquarter at Haldwani, Uttarakhand and Field Stations at Pithoragarh and Auli in Uttarakhand. HQ Haldwani and Field Station Auli are surrounded by the ITBP units. Regular interactions with ITBP are held with regards to extension of DIBER developed technologies particularly of interest to ITBP. On the occasion of NSD interaction meets are organized with the local ITBP units. Recently, Commanding Officer ITBP was apprised of the technologies developed by DIBER, in recent years particularly in the field of bio-energy for remote and hilly terrains. The technological breakthroughs were appreciated by



ITBP. Mementos were exchanged between CO, ITBP, Auli and

Director DIBER on this occasion.





## AWARDS

### IEEE Outstanding Woman Engineer Award



Smt Rameetha K, Sc 'G', Naval Physical & Oceanographic Laboratory (NPOL), Kochi received the award for "Outstanding

Woman Engineer" for the year 2020 from IEEE Kerala Section. This award is conferred upon women engineering professionals who have made significant contributions in the domain of technology. The annual awards are instituted by IEEE, to promote excellence and to recognize outstanding professionals and institutions in the domain of technology and business.

### DRDO Young Scientist Award

Ms Anjali Kumari, Sc 'C' of Defence Metallurgical Research Laboratory (DMRL), Hyderabad received the DRDO Young Scientist Award for the year 2019.



### DRDO Best Performance Award

Shri M Chandra Shekar, TO 'C' of Defence Metallurgical Research Laboratory (DMRL), Hyderabad received the DRDO Best Performance Award for the year 2019.



### Prestigious Award for Strategic Contribution -2018.



Shri Sangam Sinha, Director VRDE Ahmednagar, former GM (MSC) and team have been awarded with prestigious award for strategic Contribution -2018.

## HIGHER QUALIFICATIONS ACQUIRED

### DMRL, HYDERABAD

Shri Vajinder Singh Arora, Sc 'D' of Defence Metallurgical Research Laboratory (DMRL) has been awarded PhD for the thesis titled "Microstructure, Phase Stability and High temperature Deformation Behaviour in Y-TiAl based (Ti-45Al-8Nb-xCr-0.2B) Alloys" by IIT, Hyderabad.



### HEMRL, PUNE

Shri Mrinal Ghosh, Sc 'E' of High Energy Materials Research Laboratory (HEMRL) has been awarded PhD for the thesis entitled

"Reduced Sensitivity Energetic Cyclic Nitramines: A Comprehensive Study on Polymorphism, Crystal Growth and Co-crystallization" by Defence Institute of Advanced Technology (DIAT).



### NSTL, VISAKHAPATNAM

Smt B. Mamatha is awarded the Degree of Doctor of Philosophy in Computer Science & Systems Engineering by Andhra University, Visakhapatnam for the thesis submitted by her entitled "Inverse Synthetic Aperture Radar Images for Ship Detection and Classification".





# INAUGURATION OF DRDO SKILL DEVELOPMENT CENTRE FOR FIRE SAFETY TRAINING

**H**on'ble Raksha Mantri Shri Rajnath Singh inaugurated DRDO Skill Development Centre for Fire Safety Training at Pilkhuwa in Uttar Pradesh through virtual mode on 22 February 2021. The facility is aimed at developing trained human resource, fire safety technology and products to save precious human lives and valued assets. The first of its kind in India, the SDC has been created by adopting state-of-the-art technology and setting up of simulation systems for validation of fire at realistic scale in order to meet the challenges and enhance the skills of Defence Fire Service Personnel and combatants from the Armed Forces. Spread in 24 acres area at Pilkhuwa, the DRDO facility would be utilized for imparting fire prevention and fire-fighting training to the Fire Service personnel of Indian Armed Forces, DRDO, Ordnance Factories, Coast Guard and defence undertakings. The facility would strengthen



their knowledge and fire-fighting skills and prepare them for handling fire threats in the emerging high-tech environment. Training of fire personnel in such high standard facilities will result in high levels of fire safety awareness and implementation of safety provisions in defence establishment thus leading to minimization of losses and property due to fire accidents.

Secretary DD R&D and Chairman DRDO Dr G Satheesh Reddy, Director General (Human Resources) Shri K S Varaprasad, Director General (System Analysis & Modelling) and (Resource & Management) Ms Nabanita Radhakrishnan, Director CFES Shri Rajiv Narang and other dignitaries of MoD were also present on the occasion.

## PATENT

*A Patent titled "Aqueous Wound Healing Composition" with patent no 346864 for prehospital and hospital wound care has been granted to Division of CBRN Defence, Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi. Dr Himanshu Ojha, Ms Deepti Sharma, Dr Navneet Sharma, Dr Raman Chawla, Dr Mallika and Dr Mitra Basu have been named as the inventors.*

*A Patent "A High Temperature Stable High Emissivity Ceramic Coating and Method Thereof" (Patent No. 358322) has been granted to Defence Metallurgical Research Laboratory (DMRL), Hyderabad for which Dr Subir Kumar Roy, Shri S Rangaswamy Reddy and Dr V V Bhanu Prasad have been named as the inventors.*



## DFRL, MYSURU

Maj Gen Mukesh Chadha, VSM, ADGST, Directorate of Supply and Transport, IHQ of MOD (Army) visited Defence Food Research Laboratory (DFRL), Mysuru on 10 February 2021. Dr Anil Dutt Semwal, Director, DFRL, welcomed the guest and briefed him about R&D Achievements of DFRL. Dr. R. Kumar, Sc 'F', Associate Director (Admin) made a detailed presentation on DFRL R&D activities, i.e., Ration Development, indigenisation of food processing equipment, instant & convenience food products, Gaganyaan mission, food packaging technologies, training of troops, etc. Maj Gen Mukesh Chadha appreciated the R&D activities of DFRL to meet the food logistic requirements of the Armed Forces. After interaction, Chief Guest visited Exhibitions facility, R&D facility of DFRL and shown keen interest in DFRL products and technologies.



Maj Gen Mukesh Chadha, VSM, ADGST, Directorate of Supply and Transport, IHQ of MOD (Army) visited at DFRL

## DPAR&M, DELHI

A team of National Archives of India (NAI) officials, Dr Manash Ranjan Mishra, Archivist and Dr Thingnam Sanjeev, Archivist visited few labs of DRDO, viz; DIPR, DIPAS, CFEEES, DESIDOC, CVRDE, MTRDC, CEMILAC and DFRL along with O&M team Smt Asha Tripathi, Sc 'G' and Shri Jagat Singh, STA 'B' from DRDO HQ during January-February 2021. NAI officers visited the labs as part of their spot study. Directorate of Parliamentary Affairs, Rajbhasha and O&M (DPARO&M) is entrusted with the task of implementation of various O&M functions in DRDO, viz; Records Management, Manualisation, File Management and implementation of Central Secretariat Manual of Office Procedures (CSMOP).



Dr Alka Suri, Director DESIDOC with NAI team



NAI and O&M team at CVRDE along with Director CVRDE