DRDO-Academia Partnership: INMAS and DTU sign MoU

Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, and Delhi Technological University (DTU) signed a Memorandum of Understanding (MoU) on 10 October 2013 for enhanced academic interaction and R&D collaboration. This collaboration will include applied research and projects. The MoU was exchanged between Prof. PB Sharma, Vice Chancellor, DTU and Dr Rajendra Prashad Tripathi, OS and Director INMAS, in the presence of HoDs and faculty members of INMAS and DTU. Initially the MoU is for a period of five years between INMAS and Department of Biotechnology and Department of Applied Physics, DTU.

Under the joint INMAS-DTU Programme academic, applied research, and biomedical product development programmes will be conducted from time to time or as per the requirements. The MoU is aimed at fostering the interactions between INMAS and DTU in the areas of mutual interest to enhance the value of research and training at both places by undertaking collaborative research projects and enhancing the quality of human resource by imparting training.

This collaboration will be implemented in a manner that supplements the resources of both the institutions to facilitate research and training. There will be exchange of scientists/faculty and students between the participating institutions. The two Institutions may also conduct joint projects including courses and trainings. Research students working at life sciences laboratories of DRDO may register for PhD degree to be awarded by DTU under joint supervision. Bye-laws of DTU governing the admission and award of PhD degree will apply. If needed, an INMAS scientist may be a co-guide and PhD students working at DTU will be able to carry out a part of their work at INMAS.

Speaking on the occasion, Prof. Sharma said, “This is a momentous occasion for DTU. By signing this MoU with one of the most renowned R&D institute, we are unleashing a new era of DRDO-Academia partnership. The MoU will not only aid in bridging the gap between graduating engineers and professional engineers but also in reducing the gap between lab-level research and the research required by the industry for developing new technologies. The missing gaps in expertise at both the partners may be filled through this collaboration.” Prof. Sharma also emphasised on joint working of engineers and biomedical scientists to enhance indigenisation to produce better products and services.

Speaking on the occasion, Dr Tripathi said, “We are going from an era of cooperation to collaboration, which will be mutually beneficial for both the parties. We value our relationship with DTU and believe that the collaboration will help us in strengthening the knowledge and innovation of ecosystem in the country.” He further emphasised that the fruits of joint collaboration would help Indian Armed Forces in particular and the benefits will also gradually trickle down to society at large. This historical event was coordinated by Dr Rajiv Vij, Sc F, INMAS.
DRL discovers a Novel Species of *Cercospora*

Defence Research Laboratory (DRL), Tezpur, as a part of its ongoing R&D activities in the field of agro-biodefence, has discovered a novel species of *Cercospora*, a fungal phytopathogen infecting Bhut Jolokia (Naga chilli), and has named it *Cercospora tezpurensis* sp. nov. The fungus *Cercospora* is known to cause leaf spot disease in chilli and in several other plants. DRL team, led by Dr Mukesh K Meghvansi, Sc D, carried out a detailed investigation of the fungal for its morphological and molecular characteristics and established the identity of the pathogen as a novel species. The study has recently been published in the international microbiology journal, *Institut Pasteur*, published from France.

ISO 9001: 2008 Certification to NMRL

Naval Materials Research Laboratory (NMRL), Ambernath, has been awarded ISO 9001:2008 certification by Bureau Veritas Certification (BVC). The certificate was presented by Shri Ramesh J Koregave, General Manager, BVC (India), to Dr RS Hastak, OS and Director, NMRL, at a function organised on 19 September 2013.
Electrical Heavy-weight Torpedoes Integration Centre inaugurated at NSTL

Electrical Heavy-weight Torpedoes Integration Centre, christened *Talvar*, was inaugurated at Naval Science and Technological Laboratory (NSTL), Visakhapatnam, by Shri SV Rangarajan, former Director, NSTL, on 26 September 2013. The centre would serve the needs of the heavy-weight torpedo project, *Varunastra*, and the future heavy-weight projects being taken up by the laboratory.

Shri P Trimurtulu, Sc G, apprised about the centre and said that the centre is equipped with all the technical facilities required for carrying out sub-systems level assembly, functional checks, systems checks, preparation, balancing, pressure tests and full torpedo evaluation. He added that the new facility would speed up the process of preparation of the torpedoes. Shri SBVS Prasad Rao, AGE (I) R&D, mentioned that this prestigious facility, built at a cost of Rs 7.2 crore in an area of 7500 sqm, will meet the international standards for testing and integration of torpedoes.

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Shri CD Malleswar, Director, NSTL, felicitated Shri SV Rangarajan on this occasion.

ARDE Celebrates its 54th Raising Day

Armament Research and Development Establishment (ARDE), Pune, celebrated its 54th raising day in a grand manner on 1 September 2013. Shri Anil M Datar, OS and Director, ARDE, inaugurated the function and took an overview of successes and shortcomings of ARDE in the previous year.

Dr Datar expressed satisfaction on the successful user trials of Joint Venture Protective Carbine (JVPC), completion of Influence Mine Mark II, *Pinaka* Mark II achieving 60 km range, trials of *Pinaka* ET Fuze from FUCHS and SASU, trials of *Pinaka* Canon Launch Guided Missile (CLGM), and the transfer of technology of *Pinaka* MBRLS. On the occasion, DRDO laboratory-level, armament, and cash awards were given to the meritorious employees. The employees who completed 25 years of service were also facilitated.
National Conference on Condition Monitoring-2013

Gas Turbine Research Establishment (GTRE), Bengaluru and Condition Monitoring Society of India (CMSI), jointly organised a two-day National Conference on Condition Monitoring (NCCM)-2013 at JN Tata Auditorium, Indian Institute of Sciences (IISc), Bengaluru, during 4-5 October 2013. Dr K Tamilmani, DS and DG (Aero), and CEO, Centre for Military Airworthiness and Certification (CEMILAC), Bengaluru, was the Chief Guest of the inaugural function. Dr DN Reddy, Chairman, Recruitment and Assessment Centre (RAC), Delhi, and Shri PS Subramanyam, DS, Programme Director (CA), and Director, Aeronautical Development Agency (ADA), Bengaluru, were the Guests of Honour. The conference started with the welcome address by Dr CP Ramanarayanan, OS and Director, GTRE, and Chairman NCCM-2013. Shri Sanjay G Barad, the Convener of the NCCM, elucidated about the conference. Dr V Bhujanga Rao, DS and DG (NS&IC), delivered the Presidential Address.

CMSI was established in the year 2003 with an intention to promote and emphasise the importance of condition monitoring in industrial maintenance. The Society intends to disseminate the latest trends in condition monitoring to the professionals/practicing/plant engineers by way of conducting conferences and workshops from time to time. It also intends to be a common platform for condition monitoring professionals to share their experiences and expertise. On this occasion, GTRE was accredited Institutional Membership for its contribution towards condition monitoring activities in the country.

Two hundred and ninety-nine delegates, which included practicing engineers, scientists, students and researchers from various organisations, institutes and industries, participated in the conference. Sixty-seven participants presented their work under various topics focusing on condition monitoring. An exhibition of test and measurement equipment, from Indian and foreign vendors, used for condition monitoring was also organised.

National Conference on MEMS, Smart Materials, Structures and Systems

Research and Development Establishment (Engineers) [R&DE (E)], Pune, and Institute of Smart Structures and Systems (ISSS), Pune Chapter, jointly organised Sixth National Conference on Micro Electro-Mechanical Systems (MEMS), Smart Materials, Structures and Systems during 6-7 September 2013. Prof. Arun Nigavekar, Senior Advisor and trustee of Science and Technology Park at University of Pune, was the Chief Guest of the inaugural function. On the occasion, Pune Chapter of ISSS was also inaugurated by Dr VK Aatre, former SA to RM and founder president of ISSS. The other dignitaries present during the function included Dr KD Nayak, DS and DG, Microelectronics Devices and Computational
Systems (MED&CS); Dr S Guruprasad, OS and Director, R&DE (E), Pune; Dr K Natrajan, President, ISSS; and Prof. Sashi Gangal, Chairman Technical Committee, Pune University. In his inaugural address, Prof. Nigavekar exhorted scientific community to look technology at different perspective and said that at present 150 lakhs students are in higher education, which will increase to 500 lakhs in 2020, therefore, we need to change our academic structure to meet the future technological requirements.

Dr Aatre, in his address, emphasised on developing technologies that are useful in producing the unique and marketable products, which will help India to become rich in technology.

The two-day conference included invited delegates from industries, academia, CSIR and other DRDO laboratories. The technical sessions covered papers on structural MEMS, sensors in various domains such as biomedical, optical, mechanical, electrical, etc. An exhibition of products and devices from various industries and academia working in the related field was also inaugurated by Dr KD Nayak.

**Thirteenth National Workshop on Cryptology**

Scientific Analysis Group (SAG), Delhi, organised 13th National Workshop on Cryptology (NWC)-2013 during 3-5 October 2013 under the aegis of the Cryptology Research Society of India (CRSI). The workshop is an annual event of CRSI. SAG organised the workshop this year as a part of its golden jubilee celebrations. The objective of the workshop was to provide a platform to the Indian researchers to present their original work in the field of cryptology and allied areas of information security.

Dr KD Nayak, DS and DG (MED&CS), inaugurated the workshop. In his inaugural address, Dr Nayak motivated researchers to work in the very important area of cryptology. He also released the Proceedings of the Workshop. Dr PK Saxena, OS and Director, SAG, and General Chair, NWC-2013, in his welcome address highlighted the role of CRSI and SAG in shaping the cryptology research in the country and urged the delegates to use this opportunity to enhance their skills in this field.

The technical sessions of the workshop, spread over three days, comprised series of talks on the focused areas by the eminent experts in the field. Prof. Nicolas Sendrier from INRIA, France, and Prof. Pantelimon Stanica from Naval Postgraduate School, USA, gave invited talks on Code-based Cryptography, and Boolean Functions and their Applications to Cryptology, respectively. Besides, Prof. Subhamoy Maitra and Dr Sushmita Ruj, both from ISI, Kolkata, delivered talks on Grain-128 Cipher and Security Issues in Cloud Computing, respectively. Prof. Debdeep Mukhopadhyay from IIT Kharagpur, was the other eminent academician who delivered talk on Fault Attacks.

The workshop also included four paper presentation sessions from scientists and engineers from SAG, academia, BEL and ECIL. The selected papers submitted...
to the workshop were brought out as the Proceedings of the Workshop with the help of Defence Scientific Information and Documentation Centre (DESIDOC), Delhi. About 120 persons, who participated in the workshop, included delegates from DRDO, academia and user agencies like NTRO, BEL, ECIL and Navy. Smt Anu Khosla, Sc G, and the Organising Chair, presented the vote of thanks.

Steering Committee Meeting on Underwater Weapons

The 27th Steering Committee Meeting (SCM) for Underwater Weapons was held at Naval Science and Technological Laboratory (NSTL), Visakhapatnam, on 13 September 2013 under the Chairmanship of Vice Adm RK Dhowan, PVSM, AVSM, VSM, the Vice Chief of Naval Staff. The SCM was preceded by a Working Group Meeting on 12 September 2013 with Rear Adm AB Singh, ACNS (P&P), in Chair.

Senior officers from DGNAI, DNAS, DGONA, DSR HQ, DRDO HQ, SA to CNS, CASWO (East and West), participated in the Steering Committee Meeting. Shri SV Rangarajan, OS and, Director, NSTL, Shri CD Malleswar, Director designate, NSTL, Project Directors and senior scientists were also present in the meeting.

The Committee discussed the status of various weapons projects like ALWT, Varunastra, Maareech LWM and Mines, CRITECH, etc., and provided the necessary guidelines and direction towards completion of all trials using the naval platforms optimally.

The Vice Adm Dhowan, in his address, welcomed the members and stressed the need of indigenisation of underwater weapons and sensors for various naval platforms. He lauded the efforts put up by scientists and the naval officers and insisted on putting up more efforts to meet the timeliness for completion of projects with successful user evaluation trials.
Hindi is one of the oldest languages and derives much of its academic vocabulary from Sanskrit language. After independence, the Government of India set rules for standardisation of grammar and orthography to bring about uniformity in writing of Hindi. On 14 September 1949, the Constituent Assembly of India adopted Hindi as the official language of India. Since then, 14 September is celebrated as Hindi Divas. With a view to motivate government employees to work in Hindi and to create an environment for implementation of Rajbhasha policy of Government of India in day-to-day official work, organisations celebrate Hindi Pakhwara in September every year. Various laboratories/establishments of DRDO in various parts of the country also celebrate Hindi Pakhwara/Divas at their respective place. Various competitions like Hindi poems, noting, typing, translation, shorthand, story recitations, dictations, vocabulary quizzes, essay writing, etc., were organised during the Pakhwara.

The following laboratories/establishments of DRDO celebrated the Pakhwara:

**CAIR, Bengaluru**

Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru, celebrated Hindi Pakhwara during 2-13 September 2013. Various competitions were organised for the Hindi speaking and non-Hindi speaking employees. All together 140 officers/staff participated in the competitions with great zeal and vigour.

The Hindi day and Pakhwara closing ceremony was celebrated in a befitting manner on 18 September 2013. Shri GP Agrawal, former Director, DEBEL, Bengaluru, was the Chief Guest for the event. The function was presided over by Shri Sanjay Burman, OS and Director, CAIR. Shri Burman in his address, emphasised the importance of Hindi. Shri Agrawal in his address accentuated the importance of Hindi as a link language in the country. On the occasion, Smt TR Usha Kumari, Sc D, read the message of SA to RM and presented official language implementation report. The Chief Guest distributed prizes to the winners of the various competitions held during the Pakhwara.

**GTRE, Bengaluru**

Hindi Pakhwara was celebrated in Gas Turbine Research Establishment (GTRE), Bengaluru, on 13th September 2013. A one-month programme was organised by the Official Language and Implementation Committee (OLIC) of GTRE, during August 2013 in which various events were conducted. Hundred and forty-two participants competed in these events. Besides, 51 participants took part in Hindi incentive schemes.

Shri PR Baghel, Sc G, CEMILAC, was the Chief Guest on this occasion. Shri Baghel praised GTRE for implementing Hindi in both technological as well as administrative streams. Earlier, Dr Rajeev Jain, Co-Chairman, OLIC, GTRE, briefed the gathering about the works initiated to promote Hindi. A technical seminar was also organised in which 42 participants from various Bengaluru region DRDO laboratories presented their works.
Director, GTRE, congratulated Hindi cell for organising the event and distributed prizes to the winners of the various events organised to celebrate Hindi *Pakhwara*.

**RCI, Hyderabad**

Research Centre Imarat (RCI), Hyderabad, organised a one-day *Rajbhasha* workshop on 11 September 2013. Shri K Ramasarma, Sc G, and Vice Chairman OLIC inaugurated the workshop. Dr PR Ghanathey, Manager (retd), HMT Hindi Cell, gave a lecture on cultural aspects of Hindi as official language. Shri Kazim Ahmed, Senior Hindi Assistant, RCI, also delivered a lecture on various aspects of Hindi grammar. Shri N Venkatesh, Sc F, Member Secretary, OLIC, presided the valedictory function. Shri R Jai Singh, TO C, proposed the vote of thanks.

**SAG, Delhi**

Hindi *Pakhwara* was celebrated in Scientific Analysis Group (SAG), Delhi, with great fervour and enthusiasm from 16-30 September 2013. A grand function was organised on 30 September 2013 to mark the culmination of *Pakhwara*. Dr PK Saxena, OS and Director, SAG, presided over the function. In his address, Dr Saxena briefly outlined the activities being pursued in the establishment to promote the usage of *Rajbhasha* in technical and administrative work. The function was graced by Dr Manas Mandal, OS and DG (LS), as the Chief Guest. He called upon to promote the usage of Hindi by seeking everyone’s participation by thinking in Hindi.

Various competitive events like *Nibandh Lekhan*, *Sulekh*, *Tankan*, *Shrutlekh*, *Kavita Path*, *Vaad-Vivaad*, *Saamanya Gyan*, *Sansmaran Lekhan*, etc., were organised during the *Pakhwara*. A large number of SAG employees participated in these events. The winners in different categories were rewarded for their effort.

**MES Maintenance Mela**

Estate Management Unit (R&D), Bengaluru, Mahila Kalyan Manch (MKM), Bengaluru Chapter, GE (I) R&D (East) and GE (I) R&D (West), Bengaluru, jointly organised MES Maintenance Mela-2013 during 26-28 September 2013.

The Mela was inaugurated by Smt Santhosam Tamilmani, President, MKM, Bengaluru Chapter, along with Shri MVL Narasimha Rao, Estate Manager, EMU (R&D), Bengaluru, in the DRDO township. The Mela was conducted for the recognition of Military Engineering Services Day 2013.

Brig JK Rao, Chief Engineer, CE (R&D), Secunderabad, provided full hearted support in making the Mela a grand success.
Special Training Programme on Material Management

A special training programme on Material Management for DRTC Personnel was organised by Centre for Personnel Talent Management (CEPTAM), Delhi, at Technical Training Centre (TTC), Bengaluru, during 2-6 September 2013. The programme was designed in consultation with Directorate of Material Management (DMM), DRDO HQ, especially for those DRTC personnel who are working in Stores/Material Management Divisions. Forty-two participants from various DRDO laboratories attended this programme.

The programme covered topics from procurement management, tendering, vendor registration, inventory management to areas like stock verification, mandatory reports/audit related issues, etc. The keynote address on DRDO Material Management Policy was delivered by Shri Anil, Sc G. Shri A Thyagraj, Sc G and Shri AA Ghosh, Sc G also delivered lectures.

CEP on Digital Publishing and Science Communication

Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, organised a special Continuing Education Programme (CEP) course on Digital Publishing and Science Communication during 16-20 September 2013.

Shri SK Jindal, Director, DESIDOC, inaugurated the course and briefed the participants about the importance of good science communication and advancement in digital publishing. Thirty-five participants from different DRDO labs/estt participated in the course. Eminent scientists from DST, NISCAIR, Vigyan Prasar, ICMR, DRDO HQ and professionals from industry delivered talks on science communication, research, technical and popular science writing, IPR issues, current trends in digital publishing, e-books, web-based publishing, etc. Shri Sudhanshu Bhushan, Sc D, was the Course Coordinator.

Training Programme on DRDO Knowledge Repository and DRDO E-journal Service

DESIDOC is the nodal centre of DRDO for collection, collation, indexing and digitisation of the unclassified and restricted technical reports of all DRDO labs/estts for providing 24x7 e-journals services to DRDO scientists. Centre also provides training to the DRDO labs/estts for effective
implementation of these services. As part of training programme, Smt Sumati Sharma, Sc F, and Shri Yogesh Modi, Sc C, delivered lectures on DRDO Knowledge Repository and Institutional Repository (Gyansrota), and DRDO E-Journals Services at Defence Avionics Research Establishment (DARE), Bengaluru, on 26 September 2013.

In-house Seminar for Young Scientist

Gas Turbine Research Establishment (GTRE), Bengaluru, organised 9th In-house Seminar for Young Scientists (INSYS) on 14 September 2013. The seminar started with welcome address by Dr CP Ramanarayanan, OS and Director, GTRE.

Shri SV Rangarajan, OS and Director, Naval Science and Technological Laboratory (NSTL), Visakhapatnam, delivered the keynote address on Underwater Weapon and Associated Systems. In his presentation he brought out various challenges faced during developmental and realisation phases of underwater weapon systems. He also highlighted successful development of lightweight and heavy-weight torpedoes, Moored mines, and decoys and test facilities, viz., Hydrodynamic Test Facilities for carrying out hydrodynamic performance evaluation of ships, submerged bodies and their propulsors at NSTL.

Shri AN Vishwanatha Rao, Sc G, and Shri K Sreekanth, Sc C, both from GTRE, also delivered talks on Fault Tolerant Control, and Small Turbo Fan Engine and Materials Perspective, respectively.

CEP on Radiation Safety in Biomedical Research

Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, conducted a special CEP course on Radiation Safety in Biomedical research from 9-13 September 2013. Dr RP Tripathi, OS and Director, INMAS, was the Chief Guest of the inaugural function. Dr Rajeev Vij, Head HRD, Library and PRO, INMAS, briefed the participants about initiatives taken by the Institute in human resource development. Dr BS Dwarakanath, Addl Director, INMAS, informed the participants about the course contents. In his inaugural address, Dr Tripathi advised participants to learn and apply the knowledge gained from this interactive course at their work place.

The course content met the requirements of the certification programme. The topics included Basic Radiation Physics, Interaction of Radiation with Matter, Radiation Quantities and Units, Operational Limits, External and Internal Radiation Hazard Evaluation and Control, etc. The lectures were delivered by internal and invited external faculty from Atomic Energy Regulatory Board (AERB); Delhi University; AIIMS; R&R Hospital; Defence Laboratory, Jodhpur; and Regional Centre, BRIT, Delhi. The course also included practicals, demonstrations, interactive sessions and discussions.

Fifty-nine participants, from different DRDO laboratories actively involved in carrying out research using radioactive sources and ionizing radiation for various applications, were trained in the radiation safety aspects. The CEP was followed by a certification.
programme by BARC and AERB that comprised a written examination and viva-voce. The successful candidates were awarded RSO-I by BARC and AERB.

Dr BS Dwarakanath delivered the valedictory address. The importance of the certification programme was highlighted by Dr Palani Selvam and Dr AK Bakshi from BARC. Ms Aruna Kaushik, the Course Coordinator in her vote of thanks appreciated the participants for their overwhelming response.

**CEP on Safety in Armament Testing**

**Proof and Experimental Establishment (PXE), Chandipur,** organised a CEP course on Safety in Armament Testing from 16-20 September 2013. Thirty-two participants attended the course. CEP covered topics on Safety in Ammunition Processing, Explosive Safety and Ammunition Handling, Industrial Safety, Workshop Safety, STEC Rules, etc. Shri R Appavu Raj, Director, PXE, inaugurated the CEP and also distributed certificates to participants in the valedictory function. Dr AK Sannigrahi, Sc F, was the Course Director.

**Training Programme on FPGA-based Embedded System Design**

**Research Centre Imarat (RCI), Hyderabad,** organised a special training programme on FPGA-based Embedded System Design during 2-6 September 2013. Shri BHVSN Murthy, Director, NEC, was the Chief Guest of the inaugural function. In his inaugural address, Shri Murthy explained the need of the programme with respect to the ongoing projects scenario.

The topics covered during the course included FPGA Fundamentals; Trends of Different FPGA Manufacturers; Introduction to FPGA-based Embedded Systems, etc. Besides, the following demos were also organised: Building Embedded Hardware on ZYNQ EPP; Adding and Downloading Software using SDK; Adding IP to a Hardware Design; Building and Adding Custom IP to the Embedded Systems; Application Development in Xilinx Standalone Environment; etc. Shri Adalat Ali, OS and Programme Director, AD, distributed certificates to the participants in the valedictory function. Shri M Sankar Kishore, Sc G, was the Course Director.

**Training Programme on RDBMS**

**RCI, Hyderabad,** organised a special training programme on Relational Data Base Management System (RDBMS) from 23-27 September 2013. The course was inaugurated by the Chief Guest Shri Adalat Ali, OS and Programme Director, AD, RCI. In his inaugural address, Shri Ali explained the importance of the RDBMS with respect to developments in IT technology and specific to implementation of ERP at RCI.

Twenty-two participants from various DRDO laboratories/establishments including RCI attended the course. The faculty comprised experts from Defence Research and Development Laboratory (DRDL), Hyderabad and RCI.

The topics covered during the course included RDBMS Overview and its Uses in Enterprise Class Applications, Database System Concepts and Architectures, Database Design, ER-model; Database Design: Relational Model, Overview of DBA, etc.
Dr SB Gadgil, Associate Director, RCI, distributed certificates to the participants in the valedictory function. Shri M Sankar Kishore, Sc G, was the Course Director.

**Workshop on Foreign Exchange Process Mapping**

RCI, Hyderabad, organised a one-day workshop on DRDO Foreign Exchange Process Mapping for ERP Implementation on 25 September 2013. Shri G Satheesh Reddy, OS and Director, RCI, was the Chief Guest, and Shri A Ramaiah, CAD R&D Hyderabad, was the Guest of Honour of the inaugural function. Shri Sanjay Tandon, Director of Materials Management (DMM), DRDO HQ, was also present on the occasion. Shri BN Gajhiye, Sc G, welcomed the guests and the participants.

Shri Satheesh Reddy inaugurated the workshop and stressed on the importance of the main objectives of the workshop, namely, process mapping and documentation of complete OGL, transactions and finalisation of reporting requirement for OGL transactions by all stakeholders. Shri Tandon, presented overview of bulk allotment, terms and reporting requirements. Shri P Bej, DCMM, DRDL, Hyderabad, covered important aspects of financial sanction and FE release. The other important topics covered included documentation aspects of FE noting, LC terms and transaction mechanism and FE settlement, etc. Shri Gautham Mahapatra, Sc F, RCI, proposed the vote of thanks.

**Symposium on Underwater Signature Management 2013**

A two-day national level Symposium on Underwater Signature Management ‘U SIGMA’ was conducted by Underwater Ranges (UWR) under the aegis of DRDO-NSTL during 7-8 October 2013 at Rajhans Auditorium in Vasco, Goa. Vice Admiral NN Kumar, AVSM, VSM, Chief of Materiel, IHQ (Navy), was the Chief Guest for the event. Many senior dignitaries from DRDO and Indian Navy including Dr V Bhujanga Rao, DS and DG (NS&IC), DRDO; Rear Admiral BR Taneja, NM, DG Weapon and Electronics System Engineering Establishment (WESEE); Rear Admiral BS Parhar, NM, Flag Officer Commanding Goa Naval Area; Rear Admiral AS Sethi, VSM, ADG (Tech); and Shri M Aravindakshan, SA to CNS, were present during the symposium.

Underwater Ranges Goa, a field unit of NSTL, Visakhapatnam, is involved in measurement of underwater acoustic and magnetic emissions of Indian Naval Ships which is essential for maintaining and improving stealth and fighting efficiency of our warships.
The symposium was aimed at discussing current technologies and future path to be charted by the NSTL/Indian Navy in this field. Delegates from DRDO, Indian Navy, NMRL, NIOT, BITS, NIO, NCOAR, academia and industry took part in the discussions. An exhibition by major industries developing indigenous products related to the field of underwater stealth management was also organised during the duration of the Symposium.

**CEP on Public Key Cryptography**

Scientific Analysis Group (SAG), Delhi, organised a CEP course on Public Key Cryptography from 23-27 September 2013. The course was inaugurated by Dr G Athithan, OS and Associate Director, SAG. Topics on algebra, number theory, asymmetric-key cryptography design, algorithms and protocols, elliptic curve cryptography, post-quantum cryptography, cryptanalysis of public key primitives and schemes were covered during the course. In addition to speakers from DRDO, invited lectures were delivered by Prof. Amitabh Tripathi, IIT Delhi; Prof. Rupam Barman, IIT Delhi and Prof. Abhijit Das, IIT Kharagpur. The CEP was attended by scientists and officers from DRDO laboratories, Joint Cipher Bureau (JCB), WESSE, National Technical Research Organisation (NTRO), SI, Intelligence Bureau (IB) and Cabinet Secretariat (CABSEC). Participants got exposure on theoretical aspects as well as practical applications of Public Key Cryptography.

**Advanced Course on Cryptology and Information Security**

Under the special training programme of DRDO, SAG organised an Advanced Course on Cryptology and Information Security (ACCIS)-2013 during 9-20 September 2013. Dr PK Saxena, OS and Director, SAG, inaugurated the course and discussed the role of mathematics in the design, development and analysis of various security solutions. Dr G Athithan, OS and Associate Director, SAG, discussed the challenges of cyber security and new security solutions in his invited talk. Shri Ram Ratan, Sc F, and Course Director, gave an overview of the course. The course focused on the analysis of cryptographic security solutions for protection of vital information and network infrastructure. The participants of the course were from DRDO, ADGSI, CABSEC, DGIS, IB, and NTRO. Apart from internal speakers, Dr BJ Srinath, Senior Director, CERT-In, Delhi; Prof. RK Agrawal, JNU, Delhi; Prof Somitra Sanadhya, IIIT, Delhi; Prof. JC Bansal, SAU, Delhi; Dr Ashutosh Saxena, Infosys, Hyderabad; Prof. NV Narendra Kumar, CRAIMSCS, Hyderabad; and Prof. SP Suresh, CMI, Chennai, delivered the invited talks.
Appointment

NSTL, Visakhapatnam

Shri CD Malleswar, Sc G, has assumed the charge of Director, Naval Science and Technological Laboratory (NSTL), Visakhapatnam, wef 1 October 2013.

Shri Chengalvala Durga Malleswar, obtained his MSc (Tech) electronics degree with Radar Engineering as specialisation from the Andhra University in 1977 and MS in Electronics and Communications form IIT-M, Chennai, in 1980. He is a graduate of the 45th course of the National Defence College, New Delhi. He also holds an MPhil in Defence and Strategic Studies, from the University of Madras. Since 1980, he is with DRDO in various capacities as Group Leader, System Designer, Officer In-charge System Integration, Project Director and Head of the Technology Directorates of Weapon Fire Control Systems and Countermeasures. His significant contributions include: First Solid-state Weapon Data Recorder for Torpedoes, first Indigenous Tactical Weapon Control System ‘Panchendriya’ for submarines, Helicopter Fire Control System, Integrated Anti-Submarine Warfare Complex, IAC Mod ‘0’ and Mod ‘C’ for Naval Frigates and ASW Corvettes, and Anti-Torpedo Decoy Launch Control Systems. Apart from these, he has also contributed for successful completion of Wire Guided Torpedo Project as Officer In-charge System Integration and to several Torpedo Induction support products like Air/Ship-borne Pre-setters, Torpedo Simulators and Drill and Practice Torpedo, etc. All these systems are being produced by defence production agencies and inducted into the services. He is the recipient or DRDO Technology Group Award- 2004, and the DRDO Scientist of the Year Award-2007 conferred by hon’ble Prime Minister of India.

Shri Malleswar is a member of IEEE and life fellow of IETE. He has successfully conducted two national conferences ACCT-2012 and ARCNET-2013. He is presently the Chairman of IETE, Visakhapatnam.

Superannuation

A grand farewell was accorded to Shri PS Krishanan, DS and Director, Aeronautical Development Establishment (ADE) and Chairman Township Advisory Committee on his superannuation on 26 September 2013 at a special function jointly organised by the Township Advisory Committee and MKM, Bengaluru Chapter, on 26 September 2013.

Dr K Tamilmani, DS and DG (Aero) and CEO, CEMILAC, presided over the function. Directors of ADE; Aeronautical Development Agency (ADA); Defence Avionics Research Establishment (DARE); Defence Bioengineering and Electromedical Laboratory (DEBEL); Gas Turbine Research Establishment (GTRE); Microwave Tube Research and Development Centre (MTRDC); Centre for Artificial Intelligence and Robotics (CAIR); and CDA (R&D); CDA (RTC); EMO; GE’s; OIC, TTC, and various other representatives from TAC, Bengaluru, attended the function.

Smt Santhosham Tamilmani, Chairperson, MKM, Bengaluru Chapter, along with Smt Lakshmi Ramanarayanan, Mrs Vidyakala Soundarajan and Smt Mrudula Lalit Kumar and other member of MKM also attended the function.

Higher Qualification Acquired

ASL, Hyderabad

Shri N Kishore Nath, Sc F, ASL, Hyderabad, has been awarded PhD by the Department of Mechanical Engineering, University College of Engineering, Osmania University,
Hyderabad, for his thesis titled, Optimization of Parameters for Ablative Liners in Solid Rocket Nozzles.

**PXE, Chandipur**

Shri Trilochan Sahoo, Sc C, PXE, Chandipur, has been awarded PhD by IIT, Kharagpur, for his thesis titled, Microstructure Controlled Magneto Impedance Behaviour of Rapidly Solidified Iron- and Cobalt-based Metallic Glass Ribbons.

**RCI, Hyderabad**

Shri Anesh Kumar Sharma, Sc F, RCI, Hyderabad, has been awarded PhD by IIT, Hyderabad, for his thesis titled, 5-Bit RF MEMS Phase Shifter Development in Ku Band for Phased Array Application.

**DIPAS, Delhi**

Dr Kamla Prasad Mishra, Sc D, Defence Institute of Physiology and Allied Sciences (DIPAS), Delhi, has been awarded Shakuntala Amir Chand Prize for 2009. The award was presented by Shri Ghulam Nabi Azad, hon'ble Minister of Health and Family Welfare, at the Stain Auditorium, India Habitat Center, New Delhi, on 24 September 2013. Shri AH Khan Chowdhury, hon'ble Minister of State for Health and Dr VM Katoch, Secretary, Department of Health Research, Ministry of Health and Family Welfare, and Director General, ICMR, New Delhi, were also present on the occasion. The award carried a Scroll of Honour, Citation, Memento, and Cash of Rs 10000. This prize was given to Dr Mishra for his outstanding research work in the field of immunology particularly plant-based immunomodulators.

**DRDL Hyderabad**

Dr PC Jain, Sc F, Head Structures, DRDL, Hyderabad, has been selected as AICTE-INAEN Distinguished Visiting Professor at IIT, Delhi, by the All India Council for Technical Education (AICTE), and Indian National Academy of Engineering (INAEN), New Delhi.

**GTRE, Bengaluru**

Shri Pranab Mukherjee, hon'ble President of India, presented first prize to Ms Shobha S Prabhu, Sc F, Mahesh M Rao, Sc E, Hem Kapil, Sc E and Lakshmi Vinod, Sc D, of Gas Turbine Research Laboratory (GTRE), Bengaluru, for their technical article, "सामूहिक प्रभाव की डिजिटल इंजन नियंत्रण प्रणाली में संयोजित साफ्टवेर का परिवर्तन प्रक्षेप". The award was presented on the occasion of Hindi day celebration organised under auspices of the Department of Official Language, Ministry of Home Affairs, Government of India, at Vigyan Bhawan, New Delhi, on 14 September 2013.
Visits to DRDO Labs/Estts

CABS, Bengaluru
Air Marshal Arup Raha, PVSM, AVSM, VM, ADC, VCAS, visited Centre for Air Borne Systems (CABS), on 18 September 2013. He was accompanied by Air Vice Mshl SBP Sinha, AVSM, VM, ACAS (Plans); Air Vice Mshl B Suresh, AVSM, VM, ACAS Ops (AD); and AVM R Nambiar, VM and BAR, Commandant, ASTE. He was briefed about the progress of AEW&C Programme. Air Marshal later inaugurated the Operator Training Station at CABS.

DLRL, Hyderabad
Shri Avinash Chander, SA to RM, Secretary, Department of Defence R&D and DG, DRDO, visited Defence Electronics Research Laboratory (DLRL), Hyderabad, on 27 August 2013 along with Shri RG Viswanathan, Addl, FA (RV), DRDO HQ and Shri SS Sundaram, DS and CC R&D (ECS&LIC). Shri SP Dash, DS and Director presented the technology roadmap of the DLRL to the SA to RM. The products and technologies in the field of antennas, microwave systems and digital processors related to various programmes and projects were exhibited to the visitors. SA also witnessed the live demonstration of the Radar EW Systems, Radar ESM/ECM System, Radar ESM System, COM ESM and COM ECM for the tri-services at various workcentres of DLRL and Electronics System Engineering Centre (ELSEC), the second campus of the DLRL.

HEMRL, Pune
Lt Gen SH Kulikarni, AVSM, VSM, Director General Mechanised Forces and Col KK Singh, Director, ISE (SC), on 4 September 2013.

PXE, Chandipur
Air Vice Marshal PP Khandekar, Director, Military Institute of Training, Pune, on 19 September 2013.