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AEW&C Aircraft Ferries to India



The EMB-145I aircraft, designed and developed for airborne early warning and control (AEW&C) role was delivered to Centre for Airborne Systems (CABS), Defence Research and Development Organisation (DRDO), Bengaluru, by M/s Embraer in Sao Jose dos Campos, Brazil, for ferrying to India. With ownership of the aircraft transferred to DRDO, the aircraft was flagged off by the Indian delegation comprising Shri G Elangovan, DS and CC R&D (Avionics and Aero), DRDO HQ; Dr K Tamilmani, DS and CE, Centre for Military Airworthiness and Certification (CEMILAC), Bengaluru; Dr S Christopher, DS, Programme Director AEW&C, and Director, CABS; Shri MS Easwaran, Associate Programme Director AEW&C; Air Cmde B Banerjee, Programme Director AFPT; and Air Cmde Rippon Gupta, Programme Director C4ISR. The factory acceptance tests including

ground and flight tests have been successfully completed and met operational targets set by CABS and Embraer.

CABS has designed, developed and tested a 10 m x 1 m x 0.5 m active electronically scanned array (AESA) weighing 1600 kg. The structural AESA with dummy electronics has been certified for airworthiness by ANAC, the Brazilian Certification Agency equivalent of Federal Aviation Administration (FAA) of USA. The aircraft is fitted with AESA and the airworthy units, developed at various workcenters of DRDO, have been flight tested prior to ferrying to India.



The aircraft will be integrated with mission systems avionics and will commence the developmental trials of AEW&C system for the Indian Air Force, after successful ground evaluation clearances by DGAQA and CEMILAC.



National Library Day Celebrations

ADE, Bengaluru

Aeronautical Development Establishment (ADE), Bengaluru, celebrated National Library Day on 6 August 2012. Shri PS Krishnan, DS and Director, ADE, inaugurated the function. Major publishers like, M/s Balani InfoTech Ltd, BSB, CUP, Elsevier, Informatics, Jane's, Springer, and Wiley Ltd, presented their e-publications/products. Nine vendors participated and displayed books in the Technical Books Exhibition and around 200 technical books and 97 Hindi books were recommended.

ASL, Hyderabad

Advanced Systems Laboratory (ASL), Hyderabad, celebrated National Library Day on 11 August 2012. On the occasion a one-day seminar on E-resources and User Needs was organised with collaboration with IASLIC, Kolkata. One hundred and ten library professionals from various libraries from Hyderabad, Karnataka and Maharashtra participated in the seminar. Shri K Jayaraman, Associate Director, ASL, was the Chief Guest of the function. Shri K Jayaraman; Dr TAV Moorthy, former Director, INFLIBNET; Dr AL Moorthy, former Director, DESIDOC; Dr SJD Vara Prasad, Head, Library, Indian Institute of Chemical Technology; Dr RK Gupta; Dr VV Rao; Shri S Bhaskar; Shri BV Papa Rao, and Shri G Ramaguru, all Technology Directors from ASL offered floral tributes to Dr SR Ranganathan, father of the library science in India.

Shri K Jayaraman, Shri Anil Kumar, from ASL, and Dr AL Moorthy, highlighted the need and importance of e-resources. Prof. Ramaiah recalled the life and achievements of Dr SR Ranganathan. A Documentary film on Dr Ranganathan was also screened on the occasion. Technical Session on

DRDO E-Library Facilities was chaired by Shri M Prahalada Rao, Sc F, Defence Electronics Research Laboratory (DLRL), Hyderabad. Shri Hemant Kumar, Head, TIC, ASL, explained e-resources and online services rendered by ASL. Dr K Nageswara Rao, Head KC, Defence Research and Development Laboratory (DRDL), Hyderabad, presented talk on E-cataloguer, an automatic tool for developing bibliographic database using MARCXML records. Presentation of Shri N Venkatesh, Head, TIRC, Research Centre Imarat (RCI), Hyderabad, on E-resources and User Needs was presented by Shri Ramana Rao, RCI.

Sessions on Use of E-resources in Academic Libraries was chaired by Dr Koteswara Rao, University of Hyderabad. Prof. Chandrasekhara Rao, BRAOU; Dr Veerajaneyulu, ANGARU; Prof. Sudershan Rao and Prof. Viswamohan, Osmania University; Dr Abbas Khan, Utkal University; Dr Amruth Sherikar, Gulbarga University; Dr Srikanth Reddy, CBIT; Dr Ravindra Chary, ALSD, were the other eminent professionals present during the session. Dr Chandrasekhara Rao briefed the origin, development and futuristic needs of academic library. Prof. Sudershan Rao presented problems faced by academic libraries. Dr Veerajaneyulu explained about e-resources available at ANGARU.

Session on E-resources in Special Libraries was chaired by Shri VVV Satyanarayana, BHEL. Other professionals who attended the session included Shri P Divakar, CCMB; Shri ABSV Prasad Rao, NRSC; Ms Vijaya Bharathi, BHEL; Dr Murali Prasad, IIPH; Ms Sunita Koya, RFC; Shri Komala Rao, NIMS; Shri Prabhakar

Rao, Dr Reddy's Labs and Dr BM Khanna, NGRI. Ms Vijaya Bharathi explained e-resources and services available at BHEL library.

Shri T Ashok Babu and Shri Hemant Kumar organised the function. Shri Manoj Kumar Sahu presented the vote of thanks.



26th Brig. SK Mazumdar Memorial Oration



The Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, organised 26th Brig. SK Mazumdar Memorial Oration on 16 August 2012. Brig. SK Mazumdar, is popularly known as the father of nuclear medicine in India. He established INMAS in 1961. After his death on 6 August 1984, Brig. SK Mazumdar Memorial Trust was formed. Every year an oration on contemporary subject is organised by the trust by inviting eminent professionals. Dr BS Dwarakanath, Sc G, and Secretary Brig. SK Mazumdar Memorial Trust welcomed the guests and highlighted the activities of the trust.

Dr RP Tripathi, OS and Director, INMAS, and Chairman, Brig. SK Mazumdar Memorial Trust gave opening remarks and recalled Brig. Mazumdar and his contributions in bringing up INMAS. He also introduced the orator Dr Vishwa Mohan Katoch, Secretary, Department of Health Research, Ministry of Health and Family Welfare, and DG ICMR, and the guest of honour Lt Gen KK Singh, PVSM, SM, VSM, Commandant, Army R&R Hospital, Delhi Cantt, to the audience.

Dr V Bhujanga Rao, DS and CC R&D (HR), DRDO, delivered presidential address and said that DRDO scientists and medical fraternity from the services should join hands to serve community. Dr Katoch delivered Brig. Mazumdar oration on Journey from Bio-medical to Health Research: Challenges and Opportunities. Lt Gen KK Singh, in his address, appreciated the contributions of the Mazumdar Trust and INMAS, and highlighted the increased collaboration between INMAS and R&R Hospital.

During the occasion, Lt Col (Dr) KVS Hari Kumar, Command Hospital, Lucknow, was conferred with the Young Scientist Award-2011 for his work on Role of Colour Flow Doppler Sonography in Thyrotoxicosis and Dr Deepa Prajapati, BARC, Mumbai with Best DRM Student Award 2009-11. A Souvenir was released by Lt Gen Singh, in the profound memory of Late Brig Mazumdar. The services of DESIDOC were specially acknowledged for timely publication of the souvenir.

Mrs Beant Mazumdar, wife of Brig. Mazumdar, was also present at the function along with her family. Besides, Dr DN Reddy, Chairman, RAC, Delhi; Dr RC Deka Director, AIIMS; Air Marshall DP Joshi, DGAFMS; Directors from DRDO HQ and labs of Delhi; Maj Gen Tapan Sinha, Addl DGAFMS (MR); Lt Gen Rohatgi, DG (ORG & PERS); Maj Gen BK Chopra, Senior Consultant Surgery; Maj Gen VP Chaturvedi, Senior Consultant Medicine; and Col MS Chauhan, HoD Nuclear Medicine, AHRR were the other dignitaries present during the occasion. The function concluded with a vote of thanks by Dr Rajeev Vij, Sc F, INMAS and Joint Secretary Brig. SK Mazumdar Memorial Trust.



Manpower Development Activities

Conferences/Seminars/Symposia/Training Courses/Meetings

ARDE, Pune

The 16th meeting of Armament Research Board (ARMREB) was held on 9 August 2012 at Armament Research and Development Establishment (ARDE), Pune. The meeting was chaired by Dr SK Salwan, Chairman, Armament Research Board (ARMREB), DRDO, and Prof. BD Nagchaudhari DRDO Chair. Dr Salwan reviewed progress of the various on-going projects allotted to various academic institutions under ARMREB. Dr Prahlada, Vice Chancellor, Defence Institute of Advanced Technology (DIAT); Pune, Shri AM Datar, Director, ARDE; Shri Bikash Bhattacharya, Director, High Energy Materials Research Laboratory (HEMRL), Pune; Shri Manjeet Singh, Director, Terminal Ballistics Research Laboratory (TBRL), Chandigarh; Dr DK Kharat, Director of Armaments, DRDO HQ, and other members of the panel attended the meeting.



From left: Shri Datar, Dr Prahlada and Dr Salwan during the meeting

DESIDOC, Delhi

Defence Scientific Information and Documentation Centre (DESIDOC), Delhi, organised a three-day workshop on Industrial and Scientific Photography during 12-14 September 2012. The workshop got a



stupendous response and 42 personnel from different DRDO labs/essts attended the workshop. The faculty for the workshop comprised photography professionals from industry and reputed institutes. Shri Ashok Kumar, Sc G and Associate Director, DESIDOC, inaugurated the workshop and briefed about the importance of scientific photography. During the workshop, participants learned various macro, product, portraits, and industrial photography and discussed practical problems faced while shooting the products. Special hands-on sessions were organised for the participants with live models/products. Shri RK Bhatnagar, was the Course Coordinator.

DIBER, Haldwani

A one-day seminar on Bioengineering and Biosafety was organised by Defence Institute of Bio-Energy Research (DIBER), Haldwani, on 4 August 2012. Dr W Selvamurthy, DS and CC R&D (LS&IC), DRDO HQ, chaired the seminar. Dr RP Tripathi, OS and Director, Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, and Dr NS Jyala, Principal, Susheela Tiwari Government Medical College, Haldwani, were the other distinguished guests who attended the seminar. Dr Zakwan Ahmed, Director, DIBER, welcomed the guests and the participants. A keynote address on



From left: Dr Jyala, Dr Selvamurthy, Dr Tripathi and Dr Ahmed releasing Biosafety Manual

Relevance of Biosafety in Present Scenario was delivered by Dr Jyala. Dr Selvamurthy, also released DRDO NPT GM qPCR Detect Kit, Biosafety Manual and GLP Calendar in the inaugural session of the seminar. Seminar attracted professionals and experts from 10 academic institutes. A health check-up camp for participants was also organised during the seminar.

✧ DIBER also organised a DRDO-Users interactive conference under the chairmanship of Dr W Selvamurthy. Col GS Danu, 69, Mtn Bde; Lt Col Shekhar Thapaliyal, CDR 9(I) Mtn Bde; Shri GS Chauhan, Commandant, 8 Btn. ITBP; Shri Sangeet Dave, GM, NETRA, NTPC; Dr Ram Badan Dubey, Parmarth Niketan, Rishikesh, and representatives of IG ITBP and Director, HRDI, Gopeshwar, attended the conference. Besides, Shri Chandi Prasad Bhatt, the renowned environmentalist also attended the conference. Progress of the on-going R&D programmes at DIBER was briefed by Dr Zakwan Ahmed, Director, DIBER. The chairman lauded the contributions made by DIBER to meet the growing demands of food, fodder, and fuel of the user. Major R&D activities by the sister DRDO labs were also presented by Directors/representatives of Directors of Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi; Defence Institute of Physiology and Allied Sciences (DIPAS), Delhi; Defence Institute of Psychological Research (DIPR), Delhi; Defence Terrain Research Laboratory (DTRL), Delhi; and Snow and

Avalanche Study Establishment (SASE), Chandigarh. The users interacted with DRDO scientists detailing their necessities and problems. Earlier, Dr Selvamurthy, laid the foundation stone of Biofuel Research Complex at DIBER, Haldwani.

DIHAR, Leh

Defence Institute for High Altitude Research (DIHAR), Leh, organised DRDO-Users interactive workshops on Cold Arid Agro-Animal Technologies for Enhancing Fresh Food Availability to Troops on 11 August 2012 at Leh, and on 25 August 2012 at Partapur (Siachen Sector), respectively. The workshops were organised according to the new HRD guidelines from DRDO HQ where users project their requirements, give feedback on the on-going R&D programme and activities of the lab/estt, and provide valuable suggestions for future R&D activities beneficial to the troops. Officers from 14 Corps, DRDO HQ, ITBP, 3 Inf Div, and 8 Mtn Div at Leh and from 102 Inf Brigade of Siachen sector, and scientists from DIHAR participated in the workshops. Dr RB Srivastava, OS and Director, DIHAR, welcomed the participants and overviewed the proposed 12th five year projects and other on-going R&D programmes, and emphasised on the new initiatives taken by DIHAR in 2012. He also highlighted different agro-animal technologies and herbal formulations developed by DIHAR for the benefits of soldiers and local farmers.

A series of interactive lectures were delivered by scientists from DIHAR on various agro-animal



Participants being briefed by Dr Srivastava



technologies like thermally controlled solar greenhouses, CIPC technology, SET technology, vegetables production, Apricot and Seabuckthorn products, Lilium and Gladiolus cultivation, herbal formulations and nutraceuticals, solar poultry house and hatchery, region specific hybrid goat (broiler goat), broiler sheep, crossbred Zanskar ponies, 5/8 HF cattle, etc.

Scientists also discussed and appreciated the active involvement of Army in various R&D activities of DIHAR related to enhancement of fresh food supply to troops, propagation of local medicinal plants and conservation of local herbal plants, soil conservation and in improving eco-environment of Ladakh, development of suitable pack animals for army, breeding technologies for high milk and meat production, improving egg hatchability at high altitude, importance of quality fodder production, and economic feed formulation in livestock production.

HEMRL, Pune

A Continuing Education Programme (CEP) course on Effective Administration and Accounting Procedure was conducted by High Energy Materials Research Laboratory (HEMRL), Pune, during 30 July-3 August 2012. The course was inaugurated by Shri B Bhattacharya, OS and Director, HEMRL. Twenty-five participants from various DRDO labs/estts, besides HEMRL attended the course. The faculty was drawn from HEMRL, Research and Development Establishment (Engrs) [R&DE (E)]; Armament Research and Development Establishment (ARDE), Pune; Naval Materials Research Laboratory (NMRL), Ambernath; and Vehicles Research and Development Establishment (VRDE), Ahmednagar.

The course content included preparation of personal claims and deduction of income tax; recruitment rules and regulations; retirement benefits; pension schemes; budget control and project accounting; TA-DA and LTC (with case studies); role of audit and settlement of audit issues; medical rules CGHS and CSMA (with case studies); and procedure for handling court cases and classified documents, and disciplinary proceedings.

MTRDC, Bengaluru

Microwave Tube Research and Development Centre (MTRDC), Bengaluru, organised 4th KU Limaye Memorial Lecture, in the memory of late Shri KU Limaye, CC R&D (ECS) and former Director, MTRDC, on 17 August 2012. Prof. Kota Harinarayana, Dr KS Kothari Chair, Aeronautical Development Agency, Bengaluru, delivered the memorial lecture on Indian Aviation—Opportunities and Challenges. Shri NP Ramasubba Rao, former Director, Electronics and Radar Research and Development Establishment (LRDE), presided over the function. Dr Lalit Kumar, Director, MTRDC, welcomed the Chief Guest and the other dignitaries and briefed about the importance of the day and conferred the memorial award on Prof. Kota Harinarayana.



Dr Kota Harinarayana delivering KU Limaye memorial lecture

NPOL, Kochi

Naval Physical and Oceanographic Laboratory (NPOL), Kochi, organised a three-day course on Basics of Finite Element Analysis: Theory and Practice during 9-11 August 2012 at Underwater Acoustic Research Facility (UARF), a division of NPOL at Kulamavu, Idukki. The basic objective of the course was to enable the participants to update the knowledge of the basic concepts and applications of finite element analysis (FEA) tools and techniques for various structural analysis needed for project activities. The topics covered in the course focused on the basics of the FEA and practical applications of the relevant tools and techniques in the field. Dr CG Nandakumar, Associate Professor and Shri Manoj G Tharian, Research Scholar, Department of Ship Technology, Cochin University of Science and

Technology, were the resource persons. Hands-on training and daily interactive sessions were the special highlights of the course. Shri K Ajithkumar, Sc D, was the Course Coordinator.

✧ NPOL also conducted a CEP on Modern Trends in Multi Channel Data Acquisition and High Speed Telemetry during 21-25 August 2012. The basic objective of the course was to expose the participants about the latest trends and techniques in the field of data acquisition systems and telemetry. Shri AR Krishnan, Advisor (Avionics), Vikram Sarabhai Space Centre (VSSC), Trivandrum, delivered the keynote address. Thirty-one participants, including two from sister DRDO laboratories, attended the course. The topics covered in the course focused on the recent trends in sonar design, fibre-optic communication, data acquisition, telemetry, underwater communication systems, power electronics and field programmable gate array tools. The faculty comprised experts from Naval Science and Technological Laboratory (NSTL), Visakhapatnam and Aerial Delivery Research and Delivery Establishment (ADRDE), Agra, NPOL, and industry like M/s Mistral Solutions and Core EL Technologies, Bangalore; Sun Fibre Optics, Kochi and CDAC, Thiruanathapuram. Smt TM Jayamma, Sc F, and Shri S Subash Subramoniam, Sc F, were the Course Coordinators.



RCI, Hyderabad

Research Centre Imarat (RCI), Hyderabad, organised a one-day *Rajbhasha* workshop on Hindi as Official Language on 29 August 2012. Shri N Venkatesh,

Sc F, and Member Secretary, OLIC, welcomed the participants and highlighted the achievements of Hindi Cell of RCI. Dr PR Ghanathey, former Lecturer, Hindi Teaching Scheme, Ministry of Home Affairs, was the guest speaker. He spoke on origin and usage of Hindi language. Shri Mandanlal Kasotiya and Shri Chander Shekhar demonstrated RCI's Hindi website and Shri Kazim Ahmed spoke on communication skills and various aspects of official language implementation. Shri R Jai Singh, TO C, proposed the vote of thanks.

SAG, Delhi

Scientific Analysis Group (SAG), Delhi, organised a CEP course on Side Channel Attacks on Systems during 27 July-31 August 2012. The course was conducted to provide a new perspective to the participants in the field of cryptanalysis of the secrecy systems. The course covered diverse topics ranging from basic and advanced cryptography, reverse engineering, threat modelling, optimisation techniques in embedded systems, statistical techniques, and hardware testing. It also covered details of side channel attacks and their countermeasures. Laboratory demonstrations were part of the course. There was active participation from various DRDO labs and users, i.e., Signals Intelligence and WESSEE. The internal and external faculty gave up-to-date and crisp information which was highly appreciated by the participants. Enough practical examples were included so as to make the lectures interesting and interactive. Shri BM Suri, Sc F, was the Course Coordinator.

READERS' VIEWS

Your feedback is important for us as it gives us scope for improvement and serve the Organisation in a better way. *DRDO Newsletter* requests its esteemed readers to send their views about the quality of contents and coverage in the *Newsletter*. Please send your suggestions to

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ISO 9001:2008 to SASE

Snow and Avalanche Study Establishment (SASE), Chandigarh, engaged in the research and development in the areas of cryospheric hazard assessment and mitigation received ISO 9001:2008 Quality Management System Certification by the Directorate of Standardisation, Testing and Quality Certification (STQC), Department of Information Technology, Government of India. Shri Ashwagosh Ganju, Director, SASE, received the Certificate from Shri NE Prasad, Director General, STQC, on 30 August 2012 in the presence of Shri GC Saxena, CEO Certification Services, STQC. The scope of QMS at SASE is Research and Development of technologies for mitigation of cryospheric hazards. The certification is valid up to 2015. In his welcome address, Shri Ganju



Shri Ganju (second from right) receiving the certificate from Shri Prasad

said that the efficiency and effectiveness of any establishment could be enhanced by establishing process-based approach leading to continual improvement of the system. He emphasised the need for R&D laboratories to get QMS certification to make the system person independent, transparent, factual approach based with a lot

of emphasis on procedural correctness and timeliness.

Shri Jimmy Kansal, Management Representative, SASE, presented the achievements in terms of enhancement in the organisational performance by depicting various attributes like instrument management, user attributes, project management, and human resources indicators. Dr MR Bhutiyani, Associate Director, SASE, presented the vote of thanks.

Standing Committee on Defence visits INMAS

Shri Satpalji Maharaj, hon'ble Member of Parliament and Chairman, Parliamentary Standing Committee on Defence, visited Institute of Nuclear Medicine and Allied Sciences (INMAS), Delhi, on 24 August 2012 along with a delegation. Lt Gen Anoop Malhotra, CC R&D (R&M), DRDO HQ; Dr RP Tripathi, OS and Director, INMAS and Dr Rajeev Vij, PRO, INMAS, welcomed the Committee. Dr Tripathi presented an overview of the activities of INMAS to the Committee. In his brief speech, Shri Satpal Ji Maharaj appreciated the work done by the life sciences labs of DRDO, especially INMAS.



From right: Lt Gen Malhotra, Satpalji Maharaj, Dr Tripathi, and Dr Vij

Personnel News

Promotion

CVRDE, Chennai



Dr P Sivakumar, Director, Combat Vehicles Research and Development Establishment (CVRDE), Chennai, has been promoted as Outstanding Scientist/Sc H wef 2 August 2012.

Dr Sivakumar graduated in Mechanical Engineering from College of Engineering, Guindy, in 1980. He obtained his Master degree in Production Engineering from Madras Institute of Technology, Chennai, in 1987 and PhD from Indian Institute of Technology-Madras, Chennai, in 2011.

During 1998, he completed the 'Armoured Vehicle Technology Course' at DIAT, Pune, successfully as first among the participants, and 'Military Vehicle Technology Course' in 2001 conducted by Cranfield University, UK.

Dr Sivakumar started his career at CVRDE as Sc B in 1984. He worked for more than two decades in design and development of transmission systems for tracked and wheeled vehicles application. During this period, he developed 800 hp automatic transmission, 150 hp automatic transmission, mechanical steering system for indigenous 1500 hp automatic transmission, compact transmission system for 1400 hp power pack, many sub-systems of Arjun MBT transmission, torque converter for 150 hp and 550 hp automatic transmission besides concept for futuristic infantry combat vehicle (FICV) and unmanned ground vehicle (UGV).

As Project Director (Arjun), he was instrumental in proving the medium fording capability of Arjun MBT and delivering production tanks to the user successfully

after resolving all the critical issues mainly related to quality and reliability. Also, he organised accelerated usage-cum-reliability trials (AUCRT) very effectively and efficiently with Army on two tanks selected from the first batch of production and ensured the induction of first regiment of Arjun MBT into the Indian Army. He was instrumental in conversion training of the first regiment at MFFR and the subsequent comparative trials with T-90 tank to decide the deployment of Arjun MBT. He played a vital role in configuring Arjun MBT Mk II based on AUCRT and joint receipt inspection (JRI) besides amendment to the present GSQR of Arjun MBT by involving all the agencies including user.

Dr Sivakumar is recipient of the National Design Award in Mechanical Engineering from the Institute of Engineers (India) through National Design Research Forum in 2002; Defence Technology Spin-off Award of DRDO for the development of 150 hp automatic transmission for wheeled vehicles in 2005; and DRDO Performance Excellence Award for contribution in Arjun MBT programme in 2008 as a member. As Director, CVRDE, he received the Silicon Trophy-2009 of DRDO for the best system laboratory in the field of combat vehicle technologies and received Scientist of the Year Award-2010 of DRDO for his active role in the Arjun MBT project management during AUCRT trials and in the certification exercise by external agency led to user acceptance and induction of Arjun MBT. He was commended with the Distinguished Public Service Award by the Vellore Institute of Technology, Vellore, in 2010. He was also awarded Honorary Doctorate (Honoris Causa) by Sathyabama University, Chennai, in April 2012 for his significant contributions to DRDO for the development of transmission systems for AFVs and commercial vehicles as well as successful completion of production phase of Arjun MBT and its induction into the Army for two armoured regiments in-time after completion of AUCRT and comparative trials.



डीआरडीओ न्यूज़लैटर

Dr Sivakumar is member of many professional institutions particularly American Gear Manufacturers Association (AGMA), USA; American Society of Metals (ASM), USA; Institution of Engineers (India), Kolkata; and Society of Automotive Engineers.

He has guided more than 20 students and presented/published more than 40 technical papers in many international seminars and journals.

Higher Qualification Acquired

CAIR, Bengaluru



Shri Narayan Panigrahi, Sc F, Centre for Artificial Intelligence and Robotics (CAIR), Bengaluru, has been awarded PhD by IIT-Bombay, Mumbai, for his thesis titled Multi-Resolution Approach to Change Detection. He has also been conferred with the best research paper award by INRIA,

France, for his paper titled Removal of Topological Errors from Spatial Data in Vector Format.

DRL, Tezpur



Smt Jayshree Das, Sc D, Defence Research Laboratory (DRL), Tezpur, has been awarded PhD by the Gauhati University for her thesis titled Studies on Antidermatophytic Activity of Some Medicinal Plant of Assam-Arunachal Pradesh Border Areas.

HEMRL, Pune



Ms SS Adhav, TO B, High Energy Materials Research Laboratory (HEMRL), Pune, has been awarded PhD by University of Pune for her thesis titled Studies on Azido and Nitramine Based Energetic Plasticisers and their Evaluation in Gun Propellant Formulations.

EMU (R&D) bags Outstanding Award

Estate Management Unit (EMU) R&D, Bengaluru, has been awarded a special outstanding Trophy by the Mysore Horticultural Society, Government of Karnataka, Bengaluru, for overall performance of maintaining and up-keeping of the arboriculture assets at DRDO, CV Raman Nagar, Bengaluru. EMU



R&D, Bengaluru, participated in 39 categories in the competition organised by the society, and bagged First prize in all the categories. The prizes included the Best Ornamental Garden Prize and Rolling Shield for Military and Ornamental Gardens, respectively.

Dr VK Saraswat, SA to RM, Secretary, Defence R&D, and DG, DRDO, on a visit to Bengaluru, congratulated Shri MVLN Rao, Estate Manager, and his team for the excellent achievement.

Dr Saraswat was accompanied by Shri Avinash Chander, DS and CC R&D

(MSS); Dr PS Krishnan, DS and Director, Aeronautical Development Establishment, Bengaluru and Chairman Township Advisory Committee; Dr CP Rama Narayanan, Director, Gas Turbine Research Establishment, Bengaluru and Shri Kaverappa, Regional PRO, DRDO, Bengaluru.

Raising Day Celebrations

NSTL, Visakhapatnam

Naval Science and Technological Laboratory (NSTL), Visakhapatnam, celebrated its 43rd Lab Raising Day on 17 August 2012 with a lot of fervor and enthusiasm. The celebrations included function in the morning and a cultural programme in the evening showing up in-house talent.

Dr J Narayana Das, OS and CC R&D (NS&M) was the Chief Guest of the function. Dr Narayana Das, in his address lauded the contributions made by the NSTL. He also presented lab-level DRDO awards and felicitated NSTL staff who completed 25 years of services. Shri SV Rangarajan, OS and Director, NSTL; Chairman of the Organising Committee; and leader staff side also addressed the august gathering. Dr A Prasanna Kumar, Director, Centre for Policy Studies, Regional Director, National Maritime Foundation, Visakhapatnam Chapter, was the chief guest at the Cultural Programme. Various skits, dances and songs were presented during the programme. Prizes were distributed to the winners of various sports and cultural competitions.



Dr Narayana Das lighting the lamp

RCI, Hyderabad

Research Centre Imarat (RCI), Hyderabad, celebrated its 24th Annual Day on 27 August 2012. Shri Anurag Sharma, IPS, Commissioner of Police,



Shri Anurag Sharma lighting the lamp

Hyderabad, was the chief guest of the function. Dr CG Balaji, OS and Associate Director, RCI, in his welcome address spoke about the growth of RCI as modern technology centre in the area of avionics systems.

Dr SK Chaudhuri, OS and Director, RCI, appreciated efforts of scientists and staffing growth of RCI and successful launch of all flight trails during the year. He stressed on importance of core areas of missile engineering and said that better team work and utilisation of various facilities in RCI is the need of the hour. Shri Anurag Sharma, congratulated scientists and staff for success in design and development of missile systems.

Dr DVK Sastry, Sc G and Chairman, Works Committee, apprised on-going welfare schemes and those planned for the coming year.

Dr Chaudhuri presented various lab awards to scientists, technical officers and other staff. He also released 'Anmol' RCI Women's Magazine on this occasion. Dr Balaji, presented mementoes to RCI staff who completed 25 years of service in DRDO. Shri G Sateesh Reddy, OS and Associate Director, RCI, presented mementoes to RCI Staff who completed 20 years of service and also gave merit scholarships to children of RCI employees. Shri Adalat Ali, OS and Associate Director, RCI, presented prizes to winners of various sports competitions. Shri K Rama Sharma, Sc G, DoMS, RCI, proposed the vote of thanks.



RAC goes Online...

Recruitment and Assessment Centre (RAC), Delhi, is approaching for targeted modernisation in its working including acceptance of online applications for various recruitmentschemes (with online fee submission through more than 200 payment options), national and international video conferencing with the candidates deputed abroad, online registration by scientists through DRONA (as departmental experts) and eminent professionals (as board experts), online registration of scientists under R&T/PGT scheme, and assessments.



SA to RM has appreciated the efforts made by RAC in making it a centre of excellence.

On the basis of successful trial for receiving online biodata of scientists through DRDO Intranet in 2010 and 2011, the submission of online biodata through for R&T/PGT and assessment has been made mandatory wef 2012.

RAC conducted many video conferencing sessions to interact with the candidates who could not appear personally for their assessment due to mission activities/other commitments.

Visits to DRDO Labs/Estts

ARDE, Pune

Shri S Sundares, DS and CC R&D (ACE&SI) along with Dr DK Kharat, Director of Armament, DRDO HQ, on 10 August 2012.



CABS, Bengaluru

Vice Adm (ret'd) Raman Puri, Brig (ret'd) Arun Sehgal and Shri Thomson Mathew, Sec F, G-Fast, Delhi, on 7 August 2012.

CAIR, Bengaluru

Lt Gen Mehta, SM, VSM, Comdt, MCEME, Secunderabad, on 21 August 2012.

CVRDE, Chennai

Maj Gen Gurmukh Singh, VSM, Commander, HQ Tech Group EME, on 2 August 2012.



SAG, Delhi

Dr KD Nayak, DS and CC R&D (Med, Mist & CS) on 28 August 2012. He was apprised about the various activities being carried out in the lab by Dr PK Saxena, OS and Director, SAG.

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