

N.4: RRCAT celebrated its 40th Foundation Day on 20th February 2023

Raja Ramanna Centre for Advanced Technology, Indore, a unit of the Department of Atomic Energy, Government of India celebrated its 40th Foundation Day Function on February 20, 2023. The Chief Guest on the occasion was Shri K. N. Vyas, Chairman, Atomic Energy Commission, and Secretary, Department of Atomic Energy, Government of India, a highly accomplished nuclear energy technocrat and scientific administrator. The Guest of Honour of the function was Prof. U. Kamachi Mudali, former Chief Executive and Chairman, Heavy Water Board, Department of Atomic Energy, and the present Vice-Chancellor, VIT Bhopal University. Dr. Shovan K. Majumder, Chairman, Seminar Committee, introduced the Chief Guest as well as the Guest of Honour.



Dr. S. V. Nakhe, Director, RRCAT welcoming the Chief Guest, Shri K. N. Vyas, Chairman, AEC and Secretary, DAE.



Shri Purushottam Shrivastava, Director, Proton Accelerator Group, welcoming the Guest of Honour Prof. U. Kamachi Mudali, Vice-Chancellor, VIT Bhopal University.

Dr. S. V. Nakhe, Director RRCAT, presented an overview of the important scientific accomplishments of the Centre achieved during the past one year. He presented the current status of the synchrotron radiation sources Indus-1 and Indus-2, highlighting in particular, the new beamlines made operational and the upgradations carried out in the facility for improving the performance. He briefed that the Free Electron Laser, which is a unique facility in India, has been made available to users and the first set of experiments have also been carried out. Another important milestone mentioned was the successful commercial utilization of Electron-Beam Radiation Processing Facility, which is the first such facility in the country, for sterilizing medical products. He mentioned about the development of indigenous computer codes, machine components and setting of various facilities towards capacity

building for the proton accelerator. Dr. Nakhe also mentioned that 40 kW/650 MHz Solid State RF Amplifier delivered to Fermi Lab under IIFC Collaboration has been tested and qualified. Other important accomplishments elaborated were development of lasers systems for material processing, cutting and welding in nuclear applications, deployment of fiber Bragg grating based multi-point temperature monitoring system in nuclear power plant, development of laser additive manufacturing systems, machine-vision based metrology systems for inspection of nuclear fuel components, and development of technology for laser diode bonding and packaging. He also mentioned about deployment of OncoDiagnoScope, a photonics technology based cancer screening device, in several medical camps in remote areas and in the Life-Line Express in Maharashtra. At the end of his talk, he emphasised that R&D institutes, academia, and industries working together with innovative ideas can write success stories for Atma Nirbhar Bharat.



Dr. S. V. Nakhe, Director, RRCAT delivering his lecture during the Foundation Day function.

Another highlight of the Foundation Day Function was an event in which a few technologies developed at RRCAT were transferred to industry, and incubation agreements were signed with a few other industrial partners. The technology of Agni-Rakshak, a Raman optical fiber based distributed temperature sensor system, was transferred to M/s Technica Fiber Tech Pvt.Ltd., New Delhi. Three agreements were signed for incubation of in-house developed technology for laser additive manufacturing systems with M/s Ideas AM Systems, Navi Mumbai, M/s VFUSE Metal 4 Manufacturing Pvt. Ltd., Navi Mumbai, and M/s Lokesh Machines Ltd., Hyderabad. A collaborative technology incubation was signed with M/s Metal and Membrane Pvt. Ltd., Indore for development of special purpose machine for circumferential TIG welding.



Dr. S. V. Nakhe presenting the technology transfer and incubation agreement documents to the industrial partners in the presence of Shri K. N. Vyas.

The Guest of Honour of the function Prof. U. Kamachi Mudali delivered an engrossing talk to the staff members of the Centre. He mentioned that RRCAT is the leading institute in the Country in the areas of lasers, accelerators, and non-nuclear advanced technologies. He highlighted the importance of sustainable developmental goals set up by the United Nations, wherein he specifically elaborated on the role of Artificial Intelligence in achieving goals of Industry 4.0 and Education 4.0.



Prof. U. Kamachi Mudali, former Chief Executive and Chairman, Heavy Water Board, Department of Atomic Energy, and the present Vice-Chancellor, VIT Bhopal University delivering his talk during the Foundation Day function.

The Chief Guest of the function Shri K. N. Vyas delivered a motivating talk to the staff members of the Centre. He congratulated RRCAT fraternity for its excellent scientific and technological accomplishments during the past one year under the leadership of Dr. Nakhe. He elaborated on the role of nuclear power to meet the goal of “Net Zero” by 2070. He presented the advantages of nuclear energy vis-a-vis other sources of energy such as thermal power and solar power plants. In this regard, he described the role of small modular reactors, which could be industry built. He advised to utilize the unique strengths of different DAE units by establishing collaborations among each other as well as with academics and industries. He expressed his happiness that many industrial partners came forward to absorb the high-end technologies developed at RRCAT.



Shri K. N. Vyas, Chairman, AEC and Secretary, DAE delivering the Foundation Day address.

The vote of thanks was proposed by Shri Purushottam Shrivastava, Director, Proton Accelerator Group, RRCAT. The

function was attended by several dignitaries from DAE including the former Directors of RRCAT, Dr. P. D. Gupta, Dr. P. K. Gupta and Shri S. C. Joshi, and the Directors of DAE-UGC CSR, Prof. Amlan J. Pal and Prof. Vasant Sathe. Many eminent personalities from outside DAE also graced the occasion including Dr. Dhruv Ghai, Pro Vice-Chancellor of Oriental University, Indore, Dr. Prithvi Yadav, Vice-Chancellor, Symbiosis University of Applied Science, Indore, Dr. Dilip K. Pattnaik, Vice-Chancellor, Medicaps University, Indore, Dr. Rajeev Vishwakarma, Pro Vice-Chancellor, APJ Abdul Kalam University, Indore, Dr. R. K. Khare, Dean (Administration), SGSITS, Indore, Dr. V. Ganesan, Dean, Medicaps University, Indore, Shri Dev Kumar Vasudevan, an eminent Social Worker, and several senior officials of District Administration and Police Department of Indore. The proceedings of the function were telecast live at different centres of DAE and also at several locations within RRCAT.

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N.5: Theme meeting on “Control Systems and Instrumentation for Future Accelerator Projects”

A one-day theme meeting on “Control System and Instrumentation for Future Accelerator Projects” was organized by RRCAT in collaboration with Indian Society for Particle Accelerators on May 26, 2023 at Convention Centre, RRCAT, Indore. The theme meeting had inaugural session and two invited talk sessions. Shri Uday Vaidya, Head, RCnD, BARC was the Chief Guest and Dr. S. V. Nakhe, Director, RRCAT chaired the inaugural session. Shri T. A. Puntambekar, Group Director, Electron Accelerator Group, RRCAT, gave the inaugural address giving the relevance of the meeting and covered major challenges associated with the control system of particle accelerators. Addressing the meeting Dr. Nakhe highlighted the importance of this meeting in light of upcoming high brilliance synchrotron radiation source (HBSRS) project. Shri Uday Vaidya gave a talk on “Challenges & Approach in Design of Control and Instrumentation for Future Accelerator Projects”. He emphasized on a systematic, documented & well controlled, life cycle-based design process for system development.



Dr. S. V. Nakhe, Director, RRCAT along with other dignitaries lighting the lamp during inauguration of Theme meeting.