

# RPNST 2025

## Conference on Recent Progress in Nuclear Science & Technology & Commemorating the Birth Centenary of Dr. Raja Ramanna

The Recent Progress in Nuclear Science & Technology conference (RPNST2025) took place on January 27-28, 2025, at the DAE Convention Centre in Anushakti Nagar, Mumbai. This significant event celebrated the birth centenary of Dr. Raja Ramanna (1925-2004), former Chairman of the Atomic Energy Commission (AEC) and Secretary of the Department of Atomic Energy (DAE). It was organized by the Physics Group of the Bhabha Atomic Research Centre (BARC).

The conference commenced with an inaugural session featuring distinguished speakers such as Dr. V.S. Ramamurthy, Dr. S.S. Kapoor, and Dr. Ajit Kumar Mohanty, Chairman of the AEC and Secretary of the DAE. The session outlined the objectives of honoring Dr. Ramanna's legacy while discussing advancements in nuclear science and technology.

Day one included three technical sessions focused on Fission Physics and Technology, Fusion Physics and Technology, and Energy Security and Economic Growth. Dr. V.S. Ramamurthy presented on "Ramanna and his Legacies," while Dr. Mohanty discussed India's three-stage nuclear program aimed at self-reliance. Dr. R.K. Choudhury, former Director of IOP, shared insights on neutron-induced fission studies and research on superheavy nuclei.

Dr. Shashank Chaturvedi, former Director of the Institute of Plasma Research, discussed global approaches to nuclear fusion. Former AEC Chairman and DAE Secretary Dr. Anil Kakodkar addressed nuclear energy's role in economic security, and Shri V. Rajesh of NPCIL presented the current scenario of nuclear power generation in India.

The day concluded with special sessions, including "Physics of Music" led by Prof. Milind N. Kunchur from the University of South Carolina, followed by a cultural evening.

Day two began with a session on Physics with Mega Science Facilities, where Dr. S.M. Yusuf, Outstanding Scientist and Director of BARC's Physics Group, discussed multi-dimensional R&D activities within BARC's Physics Group. Professor V.C. Sahni covered the Indian accelerator landscape, while Dr. Jayaram N. Chengalur from TIFR explored radio wavelength studies of the universe.

The afternoon featured a session on Nuclear Technology for Societal Benefit, with Dr. Sudeep Gupta discussing DAE technologies' contributions to nationwide cancer care and Smt. Meera Venkatesh addressing radiation applications for improving quality of life.

A Basic Research & Developments session followed, where Dr. B.A. Dasannacharya reflected on "Ramanna: The Man



Dr. Homi J. Bhabha and Dr. Raja Ramanna interacting with the foreign scientific delegation at the Apsara Reactor during their visit to AEET (now BARC). Photo Courtesy: DAE.

and His Legacy." Presentations included neutrino physics research by Dr. Vishwajeet Jha from NPD, Physics Group, and a discussion on the proton accelerator program by Dr. Sista V.L.S. Rao from IADD, MRG.

The conference concluded with a panel discussion on "Future Challenges in Fission and Fusion Technologies," featuring notable figures such as Dr. V.S. Ramamurthy, Shri K.N. Vyas, Dr. R.B. Grover, and Dr. Shashank Chaturvedi. Shri K.N. Vyas delivered concluding remarks before Dr. S.M. Yusuf offered a vote of thanks.

RPNST2025 successfully brought together leading national and international experts to discuss advancements in nuclear science and technology while honoring Dr. Raja Ramanna's contributions to India's nuclear program. The conference underscored India's progress in fission and fusion technologies as well as societal applications of nuclear science, reinforcing the nation's commitment to sustainable energy development and scientific advancement.