

NATIONAL TECHNOLOGY DAY

National Technology Day was celebrated in BARC on May 12, 2005. The main theme of the programme was felicitation of Padma Awardees and talks by DAE scientists.

Dr Anil Kakodkar, Chairman, Atomic Energy Commission & Secretary to Department of Atomic Energy, felicitated Mr S.B. Bhoje, Former Director, Indira Gandhi Centre for Atomic Research (IGCAR) and Dr S. Banerjee, Director, BARC, who were bestowed Padma Shri in 2003 and 2005, respectively. Dr Kakodkar, in his opening speech, said, "Department of Atomic Energy is a technological organisation and so it is appropriate that we celebrate National Technology Day. It also brings us all together to discuss the various technological developments during the year gone by." He said, "In view of our fuel resources, there are several technologies we



Dr Anil Kakodkar, Chairman, AEC & Secretary to Government of India, felicitating Mr S.B. Bhoje, Former Director, IGCAR, who was awarded Padma Shri in 2003



Dr Anil Kakodkar, Chairman, AEC & Secretary to Government of India, felicitating Dr S. Banerjee, Director, BARC, who was awarded Padma Shri in 2005

have to develop and take a global leadership position. This particularly includes technologies to harness vast thorium resources available in India." He said that our country is looking for



Dr Anil Kakodkar, Chairman, AEC & Secretary to Government of India, delivering the opening speech at the Central Complex auditorium, BARC

energy technologies to meet our growing energy requirements and this is the main mandate of our Department. He released a film "Technology Treasure" on this occasion.

Talks on recent technological achievements in the Department of Atomic Energy (DAE) highlighted the landmark achievements. Dr K.B. Dixit, Associate Director, Nuclear Power Corporation of India Limited (NPCIL), spoke on India's first 540 MWe PHWR at Tarapur which went critical on March 6, 2005. Built during technology denial regimes, it marks a milestone in India's Nuclear Power Programme. Mr A.K. Wechalekar, Sr. Executive Engineer (Tech.), Heavy Water Board (HWB), spoke on Front-End technology for ammonia based Heavy Water Plant (HWP) which helped to re-commission Baroda HWP. Mr K. Jayarajan, Division of Remote Handling and Robotics, gave a talk on the technology for societal development and on 'BHABHATRON' -India's first indigenously developed computer-aided economical teletherapy machine.

Recipients of Homi Bhabha Science & Technology Awards and Technical Excellence Awards 2004 (all from BARC) gave talks on their topics with specially designed presentations, for broad based understanding. Dr A.P. Tiwari, RCnD, spoke on "Design and Development of Spatial Control System of 540 MWe PHWR."

Dr (Ms) K. Indira Priyadarsini, RC&CDD, talked on "Free Radical Reactions of Antioxidants and Radio-protectors," Mr A. Rama Rao, RED, spoke on "Role of Vibration Diagnostics in Safety Technologies" and Dr. Lalit Varshney, RTDS, spoke on "Development of Radiation Processed Hydrogels for Medical Use."

The programme was attended by a large number of BARC and DAE employees.

activity of IARP is the quarterly publication of an international scientific journal. *Radiation Protection and Environment*. IARP is a national organisation and has its chapters spread out throughout India. It has been serving the international and national scientific communities for the past 37 years.

IARP NC-2005 will be devoted to '*Occupational and Environmental Radiation Protection*'. The detailed thematic areas of the conference are listed below :

➤ **Occupational Radiation Protection**

- In Nuclear Fuel Cycle Facilities
- In Waste Management & Decommissioning
- In Accelerator Facilities
- In Medicine, Industry & Research
- Infrastructure Developments
- Operational Radiation Protection & its Optimisation

➤ **Radiation Protection of the Environment and Public**

- Radon Exposures
- Enhanced Natural Exposures (Air Crew)
- Liquid & Gaseous Discharges
- Waste Disposal & Decommissioning
- Environmental Surveillance
- Modelling Exposure Pathways
- Malevolent use of Radiation Sources

➤ **Radiation Protection Dosimetry & Instrumentation**

- External Dosimetry
- Internal Dosimetry
- Biological Dosimetry
- Radiation Detection Instrumentation

➤ **Management of Unusual Occurrences, Incidents and Accidents, and Emergency Preparedness**

- In Nuclear Fuel Cycle Facilities
- In Public Domain
- Orphan Sources

➤ **Occupational Radiation Protection**

- Radiation Biology
- Epidemiology

- Risk Factor Evaluations

In addition, there will be a Panel Discussion on "ICRP Recommendations on Radiation Protection – Past, Present and Future".

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INTERNATIONAL CONFERENCE ON "RELIABILITY SAFETY AND HAZARD - 2005"

Research and development work in the areas of reliability, safety and hazard is being actively pursued worldwide with an objective to improve performance and optimisation of operational and maintenance cost of the nuclear and process plants. Risk-based technologies, where apart from deterministic safety assessment, the insight from Probabilistic Safety Assessment (PSA) is used for taking the decisions, are becoming part of operational decision making, regulatory review, design and safety evaluations. In some of the plants in developed countries, risk-informed asset management is a way of life.

Keeping in view the R&D work being performed in the field of reliability and safety engineering and the state-of-the-art development taking place worldwide, a three-day International Conference on "Reliability Safety and Hazard (ICRESH-05)" is being organised at the hotel, The Leela Kempinski, Mumbai, during December 1-3, 2005.

The conference is being organised by BARC, Indian Institute of Technology, Bombay, and Society for Reliability Engineering Quality and Operation Management, and supported by :

- Nuclear Power Corporation Indian Limited,

- Board of Research in Nuclear Sciences, Mumbai,
- Heavy Water Board, Mumbai
- Atomic Energy Regulatory Board, Mumbai,
- Indira Gandhi Centre for Atomic Research, Kalpakkam,
- Defence Research and Development Organisation, and
- International Society of Reliability Engineers (India Chapter)

The topics for the conference are :

1. Reliability

- Reliability in engineering design
- Digital system reliability
- Safety critical software reliability analysis
- System reliability assessment
- Stochastic Petri nets for reliability modeling
- Dynamic reliability
- Reliability based methods for residual life estimation
- Reliability centered maintenance
- Uncertainty analysis

Human Reliability Modelling (Operator support systems, Expert elicitation, Artificial Neural Network, Expert Systems in support of improving human reliability, and Design of fault tolerant systems)

2. Safety

- Probabilistic Safety Assessment (PSA)
- External events PSA
- Shutdown safety
- Risk assessment for passive systems
- Fussy logic for Risk analysis
- Radiation risk assessment
- Environment risk modelling
- Deterministic methods in safety assessment
- Thermal hydraulic safety analysis
- Structural safety analysis

3. Hazard

- Safety Assessment Techniques in Process Industries
- Hazard and Operability studies
- Application of PSA methods in hazard evaluation
- Codes and standards for hazard assessment

4. Risk Informed Approach

- Risk-informed /Risk-based Technologies in support of regulatory decisions
- Role of Risk-informed approach in Ageing management
- Risk-based In-Service-Inspection
- Risk-informed operational decisions
- Risk-informed asset management
- Systems security
- Graded quality assurance

5. Application Areas

Nuclear power plants & research reactors, Heavy water plants, Heavy water plants, Petroleum & Process industries, Desalination plants, Nuclear Waste Management plants, Robotics, Lasers, Accelerators, Accelerator driven sub-critical systems, Aircraft systems, Launch and Delivery systems, Railways, Electronics and Telecommunications

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निदेशक, भापअकेंद्र, को प्रशंसात्मक सम्मान प्राप्त

DIRECTOR, BARC, RECEIVES MORE ACCOLADES



Dr S. Banerjee, Director, BARC, receiving the "Distinguished Alumnus Award" during the Golden Jubilee Convocation of IIT - Kharagpur

The Indian Institute of Technology, Kharagpur, also did not lag behind in honouring Dr Banerjee with the "Distinguished Alumnus Award" for the meteoric rise of one of its past students to the exalted position of Director of the country's premier nuclear research centre, Bhabha Atomic Research Centre. This award was bestowed on Dr Banerjee during the Golden Jubilee Convocation of I.I.T - Kharagpur on February

26, 2005.

Padma Shri Dr Srikumar Banerjee is the recipient of many other awards and honours. He is also Fellow of many prestigious Academies.

डॉ. श्रीकुमार बॅनर्जी, निदेशक, भाभा परमाणु अनुसंधान केंद्र, को भौतिकी धातुकी एवं पदार्थ विज्ञान के क्षेत्र में पिछले कई दशकों से अति महत्वपूर्ण योगदान के लिए फरवरी 23, 2005 को पश्चिम बंगाल के बर्दवान विश्वविद्यालय के द्वारा प्रतिष्ठित वैज्ञानिक (honoris causa) की उपाधि दी गई।

इन्डियन इन्स्टिट्यूट ऑफ टेक्नॉलोजी, खड़गपुर भी अपने भूतपूर्व छात्र डॉ. बॅनर्जी की असाधारण उन्नति तथा देश के गौरवशाली नाभिकीय अनुसंधान केंद्र, भाभा परमाणु अनुसंधान केंद्र के निदेशक पद को प्राप्त करने पर उन्हें "प्रतिष्ठित स्नातक पुरस्कार" से सम्मानित करने में पीछे नहीं रहा। यह पुरस्कार उन्हें फरवरी 26, 2005 की गोल्डन जुबली कन्वोकेशन आफ आइ आइ टी खड़गपुर के दौरान प्रदान किया गया।

पदम् श्री डॉ. श्रीकुमार बॅनर्जी को अन्य कई पुरस्कारों से सम्मानित किया जा चुका है। ये कई प्रतिष्ठित अकादमियों के सदस्य भी हैं।

Dr Srikumar Banerjee, Director, BARC, was conferred the degree of D.Sc. (honoris causa) by the University of Burdwan, West Bengal, on February 23, 2005 for his exemplary contributions in the fields of physical metallurgy and materials science over the past many decades.

4th ASIAN AEROSOL CONFERENCE (AAC-2005)

The Asian Aerosol Research Assembly (AARA) is a body comprising of national aerosol associations of the countries in the Asian region. These include the Japanese Association for Aerosol Science and Technology (JAAS), Chinese Association for Aerosol Research and Technology (CAART) of ROC, Indian Aerosol Science and Technology Association (IASTA), Korean Association for Particle and Aerosol Research (KAPAR), Institute of Atmospheric Aerosol (IAA) of China and Thai Powder Technology Centre. AARA holds the Asian Aerosol Conference once in two years in one of the member countries. The past three

conferences were held in Nagoya, Japan (1999), Pusan, Korea (2001) and Hong Kong (2004), The 4th AAC will be held at the Hotel Grand Hyatt, Mumbai, under the auspices of IASTA, during December 13-16, 2005.

The Indian Aerosol Science and Technology Association (IASTA) was founded in 1988 with a view to promote and develop the growth of aerosol science and technology disciplines and their applications. It has been meeting its objectives by way of organising conferences, workshops, exhibitions and lectures and through its biannual bulletin and other publications. It has been awarded affiliation to the International Aerosol Research Assembly (IARA) and has maintained active liaison between institutions in India and abroad.

Scientific contributions, as platform and poster presentations, are invited in areas of aerosol research in the following topics :

- Aerosol fundamentals: Physics and Chemistry
- Aerosol instrumentation
- Aerosol remote sensing techniques
- Radioactive and nuclear aerosols
- Aerosols and climate change
- Urban air pollution and source apportionment
- Indoor pollution
- Health related aerosols
- Bio-aerosols, biodefense, inactivation of bioagents
- Medical and pharmaceutical applications
- Material synthesis; nanoparticle technology
- Clean room applications

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भा.प.अ. केंद्र के वैज्ञानिकों को सम्मान / BARC SCIENTISTS HONOURED

सिजोफ्रेनिया पेशन्ट यूजिंग एफडीजी- पेट के अनुसंधान अध्ययन के आधार पर "रीजनल ब्रेन मेटाबोलिज्म इन सिजोफ्रेनिया पेशन्ट यूजिंग एफडीजी- पेट" नामक वैज्ञानिक शोध-पत्र ने केईएम अस्पताल, मुम्बई, के मनोचिकित्सा विभाग के सहयोग से, भापअ केंद्र के रेडियेशन मेडिसन सेन्टर में संचालित तथा एएनसीआइपीएस-2005 (एनुअल नैशनल कान्फरेंस ऑफ द इन्डियन साइकेट्रिक सोसाइटी) पीजीआइएमईआर, चंडीगढ़ में 57वीं वार्षिक

सभा में प्रस्तुत 17 प्रतियोगी शोधपत्रों के समक्ष, प्रतिष्ठापूर्ण डॉ. जे.सी. मारफतिया पुरस्कार प्राप्त किया। भापअ केंद्र के रेडियेशन मेडिसन सेन्टर के डॉ. एन.नायर, श्री एस.एच.मोघे, श्री नवाब सिंह बघेल, एवं डॉ. ए.जी.पंडित (डीआरएम के छात्र) के साथ केईएम अस्पताल, मुम्बई के साइकेट्री विभाग से डॉ. आर. सीथालक्ष्मी, डॉ. शुभांगी पारकर, डॉ. शिल्पा अदरकर तथा डॉ.शेफाली बत्रा इस अध्ययन में सम्मिलित हुए।

The scientific paper entitled, "Regional Brain Metabolism in Schizophrenia Patients Using FDG-PET Study", based on a research study on Schizophrenia patients using FDG-PET conducted at the Radiation Medicine Centre (BARC) in collaboration with the Psychiatry Department of KEM Hospital, Mumbai, and presented at the 57th ANCIPS - 2005 (Annual National Conference of the Indian Psychiatric Society) at PGIMER, Chandigarh, won the prestigious "Dr J.C. Marfatia Award" from among 17 competing papers. Dr N. Nair, Mr S.H. Moghe, Mr Mawab Singh Baghel and Dr A.G. Pandit (DRM student) participated in the study from Radiation Medicine Centre, BARC, along with Dr R. Seethalakshmi, Dr Shubhangi Parkar, Dr Shilpa Adarkar and Dr Shefali Batra from Psychiatry Department of KEM Hospital, Mumbai.

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