Reports from conferences, theme meetings and workshops

Dr. D.K. Aswal, Director, HSEG, BARC speaking at the theme meeting SAAR-2023. Present on the dais (from right) are Dr. S. S. Bajaj, Former Chairman, AERB and Dr. B.K. Sapra, Head, RP&AD, BARC.

SAAR-2023

Theme meeting on

Severe Accident Aerosol Research – Investigations & Directions

Health, Safety and Environment Group, BARC organized a two-day theme meeting on "Severe Accident Aerosol Research – Investigations and Directions" (SAAR-2023) during March 20-21, 2023 at CT&CRS Auditorium, Anushaktinagar, Mumbai. The meeting was attended by about 50 participants from various DAE units and IITs, and was sponsored by Board of Research in Nuclear Sciences (BRNS), Department of Atomic Energy (DAE). Topics of the meeting included ongoing activities and the near-future insights on severe accident aerosol research in the context of Indian reactors.

Presentations from stakeholders from nuclear aerosol facilities viz., Nuclear Aerosol National Test Facility at RP&AD, BARC, National Aerosol Facility at IIT Kanpur and High Temperature Aerosol Facility at IIT BHU emphasized the importance of large scale experimentation and the associated interpretations. Discussions were held on severe reactor accident aerosol research aspects for existing and futuristic reactor designs, recent developments in experimentation and modelling and the ongoing work at experimental facilities. It was concluded that gaining predictive power of aerosol behavior ultimately helps to get a more reliable prediction of the potential radiological source term.

A panel discussion during the concluding session was attended by experts from AERB, DAE, BARC and NPCIL, which focused on the linkage of the progress made so far and the need for the future. Members, during the panel discussions, provided their inputs on different aspects of roadmap for the future of research in this direction. This included the need to continue research at laboratory as well as facility scale, to perform validation of in-house developed codes and to arrive at database essential for assisting the regulators. Overall, the meeting provided a directional flow for severe reactor accident related aerosol research activities of national importance and for international recognition.

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AdMet-2023

8th National Conference on *Advances in Metrology*

Health Safety and Environment Group, Bhabha Atomic Research Centre (BARC), Trombay in association with Metrological Society of India, New Delhi, Institute for Design of Electrical Measuring Instruments (IDEMI), CSIR-National Physical Laboratory, New Delhi and National Accreditation Board for Testing and Calibration Laboratories, Gurugram organized a workshop-cum-national conference on "Advances in Metrology" (AdMet-2023) during March 23-25, 2023 at DAE Convention Centre, Anushaktinagar, Mumbai. The focal theme of the workshop and the conference was "Radiation Metrology for Nuclear Medicine & Industries" and "Metrology for Science and Industrial Growth", respectively.

The main objective of the Admet Series Conference was to provide a common landing platform for metrologists, technocrats, researchers and students of various NMI's, laboratories and institutes to participate and share their knowledge and experience, identify the thrust R&D areas and foster collaborations with fellow scientists in the domain of metrology. AdMet-2023 saw participation of experts, researchers, students, technocrats, bureaucrats, manufacturers, vendors, suppliers etc. Demonstration of radiation technologies, application of nuclear medicines & radioisotopes in all industrial sectors was the new dimension of the conference. More than 250 delegates from various institutes and industries participated in this maiden conference on radiation metrology. Two hundred and eight original research works were presented at the conference. 10 best papers were awarded by the Springer India and MSI. The "Handbook of Metrology and Application", authored by Dr. D.K. Aswal et al. of BARC and published by Springer nature, was released during the conference.

11 invited talks were delivered in the pre-AdMet workshop and 29 invited talks were delivered during the conference. The invited talks covered a wide range of topics ranging from metrology in testing and calibration laboratories, healthcare, medical, pharmaceutical and clinical devices, human machine interface (HMI) and internet of things (IoT), radiation metrology, environmental metrology, digital transformation, electrical, mechanical to electronics and digital metrology. The major thematic area of discussion included new development on metrological aspects of accreditation and certification, industrial and legal metrology, quality assurance and quality control in metrology, uncertainty and traceability, development of reference material, process control instrument, renewable sources and environmental metrology.

Photo caption: Key dignitaries attending the conference on Advances in Metrology (AdMet-2023) share the dais. Conference chief guest Shri. R.K. Singh, Secretary, Ministry of Consumer Affairs, Government of India (seen in the background) participated in the event through virtual mode. Inset: Dr. D.K. Aswal, Director, HSEG, BARC (2nd from right) and other eminent individuals released the Handbook of Metrology and Application during the inaugural day.

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Proceedings and Souvenir of ACRR-2022 released during the Inaugural Function. (R-L) Dr. Tapan K. Ghanty (Director, Bio-Science Group, BARC), Dr. Ajit K. Mohanty (Director, BARC), Dr. R. Chidambaram (Chairman, ASNST, BARC and Former PSA, Govt. of India), Prof. K.P. Mishra (President, AARR) and Dr. Amit Kumar (RB&HSD, BARC)

5th Asian Congress of Radiation Research

The 5th Asian Congress of Radiation Research (ACRR 2022) was organized by the Bio-Science Group, Bhabha Atomic Research Centre (BARC) in association with the Society for Radiation Research-India (SRR-India) and Asian Association for Radiation Research (AARR) at DAE Convention Centre during November 17-20, 2022.

The program of the 5th ACRR included 22 scientific sessions comprising a special session of panel discussion on Linear-No-Threshold (LNT) model of radiation protection, fifteen plenary lectures, five special lectures, one eye-opening lecture, six AARR award recipient lectures, 38 invited talks and proffered oral and poster sessions.

The proceedings of the entire program have been covered in detail in a souvenir and a special issue of Journal of Radiation and Cancer Research, which were released by Dr. Ajit Kumar Mohanty, Director, BARC during the inaugural event. About 300 delegates from several reputed institutes of India and abroad including Canada, Germany, Japan, Republic of Korea, The Netherlands, and the United States of America have attended the 4-day program.

Many overseas eminent scientists in the field of Radiation Research/ Radiobiology namely Prof. Yoshiya Shimada (President, IARR and Director, Institute of Environmental Sciences, Japan), Prof. Gayle Woloschak (Northwestern University, USA and Editor-in-Chief, Intl. J. Radiation Biology), Prof. Satoshi Tashiro, (Director, Research Institute for Radiation Biology and Medicine, Hiroshima University, Japan),Prof. George Iliakis, (University of Essen, Germany), Prof. E. J. Calabrese (University of Massachusetts, USA), Dr. Zhanat Carr (WHO, Geneva), Dr. Nils Cordes (Onco Ray National Centre, Dresden, Germany), Dr. Hans Crezee (University of Amsterdam, The Netherlands), Prof. Sung-Kee Jo (KAERI, R. P. Korea), Dr. Sharmila Bhattacharya (NASA, USA) and Dr. Rebecca J. Abergel (Lawrence Berkeley National Laboratory, Berkeley, USA), Dr. Madan Rehani (MIT, USA) have presented their research work in the congress. Prof. Gayle Woloschak has delivered third *SRR AR Gopal Ayengar Oration Lecture* during the conference.

Senior Scientists from various Indian Institutes/Universities have also delivered their invited talks namely, Dr. Avinash C. Pandey (Director, IUAC, New Delhi), Dr. Sandeep Basu (RMC-BARC, Mumbai), Dr. Sanjay Gupta (ACTREC, Mumbai), Dr. Teerthraj Verma (RMLIMS, Lucknow), Dr. Krishna Sharan (MAHE, Manipal), Dr. Damodar Gupta (INMAS-DRDO, New Delhi), Dr. Tapas Das (BARC, Mumbai), Dr. S. D. Sharma (RPAD, BARC), Dr. Hema Rajaram (MBD, BARC), Dr. Birajalaxmi Das (RB&HSD, BARC), Dr. Bhavani Shankar (RB&HSD, BARC) and Dr. Anu Ghosh (RB&HSD, BARC). A full list of speakers of 5th ACRR is available in Oct-Dec 2022 issue of *Journal of Radiation and Cancer Research* available at www.journalrcr.org. All the abstracts of the 5th ACRR have also been published in this issue.

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Participants of the one-day workshop pose for a group photograph on the sidelines of the event at Multipurpose Hall in Training School Hostel facility in Anushaktinagar.

Workshop
on BARC Technologies for Swachhata Mission

A one-day workshop focussed on BARC technologies available for deployment in activities of *Swachhata Mission* was organized by Bioscience Group on 16th February 2023. Around 100 delegates participated in the workshop offline, and more than 100 students and delegates took part in it through online mode. Dr. Tapan Kumar Ghanty, Director, Bioscience Group, BARC briefed the participants about the background of the workshop, which was started in 2019. Dr. A. P. Tiwari, Director, Knowledge Management Group, BARC was the program chief guest.

The workshop was conducted in two sessions – technical presentations followed by field visit to working facilities. The technical session comprised presentations on Nisargruna technology for processing different types of biodegradable waste (by Dr. S. T. Mehetre); Composting technology for dry leaves and garden waste management (by Dr. Poulomi Mukherjee); Waste water treatment process by SBR technology (by Dr. Y. V. Nancharaiah); Work on Sludge Hygienisation Research Irradiator facility at Vadodara (by Dr. Naresh Kumar); Plasma incineration technology for solid waste disposal (by Dr. S. Ghorui); Electron beam technology for waste water treatment (by Dr. Asavari Dhavale); Technologies for clean drinking water (by Dr. Soumitra Kar); Role of radiation technology for enhancing shelf life of food commodities (by Dr. Sudhanshu Saxena); Chemical waste disposal and legacy waste management (by Dr. R. K. Singhal). The technical session was chaired by Dr. S. Gautam, Head, Food Technology Division, BARC.

In the second session, participants visited various waste processing sites near Anushaktinagar, including BARC Training School Hostel and Homi Bhabha Centre for Science Education. Technologies relevant to *Swachchata Mission* were demonstrated for the benefit of the participants. It must be noted that the Swachchata technologies are being promoted in the incubation program of BARC for the benefit of young entrepreneurs .