

## Reports from conferences, theme meetings and workshops



# PCSE-2023

## National Workshop on Parallel Computing in Science and Engineering

**A** one-day national workshop entitled “Parallel Computing in Science and Engineering (PCSE-2023) was organized at Multipurpose Hall, TSH, BARC, Mumbai on April, 19, 2023. The workshop was organized by Chemical Engineering Division, Computer Division and Computational Analysis Division, BARC in association with Board of Research in Nuclear Sciences, Department of Atomic Energy.

Dr. S. Mukhopadhyay, Director, E&IG, BARC, and Chairman (PCSE ‘23), delivered the welcome address of the workshop. In his inaugural speech, chief guest Dr. A. K. Mohanty, Director, BARC advocated the needs of high performance computing, comprising mainly of CPU-GPU based Parallel Computing and Quantum Computing for solving complex domain problems. He further emphasized on the need for a strong collaboration between the community of users and developers of high performance computers in science and engineering in their efforts for developing an in-house ‘Exascale’ computational facility. The proceedings of the workshop was released by Director, BARC. The vote of thanks was delivered by Dr. Sk. Musharaf Ali, Head, AMCAS, ChED, and Convener (PCSE ‘23). About 135 delegates from DAE and non-DAE institutes participated in the workshop. Total 9 invited lectures at the workshop covered various aspects of Parallel Computing and Quantum Computing, including application of computational power at the Petaflop and Exaflop scale for use in physics, chemistry, biology and engineering.

Experts from various institutes such as IPR, CDAC-Pune, and BARC covered various aspects in their presentations at the workshop. In the concluding session, Shri K. Rajesh, Head, Computer Division summarized briefly all lectures covered in the workshop; and Shri K. T. Shenoy, Director, Chemical Engineering Group, BARC spoke on the collaboration between the supercomputing facility team and users for addressing real-time chemical engineering problems in the department.

Main Photograph: Senior officials of BARC, IPR and workshop participants pose for a group photo on the sidelines of one-day national workshop on Parallel Computing in Science and Engineering (PCSE-2023).

Inset photograph caption: Dr. A.K. Mohanty (centre) releasing the proceedings of workshop during the program's inaugural session.

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# Symposium on Advancements & Innovations in Hot Cell Systems

The Nuclear Recycle Group of Bhabha Atomic Research Centre (BARC) has recently organized a three-day symposium to discuss and showcase new “advancements and innovations in technologies for hot cell engineering systems of nuclear facilities”. The ‘HOTCELLTECH-2023’ symposium during 25-27 May, 2023 saw participation of more than 275 delegates from DAE bodies and Industry.

The BRNS-sponsored symposium’ included an inaugural session, nine technical sessions and a concluding session. This symposium witnessed wholesome participation from domain experts from BARC, IGCAR, BRIT and Industry partners. The scientific and technical aspects of hotcell technologies were covered in the form of 34 technical paper presentations during the symposium. These presentations, covered topics including hot cell engineering and remotization, challenges and innovations in Master-Slave manipulators, radiation shielding window glass technology, post irradiation examination of fuels etc. The contributory papers were compiled together and published in the proceedings during the inaugural session.

The keynote address of the event was delivered by chief guest Shri B. C. Pathak, Chairman & Managing Director of NPCIL. Shri Vivek Bhasin, Director of NFG and RD&DG addressed the gathering present during the inaugural session of the symposium through his introductory remarks. Smt. S. Manohar, Director, NRG delivered the welcome address. Shri Y. C. Shivakumar, Head, TDD, NRG, and Convenor of the symposium presented the vote of thanks (inaugural session) followed by concluding remarks by Shri P. D. Maniyar, Convenor of the Symposium Technical Committee.

Participants of HOTCELLTECH-2023 symposium pose for group photo. Inset (From left to right): Smt. Smita Manohar, Director, NRG, Shri Vivek Bhasin, Director, NFG, program chief guest Shri B. C. Pathak, and Shri Y. C. Shivakumar releasing a volume with information on proceedings of the symposium.



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# HV-ESCA 2023

## National Symposium on High Voltage - Energy Storage Capacitors & Applications

A national symposium *High Voltage - Energy Storage Capacitors and its Applications (HV-ESCA-2023)* was organized by Beam Technology Development Group and Electronics & Instrumentation Group, BARC during June 22-24, 2023 at DAE convention Centre in Anushaktinagar, Mumbai. The symposium was sponsored by BRNS and the Power Beam Society of India assisted the organizers in planning the symposium.

From the total 110 contributory papers/abstracts received for the symposium, 104 papers were accepted for oral/poster presentation. The symposium covered three keynote lectures and 13 invited talks by Professors from IITs/IISc, senior scientists from DAE & DRDO as well as experts from industry.

The technical papers identified for discussion at the symposium were featured in an abstract book, which was unveiled by program chief guest Dr. R. Chidambaram, Former Chairman, AEC during the inaugural session.

The three keynote lectures delivered in the plenary session of the symposium are: *A Glimpse into 40 years of Life in Pulsed Power Technology* by Shri G. P. Srivastava, Former Director, E&IG and CMD, ECIL; *High Power Electromagnetic Environment, Interaction, Coupling, Effects & Mitigation* by Dr. D. C. Pande, LRDE, DRDO; and *Evolution of Pulsed Power in BARC* by Dr. K. C. Mittal, Former Head, APPD, BARC.

A technical visit to high-voltage facilities at Hall-9 & Hall-4 in BARC was arranged for the benefit of symposium participants by BTDG and E&IG. An exhibition was set up at the symposium venue to showcase BARC technologies in the domain of High Voltage - Energy Storage Capacitors. It was inaugurated by Dr. Jayakumar, Controller, BARC.

The Guest of Honour, Shri Clement Verghese, Chairman, BARC Safety Council, handed over awards and certificates of appreciation to the meritorious candidates. Two best oral presentations and 13 best posters were selected.

Dr. P. H. Ron, Former Head, APPD, BTDG, BARC graced the event as the chief guest of the valedictory function on 24<sup>th</sup> of June during which, he released a book on Pulsed Power and Applications edited by Dr. R. I. Bakhtsingh and Dr. Archana Sharma of BTDG and published by Scientific Information Resource Division, BARC.

The proceedings of the symposium were uploaded online in PSI website ([www.powerbeamsociety.in](http://www.powerbeamsociety.in)).

**Symposium topics**

- ◆ Pulsed power generators
- ◆ Recent Trends in dielectric materials
- ◆ High current and high energy capacitor banks
- ◆ Upcoming topologies & control in power Modules
- ◆ Neutron and X-ray generators
- ◆ Electron beam accelerators and applications
- ◆ Rail and coil gun technology
- ◆ Electromagnetic welding
- ◆ New developments in high voltage switches
- ◆ Trending applications of pulsed power
- ◆ High voltage safety and standards
- ◆ EMI & EMC

