



SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES



Newsletter

Volume 16, Issue 1 (2026)

Editorial:

We are very pleased to publish the first issue of Newsletter 2026. We appreciate the work of the Newsletter support staff and members. We thank all contributors for their timely and informative articles, which greatly enriched the newsletter. This issue covers academic and non-academic events in the second half of 2025, from July to December. We hope readers will enjoy it. We wish you a very Happy New Year 2026, with good health and success in your professional endeavours.



Professor Satyendra Nath Bose

News and Events (Academic)

Visit of the Secretary, DST to the Param Rudra supercomputing facility

Prof. Abhay Karandikar, Secretary, Department of Science & Technology (DST), visited the Param Rudra supercomputing facility at S. N. Bose National Centre for Basic Sciences on 29.11.2025. Param Rudra is a series of indigenously built supercomputers under India's National Supercomputing Mission (NSM), jointly implemented by the DST and the Ministry of Electronics and Information Technology. It aims to empower academia, researchers through inter-institutional computational research collaborations in physics, chemistry, biology, earth sciences and also industry with high-performance computing (HPC) resources. The facility was dedicated to the nation by Hon'ble Prime Minister Shri Narendra Modi in September, 2024. During his visit, Prof. Karandikar expressed his delight that this facility is being used for computational research leveraging artificial intelligence (AI) and machine learning (ML) based methods in different domains, including cancer research, quantum materials and biophysics.



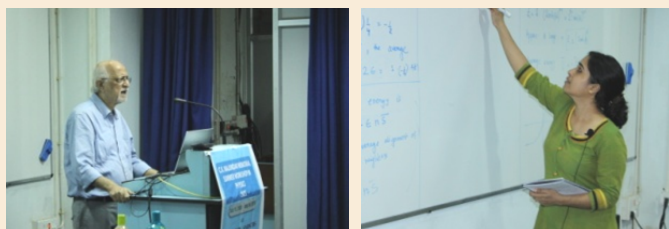
Special Lecture by Prof. Ganapati D. Yadav

Prof. Ganapati D. Yadav, Bhatnagar Fellow, National Science Chair (SERB/GOI) and Emeritus Professor of Eminence, Former Vice Chancellor, Institute of Chemical Technology, Mumbai, Honorary Professor, JNCASR Bengaluru and Chairman, Governing Body, SNBNCBS has delivered a special lecture on the topic "Net Negative Carbon Goal and Sustainability: Role of Green H₂ in Decarbonization, Biomass Valorization and Waste Plastic Recycling" on 01.12.2025.



C. K. Majumdar Memorial Summer Workshop in Physics

The C. K. Majumdar Memorial Summer Workshop in Physics held during 15-24 July, 2025 in association with Indian Association of Physics Teachers (IAPT; RC-15). Final year B.Sc. (Physics) and 1st year M.Sc. (Physics) students (total of 30 nos.) from different universities/colleges from the state of WB as well as from other states participated in the programme.



Outreach Programmes

Naktala High School

Young curious minds (XI & XII Science) and teachers from Naktala High School, Kolkata visited the Centre on 23.07.2025 for enrichment of their knowledge in science education. This visit was aimed to give the opportunity to observe practical applications of their studies, interact with professionals in the field, and develop a deeper understanding of complex concepts. These experiences not only reinforce classroom learning but also inspire students to pursue scientific inquiry and innovation.



Vigyan Anusandhan Yatra

On 16.09.2025, the Centre hosted 51 brilliant young minds from Chhattisgarh as part of the "Vigyan Anusandhan Yatra" (Scientific Research Journey)! These Class XII girl students, along with their 9 dedicated teachers, visited our campus for an immersive exposure trip organized by the Chhattisgarh Council of Science and Technology, Raipur. The group explored our state-of-the-art laboratories and delved into the rich history of science at the S N Bose Archive. It was inspiring to see their curiosity and enthusiasm as they interacted with our researchers and learned about cutting-edge scientific advancements. Initiatives like these are crucial for sparking a lifelong passion for STEM and building the next generation of women scientists and innovators in India.



Calcutta International School

The Centre hosted 25 bright students and 5 educators from Calcutta International School on 9th December 2025 for an immersive Educational Outreach Programme. The young minds embarked on a scientific journey through a special documentary screening on the legendary S N Bose, an inspiring introductory talk by Prof. Ranjit Biswas, Dean (AP), an Interactive lab visits exploring Laser Spectroscopy with Prof. Manik Pradhan & Physical Chemistry with Prof. Ranjit Biswas, an insightful tour of the S N Bose Archive and a glimpse into the computational power of the PARAM Rudra Supercomputing Facility.



Orientation Programme of newly admitted students

The Centre welcomed all newly admitted PhD and Integrated PhD scholars through a heartwarming Orientation Programme on 19th August, 2025. The Director, Deans, and the entire administration team welcomed the new students with their insightful addresses. Students were also given exposures on 'Safety Protocols in Research – Building a Culture of Safety in Laboratories and Field Work' and 'Ethical Practices in Research – Ensuring Integrity and Responsibility'.

Workshop on Sexual Harassment at Workplace

The Centre organized one day sensitization workshop on 23rd December, 2025 to commemorate the anniversary of notification of the landmark legislation. The workshop was a part of commemoration of Sexual Harassment at Workplace Prevention Week. Approx. 90 nos. of students, faculty and staff members from the Centre participated in the programme. The Centre is grateful to the incredible speakers, Dr. Sarbari Guha (*Department of Physics, St. Xavier's College (Autonomous) & ICC Member, SNBNCBS*) and Prof. Piyali Sur (*Department of Sociology, Jadavpur University & ICC Member, JU*), for sharing their expertise on awareness, prevention, and our shared responsibility. The engaging discussions were a powerful reminder that creating a culture of safety and respect is a journey we are on together. We reaffirm our commitment to fostering environments where every individual feels safe, respected, and empowered to thrive. The lecture session was followed by question & answer session and discussion from the audience.

Foundation Course on Entrepreneurship & Legal Compliance

In collaboration with University of Engineering and Management (UEM), Kolkata the Centre launched course on "Entrepreneurship and Legal Compliance: Foundation Course (Part – I)". The thought behind this course is to create a space within the institution where students can develop their business ideas with support from mentors, access to resources, and networking opportunities. By encouraging collaboration between students from different disciplines, creativity will be fostered, and innovation in problem-solving will be developed. Resource persons from UEM, Kolkata take classes once in a week.



IISF 2025 Curtain Raiser Ceremony

In the lead-up to the India International Science Festival (IISF) 2025, the Centre hosted an engaging Curtain Raiser Event designed to foster scientific temperament and motivate future innovators. The programme opened with an insightful address by Director Prof. Tanusri Saha Dasgupta, followed by special talks from scientists, interactive discussions, and guided visits to the Science Laboratory and the S.N. Bose Archives. Nearly 70 enthusiastic students/teachers from Kendriya Vidyalaya No. 2 Salt Lake, Kolkata took part, immersing themselves in the Centre's research environment and connecting directly with scientists.



Career Compass – interaction series

The Centre initiated interaction series on career guidance for the current scholars. Specialists from industry and academia are invited to share their experiences and guidance on choosing correct career path. The speakers were Dr. Biswajit Pabi, *SNBNCBS Alumni & Postdoctoral Research Associate, Kiel University (CAU)*, *Humboldt Research Fellow*; Dr. Sachin Barthwal, *Head Quantum Technology, Quantum AI Global, Qulabs Pvt. Ltd. Hyderabad*; Dr. Kunj S. Tandon, *CEO, I-HUB Quantum Technology Foundation (QTF), IISER Pune*.

Colloquium / Named Lectures

Bose Colloquium

Prof. Carla Molteni, Physics Department, King's College London, delivered the lecture on the topic "Unravelling the Working Mechanisms of Ligand-Gated Ion Channel with Atomistic Simulations" on 19.11.2025.



Prof. Diptiman Sen, Honorary Professor, Centre for High Energy Physics, Indian Institute of Science, Bengaluru, delivered the lecture on the topic “Kinetically constrained models showing Hilbert space fragmentation” on 16.12.2025.



Institute Colloquium

Prof. Sanjay Kumar, Director & Senior Professor, Institute of Science, Banaras Hindu University, delivered the lecture on the topic “Crossing Barriers: Stochastic Dynamics of Polymer Translocation” on 21.07.2025.

Dr. Sergey Streltsov, Corresponding Member of Russian Academy of Sciences (RAS), Chair of Theory of Low-dimensional Spin Systems & Institute of Metal Physics (IMP) of the Ural Branch of RAS, delivered the lecture on the topic “More is Different: The Emergent Physics of Correlated Clusters” on 20.11.2025.

Prof. Supriyo Bandyopadhyay, Department of Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, USA, delivered the lecture on the topic “Topological Analog Electronics: Quantum micro-antenna and electromagnetic beam steering based on spin-momentum locking in the topological insulator Bi_2Se_3 ” on 26.12.2025.

Special Lectures / Conferences / Seminars

Departmental Seminars

A Departmental Seminar (CMMP) was held on 31.07.2025. Dr. Isao H. Inoue, DSc., Senior Researcher at National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, delivered the lecture on the topic “Unveiling the Unexpected in SrTiO_3 : Polar Metal States as a Superconductivity Enhancer”.

A Departmental Seminar (CMMP) was held on 06.08.2025. Dr. Ashutosh Mohanty, Assistant Professor (Chemistry), Department of Education, Indian Institute of Technology (IIT), Kharagpur, delivered the lecture on the topic “Structure-Property Correlation and Cation Dynamics in APbX_3 Perovskite”.

A Departmental Seminar (PCS) was held on 30.10.2025. Dr. Debleena Thacker, Associate Professor in Probability in the Department of Mathematical Sciences, Durham University, UK, delivered the lecture on the topic “Border aggregation models and its connections to other models in statistical physics”.

A Departmental Seminar (CMMP) was held on 03.12.2025. Prof. Siddhartha Lal, Professor, IISER Kolkata, delivered the lecture on the topic “Mott Criticality as the Confinement Transition of a Pseudogap-Mott Metal”.

A Departmental Seminar (PCS) was held on 04.12.2025. Dr. Deepak Gupta, A Humboldt Research Fellow in TU Berlin and a former faculty member at IIT Indore, delivered the lecture on the topic “Inference of time delay in stochastic systems”.

Early Career Talk

An Early Career Talk (CBS) was held on 03.07.2025. Dr. Rohan Erande, Associate Professor, IIT Jodhpur, delivered the lecture on the topic “Organic Synthesis: A Nexus Between Natural Products and Drug Delivery”.

An Early Career Talk (PCS) was held on 09.07.2025. Dr. Anish Acharya, Ph. D, Department of Theoretical Physics, TIFR, Mumbai, delivered the lecture on the topic “Manipulating Phases of many-body interacting systems with stochastic subsystem resetting”.

An Early Career Talk (AHEP) was held on 28.07.2025. Dr. Arpan Ghosh, Post-Doctoral Fellow, Instituto de Radioastronomía y Astrofísica, UNAM, México, delivered the lecture on the topic “The Accretion to Ejection Relation for Young Stellar Objects in the Coronet Cluster”.

An Early Career Talk (AHEP) was held on 24.07.2025. Dr. Srimanta Pakhira, Associate Professor of Physics, IIT Indore, delivered the lecture on the topic “Design Principle for 2D Transition Metal Dichalcogenides Towards H_2 Evolution and O_2 Reduction Reaction”.

An Early Career Talk (AHEP) was held on 24.07.2025. Dr. Rupak Roy, Assistant Professor, Manipal Centre for Natural Sciences (Centre of Excellence), Manipal Academy of Higher Education (MAHE), Manipal, Karnataka, delivered the lecture on the topic “Extremely luminous cosmic catastrophes and their progenitors”.

An Early Career Talk (AHEP) was held on 01.08.2025. Dr. Sumana Nandi, Assistant Professor, Manipal Centre for Natural Sciences (Centre of Excellence), Manipal Academy of Higher Education (MAHE), Manipal, Karnataka, delivered the lecture on the topic “Investigation of the central system of the Black Hole Binary Candidates”.

An Early Career Talk (AHEP) was held on 08.08.2025. Dr. Sagnik Chakraborty, Postdoctoral Fellow, Dipartimento di Ingegneria, University of Palermo, delivered the lecture on the topic “Intrinsic Hamiltonian of Mean Force and Strong-Coupling Quantum Thermodynamics”.

An Early Career Talk (CMMP) was held on 11.08.2025. Dr. Madhumita Sarkar, Postdoc at University College London, delivered the lecture on the topic “Floquet-Enhanced Binding and Exotic Pairing States in Doped Mott Insulators, and Quantum State Transfer via Spin Chains..

An Early Career Talk (AHEP) was held on 19.08.2025. Dr. Sajal Mukherjee, Assistant Professor, BITS Pilani, delivered the lecture on the topic “Modeling environmental effects with future Gravitational wave (GW) detectors”

.An Early Career Talk (CMMP) was held on 20.08.2025. Ms. Mona Garg, PhD Student, IISER Mohali, delivered the lecture on the topic “Mesoscopic Transport Characteristics of Natural and Engineered Superlattices”.

An Early Career Talk (CMMP) was held on 27.08.2025. Dr. Koushik Mukherjee, Postdoctoral Research Associate at Lund University, Sweden, delivered the lecture on the topic “Creation and detection of Higgs-like quasi-particles in a super solid state”.

An Early Career Talk (CMMP) was held on 11.09.2025. Dr. Akshay Singh, Assistant Professor, Department of Physics, IISc Bangalore, delivered the lecture on the topic “2D Materials for Future Technologies and Novel Physics”.

An Early Career Talk (PCS) was held on 18.09.2025. Dr. Sourabh Lahiri, Assistant Professor, Department of Physics, BIT - Mesra, Ranchi, delivered the lecture on the topic “Two and three-state quantum heat engines with stochastic resetting”.

An Early Career Talk (CMMP) was held on 07.10.2025. Dr. KingshukMukhuti, Post-doctoral researcher at High Field Magnet Laboratory, Radboud University, Nijmegen, Netherlands., delivered the lecture on the topic “Probing and controlling the properties of halide perovskite semiconductors with high magnetic fields”.

An Early Career Talk (AHEP) was held on 09.10.2025. Mr. Satyaki Chowdhury, PhD student at the Institute of Theoretical Physics, Jagiellonian University, Poland, delivered the lecture on the topic “Aspects of geometric quantum complexity”.

An Early Career Talk (CMMP) was held on 09.10.2025. Mr. Aniket Majumdar, Senior Research Fellow, Quantum Materials and Devices Group, Department of Physical

Sciences, Indian Institute of Science, Bangalore, delivered the lecture on the topic “Quantum-critical flow of charge and heat in ultra-clean graphene”.

An Early Career Talk (CMMP) was held on 10.10.2025. Dr. Pratap Vishnoi, Assistant Professor, New Chemistry Unit, International Centre for Materials Science & School of Advance Materials, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur P.O. Bangalore, delivered the lecture on the topic “Transition-Metal Halide Double Perovskites: Design, Structural, Dimensionality and Magnetism”.

An Early Career Talk (PCS) was held on 31.10.2025. Dr. Soumik Bandhopadhyay, Post-Doctoral Researcher (Quantum Technologies Theory group), Pitaevskii BEC Center, INO-CNR and Department of Physics, University of Trento, delivered the lecture on the topic “Cold atom quantum simulation and thermalisation aspects of synthetic quantum matter: from condensed matter to quantum gravity”.

An Early Career Talk (AHEP) was held on 03.11.2025. Dr. Joydeep Roy, Former Post-doctoral Fellow at Indian Association for the Cultivation of Science (IACS), Kolkata, delivered the lecture on the topic “Effective Field Theory as a probe for Charged Lepton : Flavor Violation”.

An Early Career Talk (CMMP) was held on 26.11.2025. Dr. NIRMAL ROY, Postdoctoral Fellow, School of Physics & Astronomy, Faculty of Exact Sciences, Tel Aviv University, Israel, delivered the lecture on the topic “Switching van der Waals Polytypes”.

An Early Career Talk (AHEP) was held on 28.11.2025. Dr. Paramita Dasgupta, CCAPP Fellow, The Ohio State University, delivered the lecture on the topic “Exploring the High Energy Universe through Radio Observations”.

An Early Career Talk (CBS) was held on 28.11.2025. Dr. Juriti Rajbangshi, Postdoctoral Researcher, Van Lehn Group, Department of Chemical and Biological Engineering, University of Wisconsin-Madison, USA, delivered the lecture on the topic “Molecular insights and predictive models for solvent selection in lignin valorization”.

An Early Career Talk (CMMP) was held on 02.12.2025. Dr. Indranil Roy, Postdoctoral Associate (Eva Andrei Lab), SAS - Physics & Astronomy Rutgers, The State University of New Jersey, delivered the lecture on the topic “Visualizing correlated ground states using quantum oscillation in twisted graphene”.

An Early Career Talk (PCS) was held on 09.12.2025, Dr. Saikat Chakraborty, Postdoc, Laboratoire Interdisciplinaire de Physique, Université Grenoble Alpes

delivered the lecture on the topic “The Polymer Physics of Disordered Proteins: From single chain fluctuations to protein aggregation”.

An Early Career Talk (CMMP) was held on 10.12.2025. Dr. Sreeja Loho Choudhury, Postdoctoral Fellow, Materials Theory Team, Department of Chemistry, NC State University, delivered the lecture on the topic “From Quantum Coherence to Classicality: Variational Wavepacket, Approaches to Open Quantum Dynamics”.

An Early Career Talk (AHEP) was held on 12.12.2025. Dr. Shouvik Roy Choudhury, Distinguished Postdoctoral Fellow, Academia Sinica Institute of Astronomy and Astrophysics (ASIAA), Taiwan, delivered the lecture on the topic “Cosmology in an extended parameter space: new constraints on dark energy and neutrino masses with DESI BAO”.

An Early Career Talk (AHEP) was held on 15.12.2025. Dr. Subham Dutta Chowdhury, Postdoctoral Researcher, International Centre for Theoretical Physics (ICTP), Italy, delivered the lecture on the topic “Symmetry and causality constraints on Fermi liquids”.

An Early Career Talk (AHEP) was held on 18.12.2025. Dr. Naval Kishor Bhadari, Boya postdoctoral fellow, Kavli Institute for Astronomy and Astrophysics, Beijing, delivered the lecture on the topic “A Tale of Galactic Snake: Unveiling Star Formation Processes”.

An Early Career Talk (CMMP) was held on 18.12.2025. Dr. Sagar Paul, Postdoctoral Fellow at Karlsruhe Institute of Technology, delivered the lecture on the topic “Single Molecule Magnets for Quantum Computation: Insights from Micro-SQUID-EPR”.

An Early Career Talk (CMMP) was held on 22.12.2025. Dr. Susmita Changdar, Postdoctoral Fellow, IFW Dresden, Germany, delivered the lecture on the topic “Nodal superconductivity on the Topological Fermi arcs of PtBi_2 ”.

Scientific Story

What factors determine the structural distortions in hybrid perovskites?

Priya Mahadevan

The perovskites are a group of crystalline materials with the chemical formula ABX_3 , where A and B are usually two different cations and X is an anion. The compounds get their name from the Russian mineralogist Lev Perovski who discovered them first in the Ural Mountains of Russia. These were found to be easy to synthesize in a laboratory, and varying the components A and B

primarily in an oxide, a host of interesting properties were found in these materials which included colossal magnetoresistance, ferroelectricity, superconductivity, enhanced thermopower etc. As the structure plays an important role in determining the physical properties, an empirical concept which emerged hundred years ago has been very successful in identifying the distortions that take place. The ideas that the concept is based on are primarily electrostatic considerations, and dictated by the cation that sits at the A site whose interactions with the rest of the lattice are ionic. An A site cation with a smaller ionic radius leads to a smaller volume for each ABX_3 unit. This then would lead to shorter bondlengths between B and X atoms, and hence an increased Coulomb repulsion between the electrons on them. To overcome this, each BX_6 unit rotates, thereby increasing the length of the BX bond. The rotations of the neighbouring octahedral units could be in-phase or out of phase, but apart from an elongation of the BX bond, one also finds that the B-X-B angle is found to deviate from the value of 180° found in ideal perovskites that have no distortions. This leads to a reduced hopping interaction strength between the electrons on neighbouring B sites, thereby modifying the physical properties considerably.

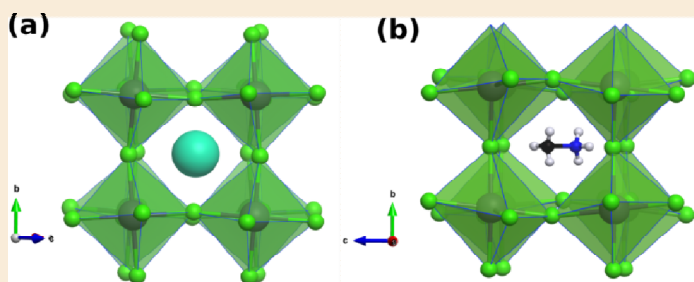


Figure 1: (a) All inorganic Perovskites (b) Hybrid (Organic-Inorganic) Perovskites

Recently, a class of perovskites that have a molecule at the A site have risen to occupy a key spot in solar cell applications, with very high efficiencies. Now the rules for discussing the structural distortions here are very different from their inorganic counterparts. While there are some instances where the interactions between the molecule and the B-X network is electrostatic, in most cases the hydrogens on the molecule interact with the anions. The basic rules for this were identified in Ref. [1]. The ideas involved, build on the factors determining how the molecule would sit in the inorganic cage formed by B and X atoms. The hydrogen bonding with the anions then follows, which surprisingly depends on the molecular unit that the hydrogen is attached to i.e. all hydrogens are not equal. This seems a little surprising initially, as it indicates that a hydrogen attached to a carbon atom (H_C) interacts differently with the orbitals on X compared to a

hydrogen attached to a nitrogen atom (H_N). A simple charge partitioning scheme suggests that the effective charge on the hydrogen is different, with H_N behaving like a positively charged atom, while H_C behaves like a negatively charged atom. So while H_N can come close to the negatively charged X atom and form shorter bonds, H_C can't. The hydrogen atom that can come closer to the X atom, leads to the structural distortions in which the B-X-B angle deviates from the ideal value of 180° . These ideas help us set up various scenarios considering different molecules. In an asymmetric molecule i.e. one which has different functional groups at either end, the molecule moves from the centre of the inorganic cage towards one end, depending on the hydrogen bonding. Subsequently one has larger distortions in the angles. However, a symmetric molecule would have both ends interacting similarly with the X atoms of the inorganic cage. The molecule then stays at the centre with smaller deviations of the angles from 180° as shown in Fig. 2. These are the basic rules that determine the structural distortions among the hybrid perovskites and have been determined by using density functional theory based calculations.

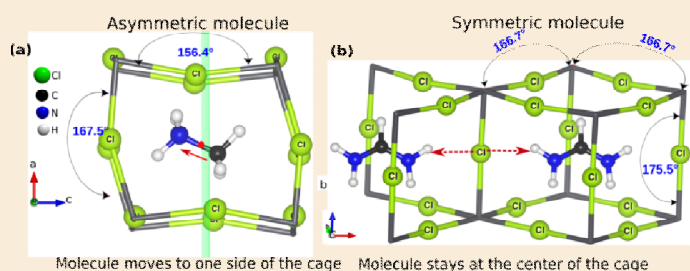


Figure:2 (a) Off-centering of the molecule (red arrow) from the geometric center of the inorganic cage. The solid green line passes through the center of the cage for an asymmetric molecule resulting in more distortions. (b) Symmetric molecule stays at the centre of the cage resulting in less distortions.

[1.] Structural distortions in hybrid perovskites revisited, Debayan Mondal and Priya Mahadevan, Chem. Mater. **36**, 4254 (2024).

Ph.D. Awarded / Submitted

Ph.D. Awarded

Manjari Dutta. Some Studies On Exact Solutions Of Models In Noncommutative Spaces. Supervisor: Sunandan Gangopadhyay

Subhajit Kar. Multi-wavelength Study of Wolf Rayet Stars. Supervisor: Ramkrishna Das

Subhankar Bera. Study of Various Aspects of Quantum Communications. Supervisor: Archan S. Majumdar

Narayan Chandra Maity. Understanding the Structural and Dynamical Complexities of Neat and Multi-component Media. Supervisor: Ranjit Biswas

Ria Saha. Some Studies On The Conformational Stability, Hydration Dynamics And Activity Of Biomolecules In Presence Of Co-Solutes. Supervisor: Rajib Kumar Mitra

Shubham Purwar. Synthesis, Structural, Electronic, And Magnetic Properties Studies of Two-Dimensional Magnetic Materials. Supervisor: Thirupathaiah Setti

Monalisa Chatterjee. Topological States And Exotic Quantum Phases In Frustrated Low Dimensional Spin Systems. Supervisor: Manoranjan Kumar

Suchetana Mukhopadhyay. Magnetization Dynamics in Quantum Material / Ferromagnet Heterostructures. Supervisor: Anjan Barman & Chiranjib Mitra

Sreya Pal. Spin Dynamics of Ferromagnetic Thin Films, Heterostructures, and Nanostructures. Supervisor: Anjan Barman

Riju Pal. Transport and Spectroscopic Studies of Layered Magnetic and Low-Dimensional Superconducting Materials. Supervisor: Atindra Nath Pal

Manodip Routh. Thermal and Quantum Fluctuations in Low Dimensional Frustrated Spin Systems. Supervisor: Manoranjan Kumar

Ram Krishna Patra. Study Of Quantum Resources To Devise Advanced Communication Protocols. Supervisor: Manik Banik

Samrat Sen. A Study On Various Discrimination Tasks And Their Implications In Quantum Information Processing. Supervisor: Manik Banik

Thesis Submitted

Soham Sen. Signatures of quantum gravity in relativistic quantum systems. Supervisor: Sunandan Gangopadhyay

Shashank Shekhar Pandey. Effect of inhomogeneities on various astrophysical and cosmological processes in the Universe. Supervisor: Archan S Majumdar

Sudipta Mitra. Computational and Theoretical Investigation of Energy Materials and Biological Systems. Supervisor: Ranjit Biswas

Soumen Mandal. Study of Optical Beam-Shifts Phenomena Using Different Beam Profiles. Supervisor: Manik Pradhan

Aishwaryo Ghosh. Application of Machine Learning Approach in Solving Materials Science Problems. Supervisor: Tanusri Saha Dasgupta

Koushik Pradhan. Electronic Structure of Transition Metal (TM) Compounds. Supervisor: Tanusri Saha Dasgupta

Sahil Gopalkrishna Naik. A Comprehensive Study On Composite Physical Systems And Their Application In Information Protocols. Supervisor: Manik Banik

Animesh Hazra. Studies Of Dynamic Properties Of Mass Transport Processes. Supervisor: Punyabrata Pradhan

Deepsikha Das. Transport In Many-Particle Systems With Time-Dependent Drive. Supervisors: Sakuntala Chatterjee & Punyabrata Pradhan

NEWS AND EVENTS (Administrative)

Independence Day celebration

The Centre celebrated the Independence Day on 15th August, 2025 in its premises with pomp and gaiety. The national flag was hoisted by the Acting Director, Prof. Anjan Barman at 10.00 a.m. followed by garlanding of S. N. Bose Bust and after that a High Tea was arranged for all at Bhagirathi Canteen.



Seminar on "Understanding the POSH Act – Building a Safer Workplace"

The Centre hosted an enlightening seminar on "*Understanding the POSH Act – Building a Safer Workplace*" on 19th August, 2025. The invited speaker, Dr. Suchetana Chatterjee, Assistant Professor at Presidency University, provided a comprehensive overview of the Prevention of Sexual Harassment (POSH) Act, breaking down the legalities, the critical role of the Internal Committee (IC), and the practical steps every organization must take. The session was not just about compliance; it was about commitment. We discussed how to foster a culture of dignity, respect, and zero tolerance, where every individual feels safe, valued, and empowered to speak up. The engaging Q&A session that followed showed our team's dedication to truly understanding these principles and implementing them.

Orientation Programme on Emotional Wellness Platform at SBNCBS

The Centre in collaboration with YourDost (Online Platform for Counselling and Emotional Coach) organized an Orientation Programme on Mental Wellness on 27th August, 2025. Members of the Centre (research scholars, academic and non-academic staff) were given exposure



on how to use the YourDost online platform. This collective engagement fostered greater awareness of the wellness resources available and the ways to access them effectively. The session also offered an insightful overview of the support services provided by YourDOST, including one-on-one counseling, self-help resources, and wellness workshops — thoughtfully designed to support the holistic well-being of our academic community. Psychologist from YourDost visits the Centre on alternative Wednesdays.

Hindi Mahina observed

The Centre observed 'Hindi Mahina' in the month of September, 2025. On this occasion, a Hindi Essay Competition on the theme "Increased use of AI—Merits & Demerits" was organized on 04.09.2025. On 11.09.2025, a Hindi Workshop was organized, the Chief Guest was Smt. Kavyanjali Mohanty, Chairman, Hindi Teaching Scheme. On 15.09.2025, the Hindi Day was celebrated at Silver Jubilee Hall, where Dr. Anindya Gangopadhyay, Departmental Head (Hindi Section), Presidency University and Shri L.K. Singh, Deputy Director, Department of Official Language, Ministry of Home Affairs participated. On 19.09.2025 an extempore speech competition was organized. On 24.09.2025 a Hindi Quiz Competition and Prize Distribution was held at Silver Jubilee Hall of the Centre.



YourDOST counseling support

For enhancing emotional wellness of the students and staff of the Centre, M/s YourDOST Health Solutions Pvt. Ltd. was engaged with effect from 01.09.2025. As part of this initiative the services like 24x7 counseling support (20+ languages, web, android, IOS), chat sessions, appointment based audio sessions, appointment based video sessions, organizing workshops, seminars etc., were available. With effect from 03.09.2025, Ms. Kisha Das, a trained Clinical Psychologist (Mob: 9674526452), from YourDOST Health Solutions Pvt. Ltd., is available for consultation at Room No. 009 of Bhagirathi Guest House and Canteen every alternate Wednesday from 2.00 p.m. to 6.00 p.m.

Centre observed 'Swachhotsav'

As per directives received from AI Division of Department of Science and Technology, New Delhi, the Centre observed "Swachchata Hi Seva" Special Campaign 5.0 with the theme "Swachhotsav" from 17th September, 2025 to 2nd October, 2025 in its premises. The inauguration of the Pakhwada was initiated through a pledge taking ceremony (Swachhata Pledge) in the Silver Jubilee Hall on 17.09.2025 at 11.00 a.m. During this Pakhwada, several programmes viz., mass cleaning, weeding out of old records, deep cleaning of overhead water tanks, cleanliness drive at Laboratories and Computer Centre, doctor consultation for the community workers, free eye check-up camp, exhibition cum awareness campaign on "Waste to Art", quiz competition etc., were organized at Centre.



Vigilance Awareness Week 2025

Pursuant to the Circular of the Central Vigilance Commission, Govt. of India, the Centre observed Vigilance Awareness Week 2025 during 27th October, 2025 to 2nd November, 2025. The theme of the Vigilance Awareness Week was "Vigilance: Our Shared Responsibility". A pledge taking ceremony was held on this occasion on 27th October, 2025 at 11.00 a.m. at Silver Jubilee Hall of the Centre.



Rashtriya Ekta Diwas

According to the order issued by the Hon'ble Home Minister, Govt. of India, the Centre celebrated the birth anniversary of Sardar Vallabhbhai Patel as "Rashtriya Ekta Diwas (National Unity Day)" on 31st October, 2025 through a pledge taking ceremony.

The pledge taking ceremony was held at Silver Jubilee Hall at 11.00 a.m. on 31.10.2025.

Samvidhan Diwas

Pursuant to the e-mail dated 13.11.2025 received from Department of Science & Technology, New Delhi referring to the Cabinet Secretary's D.O. No. 701/2/2/2022-CA.V/CA.III dated 11.11.2025, the Centre celebrated the "Constitution Day (Samvidhan Diwas)" on 26th November, 2025 through a pledge taking ceremony held at Silver Jubilee Hall of the Centre on 26.11.2025 at 11.00 a.m.



Rajbhasha Prayogshala

As per directives of the Department of Official Language, Govt. of India, every Government of India office needs to organize a workshop on hindi in every quarter of a financial year. Abiding by this directive, the Centre organized a hindi workshop on "Rajbhasha Prayogshala – Sathik Shabd, Sathik Prayog" at Silver Jubilee Hall on 12.12.2025 at 4.00 p.m. On this occasion Shri Bijoy Kumar Shaw, Assistant Director (Department of Official Language), Income Tax Department, Kolkata delivered the talk.



Sensitization Workshop on the POSH Act

The Centre organized a sensitization workshop on "Understanding the POSH Act – Building a Safer Workplace" on 23.12.2025 at Silver Jubilee Hall at 3.30 p.m. The workshop aimed at fostering a safe, respectful and inclusive workplace for all. Two talks were delivered on this occasion by Dr. Sarbari Guha, Department of Physics, St. Xavier's College & ICC Member, SNBNCBS and Prof. Piyali Sur, Department of Sociology, Jadavpur University & ICC Member, JU.



Editorial Board:

Saumen Adhikari, Jaydeb Chakrabarti, Sanjoy Choudhury, Ramkrishna Das, Gurudas Ghosh, Manoranjan Kumar, Rajib Kumar Mitra, Punyabrata Pradhan.

For any comments, suggestions and input, please mail to: punyabrata.pradhan@bose.res.in

Published by:



S N Bose National Centre for Basic Sciences
Block-JD, Sector-III, Salt Lake,
Kolkata - 700 106