



SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES



Newsletter

Vol. 9 No. 1

Editorial

We are very happy to publish (only online) this issue of the Newsletter amid covid-19 pandemic, thanks to the sincere efforts made by the Newsletter support staffs. The issue covers various academic and nonacademic events in the second half of the previous year. We wish you all keep healthy, stay safe during the pandemic, and, at the same time, be fruitful in your respective fields of activities. All the best!



Professor Satyendra Nath Bose

News and Events (Academic)

Colloquium/Named Lectures

1. A **Bose Colloquium** was given by the distinguished speaker Dr. Dipankar Saha, Secretary, International Association of Hydrogeologist - India Chapter on 19/07/2019; *Title: Groundwater- the life line of India is in peril.*
2. A **Bose Colloquium** was given by the distinguished speaker Dr. Sujoy Roy, Lawrence Berkeley National Laboratory on 21.08.2019. *Title: Shining coherent X-rays on topological magnetic texture : Insight into static and fluctuating properties of skyrmions.*
3. **5th S. Chandrasekhar Memorial Lecture** was given by the distinguished speaker Professor Somak Raychaudhury, Inter-University Centre for Astronomy and Astrophysics, Pune on 29/11/2019; *Title: Observing Black Holes: Reality and Myth.*



5th S. Chandrasekhar Memorial Lecture delivered by Professor Somak Raychaudhury

4. **14th C. K. Majumdar Memorial Lecture** was given by the distinguished speaker Professor Ganapathy Baskaran, Institute of Mathematical Sciences,

Chennai on 10/12/2019; Title: *Art of Model Building in Quantum World.*



Professor Ganapathy Baskaran receiving a memento from Professor Samit Kr. Ray

Conferences/Workshops/Lectures

1. Lecture Series by Prof. Dipak K Palit, Emeritus Professor, Centre for Excellence in Basic Sciences, Mumbai. The final lecture of this series is delivered on 5/7/19 at 4 PM in the Centre.
Topic: (1) Ultrafast Spectroscopy: principles and instrumentation; (2) Non-linear Spectroscopy
2. INDIA-NANO-2019 : Workshop on Nanolithography and Nanofabrication is organized at the Centre by RAITH INDIA, Bangalore and the Centre during 9th -10th July, 2019.
3. IEEE Distinguished Lecture held on 17th July, 2019 at the Centre.
4. An "International Conference on Current Trends in Materials Science and Engineering (CTMSE 2019)" is organised by Institute of Engineering & Management and S N Bose National Centre for Basic Sciences during 18th - 20th July, 2019 at the S N Bose Centre, Kolkata.
5. Flatlands and beyond (2019) – A meet on 2D materials; September 5-6, 2019 at S N Bose Centre, Kolkata.
6. One Day Public Outreach Program on 18th October, 2019 as a precursor to the Fifth India International Science Festival (IISF2019).
7. The S N Bose Centre has organized the North East

Students' Conclave (NESC) at Kolkata during 7th - 8th November, 2019. It is one of the event of IISF-2019.

8. XXth International Workshop on The Physics of Semiconductor Devices (IWPSD-2019) has been organized jointly by S. N. Bose National Centre for Basic Sciences, Kolkata and Indian Institute of Technology Kharagpur in collaboration with Society for Semiconductor Devices and in association with Semiconductor Society (India) during 17- 20 December, 2019 at Novotel Hotel And Residences, Kolkata. The Workshop with more than 500 attendees was inaugurated by Dr. Sudhir Kamath, Director General, Micro Electronic Devices, Computational Systems & Cyber Systems, DRDO. The event was preceded by the Tutorials on 16th December at S.N. Bose Centre with about 100 participants. There were 10 plenary lectures, 92 invited lectures, 15 invited oral presentations on ten different themes in the Workshop. In addition about 350 delegates presented their papers in poster and oral sessions. The Workshop had an industrial exhibition with more than 22 participating companies. The IWPSD-2019 was concluded with grand success through active participation and interaction.



Awards/Recognitions

1. Prof. Samir Kumar Pal has been selected for the Nina Saxena Excellence in Technology Award, 2019. The Award will be announced on 18th August, 2019 at IIT Kharagpur Campus.
2. Prof. Debashis Mukherjee, S. N. Bose Chair Professor of the Centre has been selected for the award of Gold Medal by the CSRI as a recognition of his Life-time Achievement. This will be awarded to him in their next Annual Meeting.
3. Ms. Sucheta Mondal from the group of Prof. Anjan

Barman has won the second prize for her oral presentation in the 37th Young Physicists' Colloquium 2019 of the Indian Physical Society held at SINP Kolkata during 22-23 August, 2019

4. The SNBNCBS has transferred two more Technologies under Technical Research Centre (TRC) project through National Research Development Corporation (NRDC) for 'Non-invasive Quantitative Estimation of Bilirubin in Blood' and "Non-invasive detection of Oxygen deficiency in blood" on 27th August 2019.
5. Mr. Mithun Pal from the group of Dr. Manik Pradhan has won the "Best Oral Presentation Award" on his work "Detection of Sulphur Isotopes by Cavity Ring-Down Spectroscopy" in International Conference on Chemical and Environmental Sciences 2019 (ICCAES 2019) held at Institute of Engineering & Management, (IEM), Kolkata, during 19-21 Sept, 2019.
6. Prof. Ranjit Biswas, Senior Prof. in the Department of Chemical, Biological & Macro-Molecular Sciences of S. N. Bose National Centre for Basic Sciences has been nominated as a member of the JPC Editorial Advisory Board from January 1, 2020 to December 31, 2022.
7. Dr. Manik Pradhan, Associate Professor of S. N. Bose National Centre has been nominated as an Early Career Board Member of Analytical Chemistry in American Chemical Society (ACS) from January 2020 to December 2022.
8. Materials Research Society of India (MRSI) has selected Prof. Samit K Ray for the *MRSI-ICSC Materials Science Senior Award* for the year 2020. The Award will be presented to Prof. Ray at the Annual General Meeting of the MRSI at Kolkata during 11-14, February 2020
9. Mr. Koustuv Dutta from the group of Prof. Anjan Barman has been selected by DST, India and JSPS, Japan to attend the 12th HOPE Meeting with Nobel Laureates to be held in Tsukuba, Japan from 9-13 March, 2020.
10. Ms. Priyanka Saha from the group of Prof. Kalyan Mandal has got the "Best Poster Award" for her poster presentation in "64th DAE Solid State Physics Symposium - 2019" held during 18-22 December, 2019 at Jodhpur.

11. Mr. Vishal Kumar Aggarwal working under joint supervision of Prof. A. K. Raychaudhuri and Dr. Manik Pradhan has received the "Best Poster Award" in "64th DAE Solid State Symposium-2019" held during 18-22 December, 2019 at IIT Jodhpur.

Miscellaneous

1. Orientation Programme of the newly admitted students (2019) was held on 1st August, 2019 at the "Silver Jubilee Hall" of the Centre.
2. Centre celebrated the 73rd Independence Day of India on 15th August, 2019.
3. 27th Academic & Research Programme Advisory Committee (ARPAC) meeting took place on 29.8.2019 at the centre.
4. Observance of *Hindi Mahina* (September, 2019) : A debate in Hindi has been organized on 12th September, 2019 at the Centre.
5. Observance of *Hindi Diwas* (16th September, 2019) at the Centre.
6. As a part of *Swachhta Hi Seva* (SHS) campaign, an Extempore Competition on the theme "*Plastic Waste Management: Problem and its Possible Solutions, Environmental Pollution and its Solution*" was organized at the Silver Jubilee Hall of the Centre at 4.00 pm. The participants described their ideas and thoughts on the related topics with great enthusiasm and vigour.
7. As a part of the swachhata movement, '*Swachhta Hi Seva*' initiative, a street play written, directed and performed by the students of the Centre was held on 30th September, 2019. The purpose of the play was to make people aware about the ill-effects of random use of plastic in our environment. The event was followed by *Shramdaan* for plastic waste collection, which was a joint initiative of staffs and students of the Centre.
8. 7th Indian National Exhibition-Cum-Fair 2019 was organised during 25th - 29th September, 2019 at Kolkata. The S N Bose Centre participated in the exhibition.
9. Observance of Vigilance Awareness Week (28th October, 2019 to 2nd November, 2019) at S N Bose Centre has commenced with the staffs of the Centre making a pledge on 28th October, 2019.

10. The S N Bose Centre has celebrated the birth anniversary of Sardar Vallabhbhai Patel as *Rashtriya Ekta Diwas* (National Unity Day) on 31st October, 2019 through making a pledge.
 11. Foreign dignitaries from various countries visited the S N Bose Center as well as the Center's state of the art laboratories on 06/11/2019 as part of the IISF2019, Science Festival, Kolkata.
 12. The S N Bose National Centre for Basic Sciences participated in the scientific exhibition of the India International Science Festival (IISF) 2019 at Science City, Kolkata.
 13. The S N Bose Centre celebrated 70th anniversary of the Constitution Day (*Samvidhan Divas*) on 26th November, 2019 by making a pledge.
 14. A "Discussion Meeting on Young Investigator Meet on Quantum Condensed Matter Theory" is organised by the S N Bose National Centre for Basic Sciences during 11th - 13th December, 2019 at the S N Bose Centre, Kolkata.
6. Sutapa Dutta; Thesis Title: Microscopic Insight To Protein Functions; Thesis Supervisor: Jaydeb Chakrabarti & Mahua Ghosh.
Ph.D. Thesis Awarded: November 2019.
 7. Poulami Chakraborty; Thesis Title: Mechanical And Electronic Properties of Technologically Important Materials; Thesis Supervisor: Tanusri Saha Dasgupta.
Ph.D. Thesis Awarded: December 2019.
 8. Ambalika Biswas; Thesis Title: Aspects of Two Higgs Doublet Models; Thesis Supervisor: Amitabha Lahiri.
Ph.D. Thesis Awarded: December 2019.
 9. Chandreyee Roy; Thesis Title: Some Studies Of The Brittle To Quasi-Brittle Transition In Fiber Bundle Models; Thesis Supervisor: Subhrangshu S Manna.
Ph.D. Thesis Awarded: December 2019.

PhD Degree Awarded

1. Suman Dutta; Thesis Title: Numerical Studies on the Dynamics of Soft Matter Systems; Thesis Supervisor: Jaydeb Chakrabarti.
Ph.D. Thesis Awarded: July 2019.
2. Subhadip Chakraborti; Thesis Title: Studies of Fluctuations in Systems of Self-propelled Particles; Thesis Supervisor: Punyabrata Pradhan.
Ph.D. Thesis Awarded: September, 2019.
3. Sankar Das; Thesis Title: Synthesis Of Inorganic-Organic Hybrid Nanocomposites For Environmental Application; Thesis Supervisor: Subhra Jana & Gautam Gangopadhyay.
Ph.D. Thesis Awarded: July 2019.
4. Rakesh Das; Thesis Title: Coarsening, Steady-State And Phase Transition In Self-Propelled Particles; Thesis Supervisor: Manoranjan Kumar.
Ph.D. Thesis Awarded: July 2019.
5. Anirban Karmakar; Thesis Title: Theoretical Studies on Molecular Quantum Dynamics and

Electron Transport; Thesis Supervisor: Gautam Gangopadhyay.

Ph.D. Thesis Awarded: September 2019.

- ## PhD Thesis Submitted
1. Arpan Krishna Mitra; Thesis Title: Canonical Formulation of Fluid Dynamics; Thesis Supervisor: Rabin Banerjee.
Ph.D. Thesis submitted: 16.07.2019.
 2. Samiran Choudhury; Thesis Title: Investigation and Control of Gigahertz Frequency Spin Wave Dynamics in Magnonic Crystals; Thesis Supervisor: Anjan Barman.
Ph.D. Thesis submitted: 24.07.2019.
 3. Sucheta Mondal; Thesis Title: Ultrafast Magnetization Dynamics in Ferromagnetic Thin Films, Heterostructures & Nanostructures; Thesis Supervisor: Anjan Barman.
Ph.D. Thesis submitted: 24.07.2019.
 4. Shaili Sett; Thesis Title: Investigation of Electronic and Thermal Transport and Opto-Electronic Properties of Single Germanium Nanowires; Thesis Supervisor: Arup K Raychaudhuri.
Ph.D. Thesis submitted: 24.07.2019.
 5. Ejaj Tarif; Thesis Title: Photophysics and dynamics

- of complex chemical systems; Thesis Supervisor: Ranjit Biswas.
Ph.D. Thesis submitted: 29.07.2019.
6. Sudipta Pattanayak; Thesis Title: Ordering kinetics, steady state and phase transition in active particle systems: Role of noise and boundary; Thesis Supervisors: Manoranjan Kumar and Shardha Mishra.
Ph.D. Thesis submitted: 29.07.2019.
 7. Debasmita Maiti; Thesis Title: Frustrated Magnetic Ladders: A DMRG Study; Thesis Supervisor: Manoranjan Kumar.
Ph.D. Thesis submitted: 29.07.2019.
 8. Ayan Bhattacharjee; Thesis Title: Spectral And Timing Properties Of Black Holes And Neutron Stars In X- Ray Binaries Using The Two-Component Advective Flow Solution; Thesis Supervisor: Sandip K Chakrabarti.
Ph.D. Thesis submitted: 31.07.2019.
 9. Mahebab Alam; Thesis Title: Single And Double Perovskite Multiferroic Nanostructures With Their Diverse Applications; Thesis Supervisor: Kalyan Mandal.
Ph.D. Thesis submitted: 02.08.2019.
 10. Keshab Karmakar; Thesis Title: Oxide Semiconductors for Energy Applications; Thesis Supervisor: Kalyan Mandal.
Ph.D. Thesis submitted: 09.08.2019.
 11. Putul Malla Chowdhury; Thesis Title: Nano Scale Control On The Properties Of Perovskite Type Oxide; Thesis Supervisor: Arup K Raychaudhuri.
Ph.D. Thesis submitted: 13.08.2019.
 12. Mithun Pal; Thesis Title: Development of Quantum Cascade Laser (QCL)-Based Spectroscopic Techniques And Their Applications In Trace Gas Analysis; Thesis Supervisor: Manik Pradhan.
Ph.D. Thesis submitted: 14.08.2019.
 13. Arnab Deb; Thesis Title: Dynamics of Magnetic Flux Tubes in Advective Flows around Galactic and Extragalactic Black holes; Thesis Supervisor: Sandip K Chakrabarti.
 14. Anita Halder; Thesis Title: Electronic Structure Of Perovskites And Related Compounds; Thesis Supervisor: Tanusri Saha Dasgupta.
Ph.D. Thesis submitted: 14.08.2019.
 15. Poonam Kumari; Thesis Title: The Effect of Spin-Orbit Coupling on Electronic Structure and Magnetism in Low Dimensional Compounds; Thesis Supervisor: Priya Mahadevan.
Ph.D. Thesis submitted: 21.08.2019.
 16. Jayita Patwari; Thesis Title: Photophysical Studies On Light Harvesting Nanomaterials For Improved Solar Energy Conversion; Thesis Supervisor: Samir Kumar Pal.
Ph.D. Thesis submitted: 04.09.2019.
 17. Subhasish Chakrabarty; Thesis Title: Field Theoretic Approach to Gravity; Thesis Supervisor: Amitabha Lahiri.
Ph.D. Thesis submitted: 09.09.2019.
 18. Ravindra Singh Bisht; Thesis Title: Investigation Of Metal Insulator Transition In 3D Transition Metal Oxides; Thesis Supervisor: Arup K Raychaudhuri.
Ph.D. Thesis submitted: 16.09.2019.
 19. Md Sarowar Hossain; Thesis Title: Sound velocity and internal friction in disordered magnetic alloys; Thesis Supervisor: Pratip Kumar Mukhopadhyay.
Ph.D. Thesis submitted: 01.10.2019.
 20. Suchetana Goswami; Thesis Title: Quantum Correlations: Preservation And Applications; Thesis Supervisor: Archan S. Majumdar.
Ph.D. Thesis submitted: 06.11.2019.
 21. Piya Patra; Thesis Title: Molecular Modeling and Design Towards Understanding Microscopic Insights of Biomolecular Structure and Function; Thesis Supervisor: Jaydeb Chakrabarti & Raja Banerjee(MAKAUT).
Ph.D. Thesis submitted: 03.12.2019.
 22. Arindam Ghosh; Thesis Title: Influence of Accretion Disk Size on Spectral and Timing Properties of Stellar Mass Black Holes; Thesis Supervisor: Sandip K. Chakrabarti.
Ph.D. Thesis submitted: 12.12.2019.

PHOTOGRAPHY



A view of Markha Valley, Ladakh



A view from Kang Maru La (pass), Ladakh

Photograph: Gurudas Ghosh

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