

বসু বিজ্ঞান মন্দির

बसु विज्ञान मन्दिर

# BOSE INSTITUTE

## Newsletter



No. 54-55

November 2020

A NEWSLETTER OF BOSE INSTITUTE

### From the Director's Desk



I am overwhelmed to present this edition of Newsletter of Bose Institute. I am really proud of the dedicated contribution of all the staff members of the Institute, and of course our beloved students and

academic members of staff for their tireless efforts to meet the objective of the iconic founder Acharya Jagadis Chandra Bose, the doyen of modern science, i.e. to develop and disseminate knowledge freely for the benefit of the mankind.

In the midst of academic revolution with the evolution of consciousness followed by unprecedented growth of knowledge typically in the area of information and communication with the advent of globalization, the world is shrinking into a global village. This entails huge investment on higher education so that availability of internationally acceptable highly skilled manpower can be ensured. I believe that a striking balance must be restored between accessibility to world-class educational system and model instantiating national values, standards and ethics. Quality is a pivotal factor in influencing the educational outcome of an educational institute on one hand and

employability of the graduates on the other. It is, therefore, pertinent to mention here that sustainability in elevating quality depends much on the commitment of the stakeholders and continuous self-appraisal. It cannot be denied that necessity arises to review the ongoing policies and the lapses and demerits in fulfilling the objectives. Based on it, recommendations can be worked out for implementation so as to ensure invariably a healthy and constructive competition in the arena of higher education to strive towards excellence.

In addition to the pioneering endeavours in the interdisciplinary areas of science alongwith numerous R&D activities covering fundamental and applied contributions, the Institute has been quite instrumental in designing and repurposing small molecules against COVID-19. Moreover, we intend to set up an advanced research centre - the **S. N. Dey Centre for Infectious Disease and Public Health** in the Unified Academic Campus, Salt Lake, shortly. The Centre will perform cutting-edge basic research in infectious diseases, which can be translated into delivery of effective healthcare solutions to the global population.

The Institute has produced a considerable number of Ph.D students as well as a number of research manpower (other than Ph.Ds) who are now eminent experts in renowned Institutes in India and abroad. Besides, the Institute has also brought a considerable number of funded

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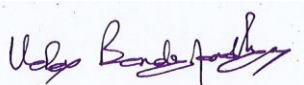
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projects, organized colloquia of eminent scientists, signed MoUs, accomplished significant national and international collaborations, published a number of full length peer reviewed research papers in referred Journals and Books.

Despite the landmark achievements symbolizing glorious past of the Institute, sustainable improvements in various sectors of teaching, research and administration are essentially required. One of them is, undoubtedly, 'good governance'. Accountability is also an essential requirement in internal administration of the Institute apart from the stipulation from external agencies. Effective and efficacious governance depends on cooperation and compatibility between various functional areas of administration. A technically sound upgraded information system facilitating decision making in hard core academic and administrative domains like teaching and research, student welfare and finance and day to day administration respectively through its easily accessible database and well-connected network. Besides, recruitment of globally competitive academic manpower in order to fulfil the research needs of the Institute and country as well, a vibrant and dynamic yet sustainable research infrastructure needs to be ensured.

Last but not the least, I convey my sincere thanks and gratitude to the staff of Bose Institute for their tireless endeavours in the middle of this stressful passage of pandemic COVID-19 towards fulfilling the objectives set by our iconic founder Acharya Jagadis Chandra Bose.

With best wishes,

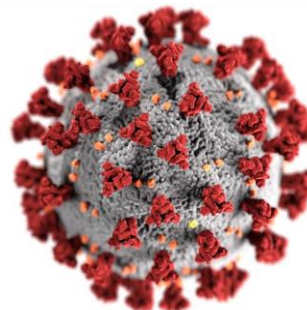


Prof. (Dr.) Uday Bandyopadhyay  
Director

**Proposal for Setting up of S. N. Dey  
Centre for Infectious Disease and  
Public Health in the Unified Academic  
Campus of Bose Institute**

An advanced research centre - **S. N. Dey Centre for Infectious Disease and Public Health** will be set up in the Unified Academic Campus of Bose shortly. Bose Institute has a long history of research in the area of infectious diseases, starting with Dr. Sambhu Nath De, whose discovery of the cholera enterotoxin was instrumental in opening up the field of anti-toxin vaccine development. In the wake of the

COVID19 pandemic, the Institute has decided to enhance its commitment to basic research in the area of infectious diseases for delivering improved public health to the Indian population by designing effective counter measures against new and re-emerging human pathogens.



The key features of the action plan for this newly proposed centre involves-

- ✓ Creation of a planning group, whose members will be drawn from faculty with knowledge and expertise in handling human pathogens of the Institute.
- ✓ Space for the Centre will be allocated in the topmost floor (15<sup>th</sup> Floor) of the newly-constructed and conveniently-located Unified Academic Campus of Bose Institute; this space will be designed in such a way that it can be effectively isolated from the rest of the activities of the Institute.
- ✓ The Centre will have BSL2 and BSL3 facilities and additional laboratory space, which will be expeditiously constructed on a turn-key basis such that these will be ready within a very short time to meet the challenges that may arise if the ongoing COVID19 crisis enters a protracted phase.
- ✓ To augment manpower trained to handle infectious agents, Bose Institute will recruit new faculty in the areas of infectious disease biology and public health; in addition, a number of technical staff will be trained to handle infectious agents.

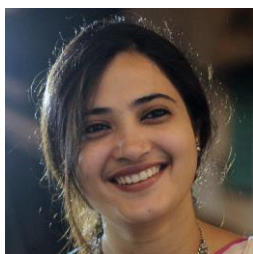
**Mode of Operation:**

The day-to-day operations of the Centre will be conducted by a Core Group of three faculty members, of which one shall be the Facility In-Charge and the remaining two Assistant In-Charges.

The current planning group will transition into an Oversight Committee that will monitor the activities of the Centre periodically, including screening of potential facility users based on detailed experimental plan.

## Outstanding Student Awards 2020

Sir Nilratan Sirkar Prize awarded to:



**Ms. Dipita Bhattacharyya**  
Department of Biophysics  
(Under Dr. Anirban Bhunia)

Prof. B. B. Biswas Outstanding Student Award presented to:



**Mr. Nilanjan Banerjee**  
Department of Biophysics  
(Under Dr. Subhrangsu Chatterjee)

Prof. Shyamadas Chatterjee Outstanding Student Award  
(in the area of Physical and Environmental Science) awarded to:



**Mr. Ayan Biswas**  
Department of Chemistry  
(Under Prof. Suman K. Banik)



**Ms. Pracheta Singha**  
Department of Physics  
(Under Prof. Rajarshi Ray)

## Current Events

### 103<sup>rd</sup> Foundation Day Celebrated



The 103<sup>rd</sup> Foundation Day of Bose Institute was celebrated on November 30, 2019. **Professor Subhash Kak**, Regents Professor Emeritus, Oklahoma State University, Stillwater, USA

delivered 81<sup>st</sup> Acharya J.C. Bose Memorial Lecture on “Computation, Indian Scientific Tradition, and Artificial Intelligence”. Prof. (Dr.) Uday Bandyopadhyay, Director, delivered the Welcome Address and presented the Institute Report. Prof. Samit K Ray, Director, S. N. Bose National Centre for Basic Sciences presided over the programme.

### Special Centenary Lecture by Nobel Laureate





Prof. Joachim Frank (Nobel Laureate, Chemistry, 2017) visited Bose Institute on January 22, 2020 to deliver the Special Centenary Lecture entitled “*Single particle Cryo EM: Visualization of Biological molecules in their native states*” in the Unified Academic Campus, BI. Prior to the Lecture, he visited Main Campus of Bose Institute, the Samadhi, J.C. Bose Museum and Lecture Hall.

#### 44<sup>th</sup> International Kolkata Book Fair 2020



Bose Institute participated in the 44<sup>th</sup> International Kolkata Book Fair held at Central Park Mela Ground, Saltlake from January 29-February 09, 2020. Besides the publications of Bose Institute, the stall displayed some of the rare photographs featuring J.C. Bose and Bose Institute. Prof. (Dr.) Uday Bandopadhyay, Director, BI extended full cooperation and support in making the participation successful. Prof. Gautam Basu (Biophysics) and Prof. Gaurab Gangopadhyay (DPB) actively coordinated the participation of Bose Institute in this fair.



#### National Science Day 2020

Bose Institute observed **National Science Day** on February 28, 2020, through various activities. The theme of the National Science Day 2020 was “**Women in Science**”. This day is celebrated in our Institute every year during which students demonstrate various science projects as well as their latest researches. The celebration also includes science exhibition based on themes and concepts, debates, quiz competitions and many more activities. A large number of participants including guests, scientists, students and other professional attended the programme.

#### International Day of Yoga

International Day of Yoga was observed on June 21, 2020 at Centenary Campus of Bose Institute.

#### Hindi Pakhwada



Bose Institute organized “Hindi Diwas and Pakhwada” during September 14 to September 27, 2020. “Hindi Diwas” was observed on September 14, 2020 with an inaugural address to the Bose Institute’s scientists and staffs by the Director, the Registrar, the Deputy Registrar and the Chair, Hindi Implementation Committee, Bose Institute, Kolkata. Following two weeks were celebrated as “Hindi Pakhwada”. Various competitions such as Essay Writings, Story Writings and Poem Writings in Hindi were organized during these weeks.

#### Rashtriya Ekta Diwas (National Unity Day)



“Rashtriya Ekta Diwas” (National Unity Day) was observed by Bose Institute, Kolkata on October 31, 2020 to commemorate the birth anniversary of Sardar Vallabhbhai Patel. A Pledge taking ceremony was organized in a virtual mode via Internet.

## Vigilance Awareness Week

The Vigilance Awareness Week was observed during October 28 – November 2, 2020. As a part of this programme, the Integrity Pledge taking ceremony was organized by Bose Institute on October 28, 2020. Pledge taking ceremony was presented in a virtual mode via Internet.

## 136<sup>th</sup> Birthday Observation of Prof. Debendra Mohan Bose



The 136<sup>th</sup> Birthday of Prof. Debendra Mohan Bose was observed on November 26, 2020. **Prof. Mahan Maharaj**, School of Mathematics, Tata Institute of Fundamental Research, Mumbai, graced the occasion as Guest of Honour and delivered the **D. M. Bose Memorial Lecture 2020** on the topic **“Hyperbolic Geometry and Chaos in the Complex Plane”**. **Dr. Sumit Som**, Director, Variable Energy Cyclotron Centre, Kolkata presided over the programme. Lecture was presented in a virtual mode via Internet.

## Constitution Day 2020

Constitution Day was observed at Bose Institute Main Campus on November 26, 2020. The Director, Registrar (Officiating), BI alongwith other staff members of Bose Institute read out the Preamble of the Constitution, alongwith the Hon'ble President of India Shri Ram Nath Kovind at 11:00 am followed by the Pledge, adhering to all the Covid protocols. The programme was coordinated by the Vigilance Officer, Prof. Gaurab Gangopadhyay.



## Curtain Raiser for IISF 2020



Science for Self-Reliant India and Global Welfare

### Curtain Raiser

Webinar by Prof. Kaushik Biswas

**Understanding Carcinogenesis :  
Multidirectional Role of Gangliosides in  
Tumor Growth, Progression and Metastasis**



**Date and Time:** November 27, 4 pm

**Link:** <https://meet.google.com/pqm-rxes-mrq>

As a part of the Curtain Raiser programme for India International Science Festival (IISF) 2020, Prof. Kaushik Biswas (Division of Molecular Medicine) delivered a Webinar on: "Understanding Carcinogenesis : Multidirectional Role of Gangliosides in Tumor Growth, Progression and Metastasis" on November 27, 2020 through virtual mode via Internet.

## Virtual Meeting with Hon'ble Union Minister Dr. Harsh Vardhan on Covid Related Issues

Hon'ble Union Minister for Science & Technology, Earth Sciences and Health & Family Welfare Dr. Harsh Vardhan interacted with all Directors of DST Institutes to discuss about COVID related initiatives of respective Institutes in May 2020.

## Launch of Covid-Gyan Website <https://covid-gyan.in>

A multi-institutional, multi-lingual science communication initiative, *Covid-Gyan*, has been created to create, curate and communicate scientifically authentic information on Covid-19. *Covid-Gyan* will be making special efforts to make its resources available in many Indian languages as possible so that people from all strata of society can get access to it.

The website covers science and guidance for health and well being through short informative videos, posters, infographics, FAQs, articles as well as myths on Covid-19.

One can come up with suggestions and comments at [contact@covid-gyan.in](mailto:contact@covid-gyan.in)

## Publication on COVID-19

A lucidly written introductory article written by Dr. Kaushik Biswas (Division of Molecular Medicine) about “The role of scientists in mitigating the Covid-19 pandemic (Part 1)” is available online in : IndiaBioscience @MIUI|

## Symposia and Conferences Held

### JEST 2020

Bose Institute coordinated JEST 2020 (Joint Entrance Screening Test 2020) for The University of Burdwan centre on February 16, 2020. Dr. Saikat Biswas (Department of Physics) acted as Bose Institute representative for JEST 2020.

### Vigyan Samagam

Vigyan Samagam, a multi-city exhibition to showcase India's participation in International Mega Science Projects is being organized by Department of Science and Technology, Department of Atomic Energy and National Council of Science Museum, Govt. of India. Dr. Saikat Biswas acted as volunteer's coordinator for the FAIR project during February-March 2020.

### Webinars organized by the Division of Bioinformatics

- i. "A retrospective of the Bioinformatics centre and Bose Institute", Speakers: Gautam Basu, Debabani Ganguly, Subhasis Mukhopadhyay, Chaitali Mukhopadhyay on September 9, 2020.
- ii. "Imaging informatics in Biological Research and Drug Discovery", Speaker: Janos Chrostin-Vizi, University College London on September 23, 2020.

### Bose Institute Colloquium



- i. Prof. Grant Jensen, CALTECH, HHMI, USA delivered Bose Institute Colloquium lecture on "Electron Cryotomography: present capabilities and future potential" on 29-01-2020.
- ii. BI Colloquium was organized on September 24, 2020 through Google Meet Platform. The Colloquium entitled "Manifestation of

classical motions in the Quantum world of Nuclei" was delivered by Dr. Gopal Mukherjee, Variable Energy Cyclotron Centre, Kolkata.

### ALICE-India Collaboration Seminar

Bose Institute organized an online seminar (Webinar) talk, delivered by Prof. D. K. Srivastava, Homi Bhabha Chair Professor, National Institute of Advanced Studies, Bengaluru on "Liberation of Quarks and Gluons from their Confinement since the Big-Bang" during September 28, 2020 on behalf of ALICE India Collaboration.

### Seminar series of CAPSS 'Nature - as we unfold it'



A group of senior scholars from Centre for Astroparticle Physics and Space Science (CAPSS) is organizing this unique online seminar series with the motivation of outreach and interdisciplinary learning. This seminar series covers topics from Physical Sciences to Environmental Sciences, Medical Biology, etc. and invites experts from those fields to talk about their fields and their research in popular or semi-popular mode. The event is hosted generally on the alternate Saturdays of each month at 5.30 p.m. starting from September 2020. They have a dedicated Facebook page (<https://www.facebook.com/Nature-as-we-unfold-it-104148104741638>) and a dedicated YouTube channel ([https://www.youtube.com/channel/UC0lwN9b3UBJjN\\_GO1A3CZCQ](https://www.youtube.com/channel/UC0lwN9b3UBJjN_GO1A3CZCQ)) where all the lectures and other details could be found. They could be contacted at [capssphysicsgroup@gmail.com](mailto:capssphysicsgroup@gmail.com).

### ALICE-India Collaboration Seminar

Bose Institute organized online seminar (Webinar) talk, delivered by Prof. Abhijit Majumder, Wayne State University, Michigan, USA on "A Framework for Precision Exploration of the Quark Gluon Plasma" during November 03, 2020 on behalf of ALICE India Collaboration.

## Visit Abroad

**Prof. Dhruba Gupta** (Physics) attended the “ISOLDE-EPIC 2019” and “ISOLDE Workshop and Usersmeeting 2019” at CERN, Geneva, Switzerland during December 03 – 07, 2019 and delivered a lecture titled “Transfer and breakup reactions involving  $7\text{Be}$  at ISOLDE”; attended the “ISOLDE-EPIC 2020” and “ISOLDE Workshop and Usersmeeting 2020” at CERN, Geneva, Switzerland during November 24 – 27, 2020 (fully online through Zoom) and delivered a lecture titled “High-lying resonances in the  $7\text{Be} + d$  reaction”.

## Patent Granted

Australian Patent granted (AU2018201532B2) to Dr Subhrangsu Chatterjee (Biophysics) against *Cancer chemotherapeutic agent / formulation, manufacture and use thereof*.

## Recent Awards and Honours

- **Shrabani Basak** (Plant Biology) (i) selected and delivered a talk on ‘Tomato Metacaspases MC1 and MC5 Are Mediators of Cell Death During Development and Disease’ in the American Society for Plant Biology (ASPB) annual meeting 2020 during July 27 – 31, 2020 and received the ASPB 2020 travel grant. (ii) Presented a paper on ‘Death and defense – Dynamic regulation during stress and functional analyses of tomato metacaspases’ and awarded the “Best Oral Presentation” in 7<sup>th</sup> International Conference – Phytopathology in Achieving UN Sustainable Development Goals, IPSCONF2020, organised by ICAR-IARI, New Delhi during January 16 – 20, 2020.
- **Shreya Chowdhury** (Plant Biology) presented a paper on ‘miR398: An integrator of biotic and abiotic stress signalling in tomato’ and awarded the “Best Oral Presentation” in 7<sup>th</sup> International Conference – Phytopathology in Achieving UN Sustainable Development Goals, IPSCONF2020, organised by ICAR-IARI, New Delhi during January 16 – 20, 2020.
- **Ananya Mukherjee** (Plant Biology) presented a paper on ‘Optimization of different promoters for spatio-temporal regulation of transgene expression in tomato’ and awarded the “Best Oral Presentation” in 7<sup>th</sup> International Conference – Phytopathology in Achieving UN Sustainable Development Goals, IPSCONF2020, organised by ICAR-IARI, New Delhi during January 16 – 20, 2020.
- **Mr. Abhi Modak** (Physics) received second prize for best oral presentation in the conference NCFMP (National Conference on Frontiers in Modern Physics) held at Adamas University, Kolkata during February 6 – 7, 2020.

## Recent Ph.D. Degree Awarded

- **Shankari Prasad Datta** (Biochemistry) To understand the mechanism of vesicular fusion in *G. lamblia*. Supervisor : Prof. Srimonti Sarkar.
- **Sukhendu Ramdul Mandal** (Biochemistry) Studies on the DNA binding mechanism of a global virulence regulator of *Staphylococcus aureus*. Supervisor : Prof. Subrata Sau.
- **Sarmistha Majumdar** (Bioinformatics) Understanding the mechanisms of Ligand induced inhibition/perturbation of protein-protein interactions navigating the conformational landscape along the principal subspaces. Supervisor : Dr. Shubhra Ghosh Dastidar.
- **Ranjan Kumar Maji** (Bioinformatics) Investigating The Functional Complexity Of Regulatory RNAs As Versatile Modulators – A Systems Approach. Supervisor : Dr. Zhumur Ghosh.
- **Soumyadip Paul** (Molecular Medicine) Studies on control of heat shock factor-1 and its target gene under proteotoxic stress in human cells, Supervisor : Prof. Mahadeb Pal.
- **Sharmistha Banerjee** (Molecular Medicine) Elucidation of signalling mechanism of the effect of gaseous mediators on inflammatory bowel disease (colitis) and role of small bioactive molecules on drug induced inflammatory response, Supervisor : Prof. Paramesh C. Sil.
- **Anirban Jyoti Debnath** (Plant Biology) Optimization of regeneration and transformation in *Sesamum indicum* L. cultivar JK-1 for studying tissue specific promoters. Supervisor : Prof. Samir Ranjan Sikdar.
- **Arindam Roy** (Environmental Science) Physical and chemical characterization of wet precipitation and its interaction with aerosols over eastern Himalaya, India. Supervisor : Dr. Abhijit Chatterjee.
- **Satamita Deb** (Microbiology) Exploration of Microbial Regulatory Modules in Gene Expression for Biotechnological Application. Supervisor : Prof. Tapan K. Dutta.
- **M. J. Rameej** (Microbiology) Molecular biology of chemolithotrophic sulfur oxidation by *Paracoccus thiocyanatus* SST. Supervisor : Dr. Wriddhiman Ghosh.
- **Rupamoy Bhattacharyya** (Physics) Detector development for exploring rare events in Cosmic Rays at terrestrial altitude. Supervisor : Prof. Sanjay K. Ghosh.
- **Debarshi Das** (Physics) Probing fundamental aspects of spatial and temporal quantum correlations, Supervisor : Prof. Dipankar Home.

## Grant Received

- Synthesis of the polysaccharide fragments of opportunistic human pathogens *Providencia* strains and their glycolconjugate

derivatives; SERB; Prof. Anup Kumar Misra; Division of Molecular Medicine; ₹ 26,02,800; 3 years.

## Staff News

### Promotion:

1. Prof. Subrata Sau promoted as Professor in Department of Biochemistry w.e.f. 24.02.2020.
2. Dr. Suman Kr. Banik promoted as Professor in Department of Chemistry w.e.f. 24.02.2020.
3. Dr. Pallab Kundu promoted as Professor in Division of Plant Biology w.e.f. 24.02.2020.
4. Dr. Supriya Das promoted as Professor in Department of Physics w.e.f. 24.02.2020.
5. Dr. Siddarth Kumar Prasad promoted as Associate Professor in Department of Physics w.e.f. 24-02-2020.
6. Dr. Saikat Biswas promoted as Associate Professor in Department of Physics w.e.f. 24.02.2020.

### Retirements on Superannuation:

1. Smt. Rita Chakraborty, Physics on 30.11.2019.
2. Prof. Parames Chandra Sil, Professor, Molecular Medicine on 31.12.2019.
3. Prof. Debabrata Basu, Professor, Plant Biology on 31.12.2019.
4. Mr. Prabal Gupta, Molecular Medicine on 31.12.2019.
5. Mr. Ranjit Das, Physics on 31.12.2019.
6. Prof. T. P. Sinha, Professor, Physics on 31.01.2020.
7. Mr. Rajkumar Das, Workshop on 31.03.2020.
8. Mr. Madhusudan Marick, Administration on 30.04.2020.
9. Prof. Gaurisankar Sa, Professor, Molecular Medicine on 31.07.2020.
10. Mr. Saofia Gazi, Molecular Medicine on 31.07.2020.
11. Mr. Sisir Chakraborty, Administration on 31.07.2020.
12. Mr. Amitava Bhattacharyya, Administration on 31.07.2020.
13. Mr. Asim Kr. Poddar, Biochemistry on 31.08.2020.
14. Smt. Rina Das, Administration on 31.08.2020.
15. Mr. Bholanath Saren, Workshop on 30.09.2020.

We condole the passing away of  
**Shri Sanjib Kr. Das**  
Division of Plant Biology on 09.09.2020.



Ministry of Environment Forest and Climate Change (MoEFCC), Govt of India organized a virtual seminar on International Day of Clean Air for Blue Skies on September 7, 2020. Hon'ble Union Minister of Environment, Shri Prakash Javadekar and Shri Babul Supriyo, Hon'ble Minister of State for Environment, Forest and Climate Change addressed the issue of air pollution and also launched a brochure on the integrated measures that will help in combating air pollution under the National Clean Air Mission. Dr. Abhijit Chatterjee participated as the Nodal Faculty for West Bengal for National Clean Air Mission.