DST-INSPIRE INTERNSHIP SCIENCE CAMP - 2014

In association with

Department of Science & Technology
Govt. of India

Jagadis Bose National Science Talent Search
Govt. of West Bengal

42nd Science Camp Entitled:

"Learning Science"

July 22 - 26, 2014

At JB Centre of Excellence for Student – Scientists

Jagadis Bose National Science Talent Search,
1300, Rajdanga Main Road, Kasba, Kolkata – 700 107
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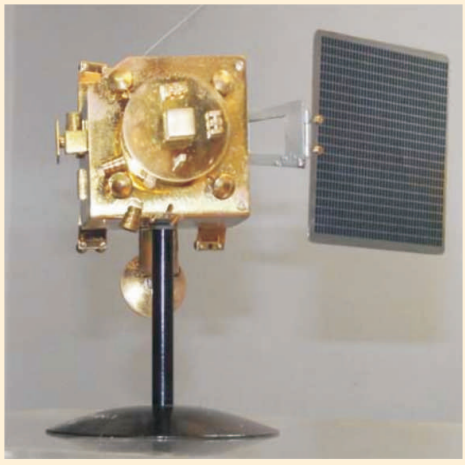
"Learning Science"

About JBNSTS

Jagadis Bose National Science Talent Search (JBNSTS), Kolkata was conceptualized in 1958 by visionaries such as Dr. B C Roy, Sir J J Ghandy and others to commemorate the Birth Centenary Celebration of India's first modern scientist, Acharya J C Bose. The program was inaugurated by Pandit Jawaharlal Nehru. JBNSTS is an autonomous institute promoted by the Department of Higher Education, Government of West Bengal. It is administered by a Governing Body with representatives from the State Government, academia and industry. Since 1961, JBNSTS is awarding the prestigious Jagadis Bose Scholarships to selected group of undergraduate students of science, engineering and medicine.



In the last five decades, JBNSTS has grown to become a premiere institute of non-formal science education in the eastern and northeastern States of India with the objective towards pursuit of excellence through motivation, identification and nurture of young talented science students. It helps students to realize the importance of excellence in the scientific world and try to cultivate this in their own lives as students of science. JBNSTS also encourages students towards the learning of basic sciences and inculcates scientific spirit in the minds of young high school and undergraduate students. Focus has been given on unconventional and dynamic methods of non-formal accelerated learning through "out-of-class" activities, which have led to the recognition of intellectually sensitive and inquisitive minds. Since 2004, JBNSTS has launched an innovative middle school science Teachers Training Program which has brought into its ambit motivated teachers from the districts of West Bengal. JBNSTS has developed science kits and distributed to the teachers for demonstrating scientific principles to the middle school students in the classroom. The financial support for most of the activities of JBNSTS is provided by the Department of Higher Education & Department of Science & Technology, Government of West Bengal. In addition, Council of Scientific & Industrial Research (CSIR), Department of Science & Technology (DST), Government of India & Industries also collaborates with JBNSTS activities.

About DST-INSPIRE Program

Innovation in Science Pursuit for Inspired Research (INSPIRE)" is one of the innovative programs developed by the Department of Science & Technology for attraction of talent to Science. The basic objective of INSPIRE is to attract talent to the study of science at an early age and thus build the required critical human resource pool for strengthening and expanding the Science & Technology system and Research & Development base. It is a program with a long term foresight. A striking feature of the program is that it does not believe in conducting competitive exams for identification of talent at any level. It believes in and relies on the efficacy of the existing educational structure for identification of talent.

INSPIRE Program has three schemes:

Scheme for Early Attraction of Talent for Science: It aims to attract talented youth to study science by providing INSPIRE award of Rs.5,000/- to one million young learners in the age group 10-15 years for a duration of five years and arrange summer and winter camps for youth in various locations for top 1% in Class X board examinations with global leaders in science to experience the joy of innovations on an annual basis through INSPIRE internship.

1. **INSPIRE Award**

   In order to seed and experience the joy of innovation, every year two lakh school children in the age-group of 10 to 15 years i.e., 6th to 10th standards are being identified for the INSPIRE Award. Each INSPIRE Award envisions an investment of Rs.5,000/- per child. The scheme plans to reach at least two students per secondary school during the next five years.

2. **INSPIRE Internship**

   "Motivating talented youth to take-up research as a personal undertaking" by rubbing shoulders with global icons of science including Nobel Prize Winners, is the objective of INSPIRE Internship. This component of the program aims at working as a life-long catalyzing experience for the 11th graders in science stream.

Scholarship for Higher Education: Scholarship for Higher Education (SHE) aims at attracting talented youth into undertaking higher education in science intensive programs, by providing scholarships and mentoring through 'summer attachment' to performing researchers. The scheme offers 10,000 scholarships every year @ Rs 0.80 lakh per year to talented youth in the age group 17-22 years, for undertaking Bachelor and Masters level education in Natural and Basic Sciences. However, the 18 Science subject such as (1) Physics, (2) Chemistry, (3) Mathematics, (4) Biology, (5) Statistics, (6) Geology, (7) Astrophysics, (8) Astronomy, (9) Electronics, (10) Botany, (11) Zoology, (12) Bio-chemistry, (13) Anthropology, (14) Microbiology, (15) Geophysics, (16) Geochemistry, (17) Atmospheric Sciences and (18) Oceanic Sciences, either as major/honors or their combination in BSc/Integrated MSc/Integrated MS course will be under the scope of INSPIRE Scholarship. The main feature of the scheme is mentorship support being planned for every scholar through INSPIRE scholarship.

This scheme offers 10,000 scholarships every year @ Rs.80,000/- each for undertaking Bachelor and Masters level education in the Natural & Basic sciences, possessing any of the following criteria:

a. Students who happen to be among the top 1% in 12th standard at their respective Board Examinations and are pursuing courses in Natural and Basic sciences at the B.Sc. or Integrated M.Sc. levels. Courses are not included other than Natural and Basic sciences in the current scheme in view of the focus on research in Basic sciences.

b. Students who have secured in the Joint Entrance Examination of JEE-Advance top 10,000 ranks, JEE-Main (top 10,000 ranks) plus those clearing NEET (top 10,000 ranks), and who also opt to study Natural and Basic sciences in any academic institute or university leading to graduate and post-graduate degree, would be eligible for scholarship.

c. Students admitted to Indian Institute of Science Education and Research (IISER), National Institute of Science Education and Research (NISER), Department of Atomic Energy Centre for Basic Sciences (DAE-CBS) at the University of Mumbai or happen to be Kishore Vaigyanik Protsahan Yojana (KVPY), National Talent Search Examination (NTSE), Jagadis Bose National Science Talent Search (JBNSTS) scholars and Science Olympiad Medalists, opting to undertake courses in the Natural & Basic sciences leading to B.Sc. and M.Sc. degrees are eligible for "SHE" scholarship.

Assured Opportunity for Research Careers: Assured Opportunity for Research Careers (AORC) aims at attracting, attaching, retaining and nourishing talented young scientific Human Resource to strengthened the R&D foundation and base by offering doctoral INSPIRE Fellowship in the age group 22-27 years, in both Basic and Applied sciences (including engineering and medicine). It also aims at assuring opportunities for post-doctoral researchers through a scheme (similar to the New Blood program of the Royal Society of UK) through contractual and tenure track positions for five years in both Basic and Applied sciences areas through an INSPIRE Faculty Scheme.

1. **INSPIRE Fellowship**

   INSPIRE fellowship aims at enhancing research fellowships for doctoral studies and opening up partnerships with private sector for topping the Government's efforts in nurturing talents for scientific research. This scheme is applicable to Basic and Applied sciences as well as Medicine, Agriculture etc. with provision of multiple entries. The fellowship will be offered to (1) University 1st Ranker in a particular subject at PG level examination in Basic and Applied Science courses as well as (2) INSPIRE scholar, who have secured aggregate marks of 65 % or above at the 2 year MSc or 5 year Integrated MSc/MS.

2. **INSPIRE Faculty Scheme**

   INSPIRE Faculty Scheme opens up an 'Assured Opportunity for Research Career (AORC)' for young researchers in the age group of 27-32 years. It is expected to augment high quality scientific manpower in scientific and educational institutions. It provides attractive opportunities to young achievers for developing independent scientific profiles and intends helping them emerge as S&T leaders in the long term. The Scheme offers contractual research positions. It provides career opportunities, but it is not a guarantee for tenure positions after 5 years.




Organizing Committee

Academic Committee:

Prof. (Dr.) Papiya Nandy, Hony. Director, JBNSTS
Dr. Paromita Roy, Dy. Director, JBNSTS
Dr. Abhijit Kar, Scientific Officer, JBNSTS
Dr. Smarajit Manna, Student Advisor, JBNSTS

Camp Coordinators:

Shri Joydip Das, Asst. Director (Admin), JBNSTS
Mr. Dipankar Sarkar, Library Assistant, JBNSTS

Mentors

Dr. Paromita Roy
Deputy Director
JBNSTS, Kolkata

Dr. Soumitra SenGupta
Senior Professor, Department of Theoretical Physics
Indian Association for the Cultivation of Sciences
Jadavpur, Kolkata

Dr. Partha Deb Ghosh
Senior Professor, Department of Botany
Kalyani University, Nadia

Dr. Samita Basu
Professor, Chemical Science Division
Saha Institute of Nuclear Physics
Salt Lake, Kolkata

Dr. Parthasarathi Mukhopadhyay
Associate Professor
Department of Mathematics
Ramkrishna Mission Residential College,
Narendrapur, Kolkata

Dr. Partha Ghose
Senior Scientist, Platinum Jubilee Fellow
National Academy of Sciences, India,
Bose Institute, Kolkata

Dr. Bimalendu Bhusan Bhattacharya
INAE Distinguished Professor
S.N. Bose National Centre for Basic Sciences
Salt Lake, Kolkata

Dr. Chaitali Mukhopadhyay
Professor, Department of Chemistry,
University of Calcutta, Kolkata

Dr. Subhrangsu Aditya
School of Bio Science & Engineering
and School of Cognitive Science
Jadavpur University, Kolkata

Dr. Sujata Tarafdar
Professor, Department of Physics
Jadavpur University, Kolkata

Dr. Debi Prasad Duari
Director, Research & Academics
M.P. Birla Planetarium, Kolkata

Dr. Dhrubajyoti Chattopadhyay
Pro Vice Chancellor (Academic) &
Professor, Dept. of Biochemistry
University College of Science, Kolkata

Dr. Abhijit Kar
Scientific Officer, JBNSTS, Kolkata

Dr. Smarajit Manna
Student Advisor, JBNSTS, Kolkata




CAMP RULES

Welcome to the 42nd Science Camp of JBNSTS entitled 'Learning Science'

Here you will have a unique experience of learning science through active interaction with great scientists and be encouraged to share your ideas with others. No test/grade – only learning science in a different way.

General Instructions:

- The camp hours are from **09:00 a.m. to 6:00 p.m.** You are to attend all the sessions in your school uniform. **MOBILE PHONES MUST BE KEPT IN SWITCHED OFF MODE DURING ALL ACADEMIC SESSIONS**.
- Each participant has to make registration daily.
- All the participants will be divided into groups. There will be a group leader for each group selected by group members of each group. Each group has to prepare a project based on the 'hands-on activity' at the laboratory and present the same (PowerPoint / Chalk & talk) during project presentation session (02:00 p.m. – 05:00 p.m. on 26th July, 2014). Each group will get 10 minutes for presentation/ demonstration and 5 minutes for discussions.
- You will not be given any home work, but you are expected to interact freely with the experts, your group members and other groups.
- SUBMISSION OF ALL DOCUMENTS AND REIMBURSEMENT WILL BE MADE AT **REGISTRATION DESK** ONLY.

Submission of important documents:

- You are required to submit an attested copy of your 10th Standard Board Examination Mark Sheet, Registration Form endorsed by your Principle/HM and filled-in STUDENT'S INFORMATION SHEET during lunch break on **22nd July, 2014**.
- All students of the Science Camp will receive a library membership of British Council Library (BCL) (with 1 year validity). During that period you will be able to borrow book(s) from BCL and search/ read books online. You will be given a 'BCL Membership Form' **(22nd July, 2014)** for the library membership which you need to fill up and submit to us on **23rd July, 2014 during lunch break**.
- **TRAVEL BILL :**

  Residential Students: Travel bills (bus, auto and / or train fare only) are to be submitted along with relevant documents (tickets) on **23rd July, 2014 during 01.00 p.m. to 02.00 p.m.**

  Non-residential Students: Travel bills (bus, auto and / or train fare only) are to be submitted on **25th July, 2014** during morning registration.
- You are required to fill up the FEED BACK SHEET and submit it on **26th July, 2014 during 01.00 p.m. to 02.00 p.m.**

Reimbursements:

- Reimbursement for Travel expenses and BCL membership card distribution will be made on **26th July, 2014 during 01.00 p.m. to 02.00 p.m.** In case, any assistance / clarification are needed, you may contact our accounts section.

On the last day i.e. 26th July, 2014 you will receive the Participation Certificate.








BRIEF INTRODUCTION TO THE EXPERTS

DR. PAROMITA ROY

Dr. Paromita Roy is a Ph.D. in Psychology from Delhi University. She is presently the Deputy Director of Jagadis Bose National Science Talent Search (JBNSTS), Kolkata , the first science talent search institute in India. She has more than twenty years of experience in working with talented students and has been responsible for developing programs for them. She is also actively involved in teacher development through workshops and training programs. Her major areas of focus are educational psychology, psycho-social development and pedagogical issues related to talented and gifted minds. She is actively involved in guidance and counseling of students and their parents, curriculum planning and strategy development. Her rich experience in working "on field" with high ability and talented students from the ages of 14 -21 years has made her one of the key people who has a direct inter-phase with India's population of talented students.

Earlier in 2014, she was the main organizer of the First International Conference on Research in Education and Curriculum Planning for Gifted Minds, held in New Delhi and Kolkata wherein she planned and put together an event with 18 eminent international and as many national experts as speakers. She has also been the editor in chief of the "Conference Book of Abstracts" which is a rich compilation of article abstracts in the field of global giftedness research and practice.

DR. SOUMITRA SEN GUPTA

Dr. Soumitra Sengupta is presently a Senior Professor of the Department of Theoretical Physics, Indian Association for the Cultivation of Science, Kolkata. He did his B.Sc. from Presidency College, M.Sc. from Calcutta University and Ph.D. from Saha Institute of Nuclear Physics, Kolkata. His academic career includes several distinguished positions such as Sr. Lecturer in the Department of Physics, Presidency College, Kolkata Sr. Lecturer & Reader in the Department of Physics, Jadavpur University, Reader, Professor and Sr. Professor, Department of Theoretical Physics, IACS, Kolkata. He is a fellow of The National Academy of Sciences, India. His current research interest includes String Theory, Supersymmetry, Supergravity, Braneworld Phenomenology, Cosmology and Black holes. Dr. Sengupta has several research publications in national and international peer reviewed journals.

DR. PARTHA DEB GHOSH

Dr. Partha Deb Ghosh is the Senior Professor at the Department of Botany, University of Kalyani, West Bengal and worked in the field of Plant Genetics and Biotechnology. He has done extensive work on in vitro culture, genetic transformation of plants, molecular markers and supervised research of masters and doctoral students. He has published 3 books/ manuals on plant genetics and biotechnological aspects and published more than 270 research papers in different national and international journals. Dr. Ghosh has availed fellowship offered by UGC Indo-UK exchange programme (1977-78), DST young scientist awards (1984), DBT training programme. He is fellow of Linnean Society (London), Association of Plant Tissue Culture and Biotechnology (India). Dr. Ghosh has been awarded the INSA gold medal for outstanding contribution of plant tissue culture and mutation research. He also received life time achievement award by DST and honoured by different universities.

DR. SAMITA BASU

Dr. Samita Basu is a Professor at the Chemical Sciences Division, Saha Institute of Nuclear Physics, Kolkata. She did her Ph. D. from Indian Association for the Cultivation of Science under supervision of Prof. Mihir Chowdhury in 1989. Her current research interests are photochemistry in homogeneous (solvent) and heterogeneous (micelles, reverse micelles, vesicles) media, Electron Transfer & Hydrogen abstraction, Interaction between small drug-like molecules with protein and DNA.

DR. PARTHASARATHI MUKHOPADHYAY

Dr. Parthasarathi Mukhopadhyay is the Associate Professor of Mathematics in Ramkrishna Mission Residential College, Narendrapur. He is also a guest faculty (Post Graduate) at Ramkrishna Mission Vidyamandir, Belur Math. Dr. Mukhopadhyay did his M.Sc. in Pure Mathematics, M. Phil. & Ph.D. in Mathematics from C.U. He published lots of research papers in National & International journals. He also published books for undergraduate level and school level. He attended many conferences & seminars at National & International level. He is a life time member of the Calcutta Mathematical Society.

DR. ABHIJIT KAR

Dr. Abhijit Kar received his Bachelors and Masters in Chemistry. He did his PhD in Science (Chemistry) from Jadavpur University. Dr. Kar has carried out his postdoctoral research in different parts of the world and developed very high aptitude towards cutting edge research. He did his Post Doctoral research at Sungkyunkwan University, South Korea. He has worked at Swiss Federal Laboratory at Zürich, Switzerland. He has also worked as visiting scientist at Interdisciplinary Centre for Advanced Materials Simulation (ICAMS), Rühr Universität, Germany. His current research interest comprises of Application of Nanotechnology for Advanced Materials He has worked on Thermodynamic Modeling using Thermocalc, DICTRA and Phase Field Modeling using MICRESS. He has developed expertise on Different Materials Characterization Techniques e.g: SEM, TEM, XRD, EPMA & Mechanical Property Evaluation of Materials. Dr. Kar has published 33 research papers in SCI Journals and contributed in book chapter on Electron Microscopy and serves as reviewer of many International Peer Reviewed Journals. He is also recipient of National Scholarship and CSIR-SRF. He is currently working as Scientific Officer of JBNSTS and looking after different academic and research activities of JBNSTS and Laboratory set up of JBNSTS. His current research interests include Chemistry of Nanostructured materials and application of nanotechnology in microelectronics.

DR. SMARAJIT MANNA

Dr. Smarajit Manna did his B.Sc and M.Sc in Physics. Worked as Junior Research Fellow and Senior Research Fellow at Jadavpur University and Delhi University South Campus respectively and received his Ph.D. degree from Jadavpur University Currently working as Student Advisor at JBNSTS, Kolkata. His research interest includes conduction mechanism through biological membranes and the underlying dynamics. His research interests are Statistical analysis of dynamical systems and Bio-informatics. Dr. Manna has 8 research publications in national and international journals and he is one of the authors of the book chapter "Electrical noise in cells, membranes and neurons in: Understanding Complex Systems", Springer Berlin/ Heidelberg. He is working as Student Advisor of JBNSTS and apart from guiding students he is carrying out different academic and research work. His current research interests include statistical analysis of dynamical systems and Bio-informatics.

DR. PARTHA GHOSE

Dr. Partha Ghose is a Senior Scientist, Platinum Jubilee Fellow (National Academy of Sciences, India) and is associated with Center for Astro Particle Physics & Space Science, Bose Institute. He was also a former faculty of SN Bose National Centre for Basic Sciences, Kolkata. He did his graduation and doctorate from Calcutta University. He has occupied distinguished positions in different academic institutions in India and abroad. Prof Partha Ghose has written many popular science articles in Bengali and English for various Journals and magazines and dailies. He was associated with the production of videocassette series on 'Classical Mechanics' and 'Quantum Theory' for UGC Country- wide Classroom series. Prof Ghose was associated with many episodes of the popular television science serial titled 'Quest'. He has also been a part of different science programs involving students from various levels. Prof. Ghose was the joint conductor of the first Science Camp of JBNSTS and held in November, 2006.

DR. BIMALENDU BHUSAN BHATTACHARYA

Dr. Bimalendu Bhusan Bhattacharya did his B.Sc. in Physics and M.Sc. in Geophysics from Banaras Hindu University and Ph.D. in Physico-Mathematical Sciences from Leningrad State University, USSR (Presently St. Petersburg University, Russia). His major research interests include Geoelectromagnetism, Mining Geophysics, Engineering Geophysics, Environmental Geophysics and Interpretation of Geophysical Data using Nonlinear Inversion, Computer Simulation and Modeling. He has done pioneering work during Indian Antarctica Expedition as leader. He has worked as Scientist in National Geophysical Research Institute (NGRI), Hyderabad and Director in Indian School of Mines (ISM), Dhanbad.Currently he is Emeritus Professor (CSIR Emeritus Scientist) and INAE Distinguished Professor in S. N. Bose National Centre for Basic Sciences, Kolkata. He has worked different parts of the globe and held distinguished positions such as Visiting Professor, Department of Physics in University of Alberta Edmonton, Canada, Leader, Fourth Scientific Indian Antarctica Expedition, Government of India; Visiting Professor (Fulbright) Department of Geology & Geophysics in University of Wisconsin, Madison Wisconsin, USA and Guest Faculty in Bengal Engineering and Science University, Sibpur, Howrah, W.B. Among many distinguished awards, he has got National Mineral Award, Dept. of Mines, Govt. of India, Distinguished Service Award Indian School of Mines, Dr. Coggin Brown Gold Medal on Earth Sciences, MGMI; Decennial Award, Association of Exploration Geophysicists, etc. He is a member of the editorial committee of The Journal of Geological Society of India, recipient of distinguished professor's chair by Indian National Academy of Engineering (INAE).

DR. CHAITALI MUKHOPADHYAY

Dr. Chaitali Mukhopadhyay is presently a Professor, Department of Chemistry, Calcutta University. She did her B.Sc. with Chemistry honours from Presidency College, Kolkata in 1982, M.Sc. in Chemistry from Calcutta University in 1984 and Ph.D. from Molecular Biophysics Unit, Indian Institute of Science, Bangalore in 1990. Her areas of specialization include chemical and biochemical recognition, structure and dynamics of macromolecules, high resolution and two-dimensional NMR spectroscopy and other spectroscopic measurements on interacting systems, molecular modeling, and molecular dynamics simulation of large systems. Dr. Mukhopadhyay visited Department of Chemistry & Biochemistry, University of Maryland, Baltimore County, Maryland, USA as a Visiting Scientist during April - June 2005.

DR. SUBHRANGSU ADITYA

Dr. Subhrangsu Aditya an M.B.B.S. from NRS Medical College (2000), a senior JBNSTS scholar (1995) is currently pursuing his research at School of Bio Science & Engineering, Jadavpur University and he is a guest faculty for the M. Phil. Course in Cognitive Science in the School of Cognitive Science, Jadavpur University. He is also a guest faculty for the Advanced Diploma Course in Stress Management in the Center for Counseling Services and Studies in Self-Development, Jadavpur University (CCSSS-JU). He is an associate member of SAMIKSHANI Centre for Psychoanalytical Studies and Mental Therapy. He has publications in various international journals, conference proceedings and book chapters. His current areas of interest are Cognitive Neuroscience, Biosignal Processing, Artificial Intelligence, Psychological Counselling, Stress Management, Cyber-relationship etc.

DR. SUJATA TARAFDAR

Dr. Tarafdar is a Professor at Department of Physics, Jadavpur University, Kolkata. She did her B.Sc., M.Sc. and Ph.D. from Jadavpur University. She is also the Coordinator of Condensed Matter Physics Research Centre, Physics Department, Jadavpur University and General Secretary of Indian Society of Non-linear Analysts, Kolkata, India. Her research area includes condensed matter physics, statistical physics and interdisciplinary topics related to geophysics, chemical engineering and bio-materials. Dr.. Tarafdar has published 105 research publications in national and international peer reviewed journals.

DR. DEBIPRASAD DUARI

Dr. D P Duari is presently the Director, Research & Academic of M. P. Birla Institute of Fundamental Research, M. P. Birla Planetarium, Kolkata and Honorary Faculty, Physics Department, Presidency University. He did his B.Sc. & M.Sc. in Physics from Jadavpur University and Ph.D. from Inter University Centre for Astronomy & Astrophysics, Pune. He was a Post Doctoral Fellow of Tata Institute of Fundamental Research. He was associated with a number of distinguished academic institutions including Institute for Advanced Studies, Iran, University of Cambridge, U. K., and Manchester Institute of Science & Technology, U. K. He is a fellow of Royal Astronomical Society and a member of International Astronomical Union.

DR. DHRUBAJYOTI CHATTOPADHYAY

Dr. Chattopadhyay is the Guha Professor & Pro Vice-Chancellor (Academic), University of Calcutta and Director of Centre for research in Nanoscience and Nanotechnology. He is an eminent academician and researcher in his area of study. He has received a number of awards and recognition of his research work like Young Scientist Award, Membership of Guha Research Conference, Professor Umakant Sinha Memorial Award, Fellowship of National Academy of Science, Fellowship of Indian Academy of Sciences, Fellowship of West Bengal Academy of Science and Technology etc. Presently he is the President of West Bengal Academy of Science and Technology and Society of Biological Chemists(India). His area of research is Regulation of gene expression of negative stranded RNA viruses, the structure-function studies of different regulatory proteins, Oxidative damage of different macromolecules in the cell and its mechanism, microbial diversity study, culture dependent and independent,Metagenomics, industrial enzymes etc. He is the life member of different organizations like Society of Biological Chemists, Indian Science Congress Association, Indian Virological Society, Indian Biophysical Society, Asiatic Society, Biotechnological Society of India etc.

"Learning Science"

Day to Day Program

Day 1 : Tuesday, July 22, 2014

09:00 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 11:30 a.m.	Welcome Address by the Deputy Director, JBNSTS and Orientation
11:30 a.m. – 01:00 p.m.	**"The strange story of the God Particle"** **Dr. Soumitra SenGupta**, Senior Professor, Department of Theoretical Physics Indian Association for the Cultivation of Sciences, Kolkata
01:00 p.m. – 02:00 p.m.	Lunch & Interaction
02:00 p.m. – 06:00 p.m.	**Hands on activity at JBNSTS Laboratory** **Dr. Abhijit Kar**, Scientific Officer, JBNSTS & **Dr. Smarajit Manna**, Student Advisor, JBNSTS, Kolkata

Day 2 : Wednesday, July 23, 2014

09:00 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 11:30 a.m.	**"Genetic diseases and gene therapy"** **Dr. Partha Deb Ghosh,** Senior Professor, Department of Botany, Kalyani University, Nadia
11:30 a.m. – 01:00 p.m.	**"Electronic configuration and valency"** **Dr. Samita Basu**, Professor, Chemical Science Division, Saha Institute of Nuclear Physics, Kolkata
01:00 p.m. – 02:00 p.m.	Lunch & Interaction
02:00 p.m. – 06:00 p.m.	**Hands on activity at JBNSTS Laboratory** **Dr. Abhijit Kar**, Scientific Officer, JBNSTS & **Dr. Smarajit Manna**, Student Advisor, JBNSTS, Kolkata

Day 3 : Thursday, July 24, 2014

09:00 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 11:30 a.m.	**"The Dark Universe"** **Prof. Partha Ghose**, Senior Scientist, Platinum Jubilee Fellow, National Academy of Sciences, India, Bose Institute, Kolkata
11:30 a.m. – 01:00 p.m.	**"Exploration Antarctica: Adventure and Science"** **Dr. Bimalendu Bhusan Bhattacharya**, INAE Distinguished Professor, S.N. Bose National Centre for Basic Sciences, Salt Lake, Kolkata
01:00 p.m. – 02:00 p.m.	Lunch & Interaction
02:00 p.m. – 06:00 p.m.	**"Prime Number – A gateway to Cryptography"** **Dr. Parthasarathi Mukhopadhyay**, Associate Professor, Department of Mathematics RKM Residential College, Narendrapur, Kolkata

Day 4 : Friday, July 25, 2014

09:00 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 01:00 p.m.	**"Excitement in Chemistry"** **Dr. Chaitali Mukhopadhyay**, Professor, Department of Chemistry, University of Calcutta, Kolkata
11:30 a.m. – 01:00 p.m.	**"How to choose your career?"** **Dr. Subhrangshu Aditya,** School of Bio-Science & Engineering and School of Cognitive Science, Jadavpur University, Kolkata
01:00 p.m. – 02:00 p.m.	Lunch & Interaction
02:00 p.m. – 06:00 p.m.	**"Hidden patterns in nature" & "Playing with FRACTALS"** **Dr. Sujata Tarafdar**, Professor, Department of Physics, Jadavpur University, Kolkata

Day 5 : Saturday, July 26, 2014

09:00 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 11:30 a.m.	**"Recent concepts in Astronomy and Astrophysics"** **Dr. Debiprasad Duari,** Director, Research & Academics, M.P. Birla Planetarium, Kolkata
11:30 a.m. – 01:00 p.m.	**"Excitements of Nanoscience"** **Dr. Dhrubajyoti Chattopadhyay**, Pro Vice Chancellor (Academic) & Professor, Dept. of Biochemistry, University College of Science, Kolkata
01:00 p.m. – 02:00 p.m.	Lunch & Interaction
02:00 p.m. – 06:00 p.m.	**Project Presentation by the Participants**
02:00 p.m. – 05:00 p.m.	**Interactive session with the Parents of participating students (Parallel)** **Dr. Paromita Roy,** Deputy Director, JBNSTS, Kolkata