

DST-INSPIRE INTERNSHIP SCIENCE CAMP - 2015



ORGANIZED BY
JAGADIS BOSE NATIONAL SCIENCE TALENT SEARCH,
GOVT. OF WEST BENGAL

UNDER INSPIRE INTERNSHIP PROGRAM
OF
DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVERNMENT OF INDIA

47th Science Camp Entitled:

“Learning Science”

July 21 - 25, 2015

At JB Centre of Excellence for Student – Scientists



Jagadis Bose National Science Talent Search,
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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:

- 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.
- 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.
- 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.



“Learning Science”

Organizing Committee

Academic Committee:

Prof. (Dr.) Maitree Bhattacharyya, Director, JBNSTS
Dr. Paromita Roy, Dy. Director, JBNSTS
Dr. Abhijit Kar, Scientific Officer, JBNSTS
Dr. Smarajit Manna, Student Advisor, JBNSTS

Camp Coordinators:

Mr. Dipankar Sarkar, Library Assistant, JBNSTS

Mentors

Dr. Maitree Bhattacharyya

Professor & Director
Jagadis Bose National Science Talent Search, Kolkata

Dr. Soumitra SenGupta

Senior Professor, Department of Theoretical Physics,
Indian Association for the Cultivation of Sciences, Kolkata

Shri Samar Bagchi

President
Kishore Bharati Development Society, Kolkata

Dr. Madhumita Dobe

Director-Professor & Head, Health Promotion & Education
All India Institute of Hygiene and Public Health, Kolkata

Dr. Amitava Raychaudhuri

Palit Professor, Department of Physics,
Calcutta University, Kolkata

Dr. B. B. Bhattacharya

INAE Distinguished Professor
S.N. Bose National Centre for Basic Sciences, Kolkata

Dr. Achintya Kumar Sarkar

Professor and Head, Department of Chemistry,
Durgapur Govt. College, Durgapur

Dr. Anindita Ukil

Assistant Professor, Department of Biochemistry
University of Calcutta, Kolkata



Dr. Gobardhan Das

Professor, Special Centre for Molecular
Medicine, Jawaharlal Nehru University, New Delhi

Dr. Dhurabajyoti Chattopadhyay

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

Dr. Arnab Chakraborty

Assistant Professor, Applied Statistics Unit (ASU)
Indian Statistical Institute, Kolkata

Dr. Subhrangsu Aditya

School of Bio Science & Engineering and School of Cognitive Science
Jadavpur University, Kolkata

Dr. Suchismita Das

Professor, Department of Microbiology,
Tara Devi Harahk Chand Kankaria Jain College, Kolkata

Dr. Dipankar Chattopadhyay

Associate Professor, Dept. of Polymer Science & Technology
University of Calcutta, Kolkata

Dr. Abhijit Kar

Scientific Officer, JBNSTS, Kolkata

Dr. Smarajit Manna

Student Advisor, JBNSTS, Kolkata



CAMP RULES

Welcome to the 47th 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. – 06:00 p.m. on 25th July, 2015). 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 **21st July, 2015**.
- 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’ (**21st July, 2015**) for the library membership which you need to fill up and submit to us on **22nd July, 2015 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 etc.) on **22nd July, 2015 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 **24th July, 2015** during morning registration.

- You are required to fill up the FEED BACK SHEET and submit it on **25th July, 2015 during 01.00 p.m. to 02.00 p.m.**

Reimbursements:

- Reimbursement for Travel expenses and BCL membership card distribution (school wise) will be made on **25th July, 2015 during 01.00 p.m. to 02.00 p.m.** In case, any payment related assistance / clarifications are needed, you may contact our accounts section.

On the last day i.e. 25th July, 2015 you will receive the Participation Certificate.



BRIEF INTRODUCTION TO THE EXPERTS

DR. MAITREE BHATTACHARYYA

Dr. Maitree Bhattacharyya is presently a Professor and Director of Jagadis Bose National Science Talent Search. She graduated from Presidency College with Honours in Physics and obtained M.Sc. degree from Calcutta University. Started research career in Department of Biophysics and Molecular Biology, Calcutta University with a Ph.D. degree in 1991. She pursued research with Research associateship from CSIR and joined Calcutta University as an Assistant Professor in 1994 to start with independent research laboratory. Later on, she was awarded DBT Overseas fellowship and worked as Visiting Scientist in UCSD, USA. Now she is the Professor, Department of Biochemistry and University of Calcutta (On lien). Ten students have already been awarded Ph.D. degree under her supervision and now she is leading a group of ten research scholars which comprises of Ph.D. and post doctoral students. She has published several research articles and chapters in books of International repute. Her research interests include (i) Study of microbial diversity in coastal and estuarine water and soil sediment in the world heritage site, Sundarbans. Exploration of dynamic correlations among physical, chemical and biological domains of this estuarine ecosystem. Inventorisation of microbial diversity along Indian coast; (ii) Identification of risk factors and biomarkers in the disease dynamics of diabetes associated cardiovascular disease and dyslipidemia; (iii) Application of green chemistry in bioremediation and biotransformation of heavy metal toxicity in industrial effluent, green synthesis of nanoparticles and (iv) Protein structure- function and interactions with special interest to heme proteins, bio molecular interaction.

Apart from academic research and teaching, she aims,

- To develop Scientific and Technological sphere of India especially the human resource to the level of highest possible International Standard.
- To develop Science and Technology of modern India so as to make India self-reliant to the extent possible in all spheres including Agriculture, Industry and Medicine.
- To inculcate scientific and rational temper within the younger section of the population towards developing a modern India based on logical foundation, objective and realistic state of mind and against all kinds of superstition, obscurantism and illogical thinking and actions.

DR. SOUMITRA SEN GUPTA

Dr. Soumitra Sengupta is presently a Senior Professor at the Department of Theoretical Physics of Indian Association for the Cultivation of Science (IACS), 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 at the Department of Physics, Presidency College, Kolkata; Sr. Lecturer & Reader at the Department of Physics of Jadavpur University; Reader, Professor and Sr. Professor at 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.

SRI SAMAR BAGCHI

Sri Bagchi is presently the President of Kishore Bharati Development Society. He is the former Director of Birla Industrial & Technological Museum and at that time another 5 science museums in eastern India were under his jurisdiction. He is connected with science popularization and is a board member of several educational institutions. Shri Bagchi has organized the popular science quiz program “Quest” in Doordarshan from 1983 – 88. In 1992, he has got National Award for his contribution in Science Popularization through Mass Medium. He is a member of the Advisory Committee in NCERT and Council of Science & Technology, Govt. of W. Bengal. He is also an environmental & social activist.

DR. MADHUMITA DOBE

Dr. Madhumita Dobe MBBS, DCH, MD, MCH, is currently working as Director - Professor (Public Health) and Head, Department of Health Education All India Institute of Hygiene & Public Health, Kolkata (Ministry of Health & Family Welfare, Government of India) . She has an excellent academic record with several scholarships and gold medal awards. She has been involved in teaching, training and research in public health for more than three decades. She has several national and international publications to her credit including articles, commentaries and editorials in peer reviewed journals, and contribution of chapters in books and monographs. She has delivered prestigious orations in several public health conferences. Her other notable professional contributions are:- Member Governing Council of the World Federation of Public Health Associations, Director of the West Bengal Chapter of Global Society for Health Promotion & Education affiliated to the International Union for Health Promotion; Chairperson Indian Academy of Public Health – a unit of the Indian Public Health Association & Organizing secretary 14th World Public Health Congress 2015.

DR. AMITAVA RAYCHAUDHURI

Dr. Amitava Raychaudhuri, educated at Presidency College, Kolkata and Delhi University, obtained his Ph.D. in particle physics from the University of Maryland, USA. He has held faculty positions at the University of Calcutta for more than thirty years and is the Sir Tarak Nath Palit Professor of Physics since 1996. From 2005-2011 he was the Director of the Harish-Chandra Research Institute, Allahabad under the Department of Atomic Energy, India. Professor Raychaudhuri's research contributions span many areas of particle physics, including the Higgs boson. He is a recipient of several honours and distinctions among which are the Shanti Swarup Bhatnagar Award in 1997 and the International Alumnus of the Year 2005 of the University of Maryland.

DR. ACHINTYA KUMAR SARKAR

Dr. Achintya Kumar Sarkar is presently the Professor and Head, Department of Chemistry, Durgapur Govt. College, Durgapur. He did his Ph.D. from Calcutta University and University of Cambridge, UK. He was a Visiting Researcher at the University of California, Irvine, USA. He is a very popular teacher amongst the students. Dr. Sarkar has several research publications in national and international peer reviewed journals.

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, Shibpur, 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. ANINDITA UKIL

Dr. Anindita Ukil is presently an Assistant Professor in the Department of Biochemistry, University of Calcutta. She did her M.Sc. in Biochemistry from Calcutta University and Ph.D. from Infectious Diseases and Immunology Division at Indian Institute of Chemical Biology, Kolkata. Her research interest is focused on studying the negative regulators of macrophage signal transduction cascade and elucidating their role in intramacrophage parasite survival. Dr. Ukil is interested to identify those negative regulators using visceral leishmaniasis as a model macrophage associated disease. She is the recipient of Prof. B.K. Bachhawat Memorial Young Scientist Lecture (2014) by National Academy of Sciences, Allahabad (NASI), India; SERB Women Excellence Award (2013) by Department of Science and Technology; and Young Scientist Award (2010) in Biomedical Sciences by National Academy of Sciences, Allahabad (NASI), India. Dr. Ukil has several research publications in national and international peer reviewed journals.

DR. GOBARDHAN DAS

Dr. Gobardhan Das is a Professor at Special Centre for Molecular Medicine, Jawaharlal Nehru University, New Delhi. He is one of the renowned biologists of our country. He has several publications in national and international peer reviewed journals. Dr. Das is one of the pioneers in India in the field of research on Tuberculosis.

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.

DR. ARNAB CHAKRABORTY

Dr. Arnab Chakraborty is presently the Assistant Professor at Applied Statistics Unit, Indian Statistical Institute, Kolkata. He did B. Stat and M. Stat from Indian Statistical Institute, Kolkata and Ph.D. from Stanford University, USA. He loves to motivate students to learn mathematics by exploring new ideas. A thorough hater of the routine way adopted in most schools and textbooks to teach mathematics.

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. 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), Ruhr 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.

“Learning Science”

Day to Day Program



Day 1 : Tuesday, July 21, 2015

09:00 a.m. – 10:00 a.m. Registration

10:00 a.m. – 11:30 a.m. **“The Road to String Theory”**

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

11:30 a.m. – 01:00 p.m. Orientation of the participants

01:00 p.m. – 02:00 p.m. Lunch & Interaction

02:00 p.m. – 06:00 p.m. **“Let’s improve your research aptitude – do some active research”**

Dr. Abhijit Kar, Scientific Officer, JBNSTS & **Dr. Smarajit Manna**, Student Advisor, JBNSTS, Kolkata



Day 2 : Wednesday, July 22, 2015

09:00 a.m. – 10:00 a.m. Registration

10:00 a.m. – 01:00 p.m. **“Demonstration of Science Experiments”**

Shri Samar Bagchi, President, Kishore Bharati Development Society, Kolkata

01:00 p.m. – 02:00 p.m. Lunch & Interaction

02:00 p.m. – 06:00 p.m. **“Let’s improve your research aptitude - do some active research”**

Dr. Abhijit Kar, Scientific Officer, JBNSTS & **Dr. Smarajit Manna**, Student Advisor, JBNSTS, Kolkata

Day 3 : Thursday, July 23, 2015

09:00 a.m. – 10:00 a.m. Registration

10:00 a.m. – 11:30 p.m. **“INSPIRE for a stress-free journey towards excellence”**

Dr. Madhumita Dobe, Director-Professor & Head Health Promotion & Education, All India Institute of Hygiene and Public Health, Kolkata

11:30 a.m. – 01:00 p.m. **“Inside the Atom: The constituents of matter and their interactions”**

Dr. Amitava Raychaudhuri, Palit Professor, Department of Physics, Calcutta University, Kolkata

01:00 p.m. – 02:00 p.m. Lunch & Interaction

02:00 p.m. – 03:30 p.m. **“Exploration Antarctica: Adventure and Science”**

Dr. B. B. Bhattacharya, INAE Distinguished Professor, S.N. Bose National Centre for Basic Sciences

03:30 p.m. – 06:00 p.m. **“Enthralling Facets of Organic Molecules”**

Dr. Achintya Kumar Sarkar, Professor and Head Department of Chemistry, Durgapur Govt. College, Durgapur



Day 4 : Friday, July 24, 2015

09:00 a.m. – 10:00 a.m. Registration

10:00 a.m. – 11:30 a.m. **“Inside story! Hacking of human host defense by Leishmania parasites”**

Dr. Anindita Ukil, Assistant Professor, Department of Biochemistry, University of Calcutta

11:30 a.m. – 01:00 p.m. **“Basic aspects of Immune Recognition and function”**

Dr. Gobardhan Das, Professor, Special Centre for Molecular Medicine Jawaharlal Nehru University, New Delhi

01:00 p.m. – 02:00 p.m. Lunch & Interaction

02:00 p.m. – 06:00 p.m. **Educational visit at Variable Energy Cyclotron Centre, Kolkata**



Day 5 : Saturday, July 25, 2015

09:00 a.m. – 10:00 a.m. Registration

10:00 a.m. – 11:30 a.m. **Motivational Lecture**

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

11:30 a.m. – 01:00 p.m. **“Puzzles and magic with mathematics”**

Dr. Arnab Chakraborty, Assistant Professor, Applied Statistics Unit (ASU) Indian Statistical Institute, Kolkata

01:00 p.m. – 02:00 p.m. Lunch & Interaction

02:00 p.m. – 06:00 p.m. **Project Presentation by the Participants**

Judges Panel:

- **Dr. Suchismita Das**, Professor, Dept. of Microbiology, TDHC Kankaria Jain College, Kolkata
- **Dr. Dipankar Chattopadhyay**, Associate Professor, Dept. of Polymer Sc. & Tech., C.U., Kolkata

02:00 p.m. – 05:00 p.m. **Interactive session with Parents (Parallel Session)**

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

