

FELICITATION

Of

INTERNATIONAL OLYMPIAD MEDALLISTS 2010

(in the sciences and mathematics)

at

Homi Bhabha Centre for Science Education

Tata Institute of Fundamental Research

V.N. Purav Marg, Mankhurd, Mumbai – 400 088.

on

Wednesday, December 22, 2010

SCIENTIFIC PROGRAMME: 09.30 to 11.30 hrs

Expository lectures by eminent scientists

AWARD CEREMONY: 12.00 to 13.30 hrs

***An event organized by HBCSE (TIFR) in association with
the Infosys Foundation & the TIFR Endowment Fund.***

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OLYMPIADS IN MATHEMATICS, SCIENCES AND INFORMATICS

The International Olympiads in mathematics, physics, chemistry, biology, informatics, astronomy, astrophysics, junior science and earth science are annual academic competitions to stimulate and challenge bright young pre-university students. The aim of the International Olympiads is not only to promote academic excellence but also to foster friendship among different countries of the world through their students and teachers. Our country started participating in International Olympiads in mathematics from 1989 and in physics, chemistry, biology, astronomy and informatics about a decade later. Participation in Earth Science Olympiad and Junior Science Olympiad began only a few years ago. India hosted the International Mathematical Olympiad in 1996, the International Chemistry Olympiad in 2001, the International Astronomy Olympiad in 2006 and the International Biology Olympiad in 2008.

The Indian Olympiad programme typically involves three stages of selection. The first stage selects out a few hundred students from among thousands who appear for the preliminary examinations all over the country. The second stage is the Indian National Olympiads – the most challenging contests in mathematics and sciences at the pre-college level held in the country. About 35 national Olympiad winners in each subject undergo training and testing every summer at the Homi Bhabha Centre for Science Education (HBCSE) after which the Indian teams are selected to represent the country at the International Olympiads. The informatics training camp is held at the International School, Bangalore. The training camp relating to the Earth Science Olympiad is also held at Bangalore.

Homi Bhabha Centre for Science Education (Tata Institute of Fundamental Research) is the nodal agency for implementing the Olympiad programme in physics, chemistry, biology, astronomy, astrophysics, and junior science. The first stage of the programme of these Olympiads is carried out entirely by Indian Association of Physics Teachers (IAPT) with support from teacher associations of chemistry and biology. The second and higher stages are carried out by HBCSE which enlists the support from a large number of teachers and scientists nationwide. The mathematics Olympiad programme is carried out under the aegis of National Board of Higher Mathematics (NBHM). The Informatics Olympiad Programme is carried out with the assistance of the Central Board of Secondary Education (CBSE) by Indian Association for Research in Computing Sciences (IARCS). The Earth Science Olympiad Programme is carried out by Geological Society of India (GSI).

The Science Olympiad Programme in India is funded by Board of Research in Nuclear Sciences, (Department of Atomic Energy (DAE)), Department of Science and Technology (DST) and Ministry of Human Resource Development (MHRD). The Mathematics Olympiad Programme is funded by NBHM (DAE) and Ministry of HRD. The Astronomy Olympiad Programme is funded by the DAE and Department of Space (DOS). The Informatics Olympiad is funded by Sasken Communication Technologies Ltd. The Earth Science Olympiad Program is funded by the Ministry of Earth Sciences (MoES). The Junior Science Olympiad program is funded by Ministry of HRD and by HBCSE, TIFR through its plan funds.

Indian students have been doing consistently well at the International Olympiads. The performance of the teams in the year 2010 was: Physics (1 Gold, 3 Silver and 1 Bronze); Chemistry (3 Silver and 1 Bronze); Biology (1 Gold and 3 Silver); Mathematics (2 Silver, 1 Bronze and 3 Honorable Mention); Astronomy Junior (2 Gold and 1 Silver); Astronomy and Astrophysics (3 Gold and 2 Bronze); Junior Science (3 Gold and 3 Silver); Informatics (2 Silver and 2 Bronze); Earth Science (1 Silver and 3 Bronze). Thus in the year 2010, out of the 41 students who were sent to various olympiads, 38 won either a gold, silver or bronze medal. The best of our Olympiad students are comparable with the best in the world. *The nation is proud of these young, bright and meritorious students.*

ACKNOWLEDGEMENTS

From the year 2002, Infosys Foundation has instituted awards to Indian medallists in International Olympiads. The awards now consist of a cash prize of Rs. 15,000/- to each medallist. The required grant for the purpose has been given to the TIFR Endowment Fund. HBCSE (TIFR) expresses its deep gratitude to Smt. Sudha Murty, Chairperson, Infosys Foundation for her spontaneous and generous response to the Institute's request for this support. We also thank the TIFR Endowment Fund for their pro-active interest in the Olympiad programme and for their encouragement.

The Government of India have been generously supportive of the programme from its inception. The agencies involved are: National Board for Higher Mathematics, Department of Atomic Energy (NBHM, DAE), Board of Research in Nuclear Sciences (BRNS, DAE), Department of Science and Technology (DST), Ministry of Human Resource Development, and Department of Space (DOS) and Ministry of Earth Sciences (MoES). The Informatics Olympiad is funded by Sasken Communication Technologies Ltd. HBCSE (TIFR) is grateful to all the agencies for their support. Finally, it is a pleasure to thank the Indian Association of Physics Teachers (IAPT), the Association of Teachers in Biological Sciences (ATBS), the Association of Chemistry Teachers (ACT), Indian Physics Association (IPA), NCERT, CBSE, IARCS, GSI, NCSM and the large number of scientists and teachers from different institutions across the country for their wonderful collaboration in this exciting activity.

H. C. Pradhan
Chairperson, National Steering Committee
Science and Astronomy Olympiads.

Morning Session (09.30 – 11.30 hrs)

Expository Lectures by Eminent Scientists

1. PROF. ASHUTOSH SHARMA



Scientific Innovation & Creativity: Some Case Studies in New Process and Product Development

I would like to explore with you some ideas about what innovation and creativity mean and their roles in the context of modern engineering research. We shall touch upon some aspects of creative scientific thinking illustrated by a few examples from my own experiences.

There is already a paradigm shift in engineering research that demands that we integrate in a seamless way the many concerns of materials science, physics, chemistry, biology, mechanical and electrical sciences in fact pretty much everything on demand as dictated by the problem at hand!. These challenges include, but are not limited to, such diverse areas as biomedical and electronic materials and devices, functional and smart materials, computational biology/genomics, biomimetics, colloids and interfaces, new separation/reaction processes and their intensification, green chemistry, novel ways of harnessing and utilization of energy and water resources and scale-down of materials and processes (nanotechnology) towards both novel and traditional ends. The potentialities are truly staggering, but their understanding and the action plans require synthesis of a diverse body of knowledge which now stands compartmentalized over different departments. Thus, new advances demand two major ingredients: (1) acquiring a life-long capacity to learn and assimilate new ideas regardless of the name tag they carry, and (2) capacity for learning not just from the printed material, but an innovation/creativity centric style of functioning, especially in the realm of research and long term developments. I would like to share with you some thoughts about the second ingredient by giving some examples from my own experience of seeking scientific solutions to some problems of product and process development (both the terms meant in their general modern context). These examples include:

1. Search for a reusable pressure sensitive adhesive that functions both in dry and wet environments with equal ease.
2. How to make small micro/nano 3-D objects?—search for new fabrication methods.

3. How to sculpt small features in carbon?--- Fabrication of carbon-MEMS platforms including micro-batteries, cell supports and environmental remediation.
4. How to make nano-channels without the use of slow and expensive tools such as ion-beams?

The examples are intended only to guide and incite some intuitive thoughts about the creative processes, rather than provide a comprehensive catalogue of the many facets of innovation and creativity!

About the Speaker

Ashutosh Sharma is currently Institute Chair Professor in the Department of Chemical Engineering & the Coordinator of the Center for Nanosciences at the Indian Institute of Technology, Kanpur. Ashutosh obtained his B.Tech from IIT Kanpur (1982), M.S. from The Pennsylvania State University (1984) and Ph.D. from State University of New York at Buffalo (1987) working with Prof. Eli Ruckenstein-a recipient of the US Medal of Science. After a brief stint (1988-90) at the SUNY School of Medicine and Biomedical Sciences as a research faculty, he joined IIT Kanpur in 1990.

Ashutosh's group works in the areas of mechanics and instabilities of soft visco-elastic interfaces, thin films and nano-systems; self-organized meso-patterning of polymers, ceramics, hydrogels and carbon; interfacial and colloidal interactions; wetting and adhesion; smart and functional materials; biosurfaces; and microfluidics/MEMS/ NEMS. Ashutosh has published two edited books and over 200 peer reviewed journal papers.

Ashutosh has served on the Editorial Advisory Boards of Journal of Colloid & Interface science, Chemical Engineering Science, Canadian Journal of Chemical Engineering and Indian Chemical Engineer. He is an elected fellow of all the Indian academies of science and engineering and a Fellow of TWAS--the Academy of Sciences for the Developing World. He is also a recipient of the TWAS Science Prize, Shanti Swarup Bhatnagar Prize, Friedrich Wilhelm Bessel Research Award of Alexander von Humboldt Foundation, Distinguished Alumnus Award of IIT Kanpur, Homi Bhabha Award of UGC and a J. C. Bose Fellowship of the Department of Science and Technology. He was awarded the Infosys Prize 2010 for Engineering and Computer Sciences.

2. PROF. SANDIP TRIVEDI



Accelerating Universes in String Theory and Einstein's Dream

Dramatic advances in observational cosmology have taught us that the universe is accelerating. This discovery has far reaching consequences. Quite recently we have understood that such an accelerating universe can arise in string theory - a framework that attempts to provide an understanding of gravity based on quantum mechanics. The picture which emerges is that of a complicated landscape with many different possibilities for the acceleration and the other constants of nature. What do these developments mean for our quest for unification? And for the fulfillment of Einstein's dream? These are some of the questions we will discuss in the colloquium.

About the Speaker

Sandip Trivedi is a string theorist with interests in cosmology and particle physics who works at the Tata Institute of Fundamental Research, Mumbai. He obtained his Master's degree in 1985 from IIT Kanpur, and his Ph.D. in 1990 from Caltech, USA. He has carried out research at the Institute For Advanced Study, Princeton, and at Fermi National Accelerator Laboratory. He joined TIFR in 1999 where he is currently Professor in the Department of Theoretical Physics. He is an editor of Annals of Physics and a Fellow of the Indian Academy of Sciences. Prof. Trivedi was awarded the Swaranajayanti Fellowship in 2002 and the Shanti Swarup Bhatnagar Award for Physical Sciences in 2005. He was awarded the Infosys Prize 2010 for Physical Sciences.

INDIAN DELEGATION TO INTERNATIONAL MATHEMATICAL OLYMPIAD 2010

The following team represented India at the International Mathematical Olympiad 2010 held at Astana, Kazakhstan from July 02 to July 14, 2010.

Students	Medals
1. Mr. Akashnil Dutta 5, Anandapuri, Middle Road, Barrackpore, North 24 Pgs, Kolkata-700 122 West Bengal	Silver
2. Mr. Gaurav D. Patil Survey No.246/5, SAKET Society Off D. P. Road, Aundh Pune – 411 007.	Silver
3. Mr. Satyaki Mukherjee E-44, V.K. Nagar (M.A.M.C.) Durgapur-713 210	Bronze
4. Mr. Akshay Degwekar Pournima Apartments, 1417, Sadashiv Peth, Pune-411 030	Honorable Mention
5. Mr. Anand Degwekar Pournima Apartments, 1417, Sadashiv Peth, Pune-411 030	Honorable Mention
6. Mr. Ronno Das Flat No. 2A, 30 E, Hara Mohan Ghose Lane, Kolkata-700 085	Honorable Mention

Leaders

1. Prof. B. J. Venkatachala HBCSE, TIFR, Mumbai	Delegation Leader
2. Dr. Joseph Amal Nathan BARC, Mumbai	Delegation Leader
3. Prof. M.B. Rege North-Eastern Hill University, Shillong, Meghalaya	Scientific Observer

INDIAN DELEGATION TO INTERNATIONAL PHYSICS OLYMPIAD 2010

The following team represented India at the International Physics Olympiad 2010 held at Zagreb, Croatia from July 17 to July 25, 2010.

Students	Medals
1. Aakanksha Sarda 11, Geetanjali, 73 V P Road; Santacruz (West) Mumbai 400054	Gold
2. Mehul Kumar 19, Chitra Gupt Nagar - 1St, Imli Phatak; Jaipur 302005	Silver
3. Shivam Handa 59, Raja Garden; New Delhi 110015	Silver
4. Vipul Singh 401, Kalptaru Apts., Priyadarshini Nagar, Risali; Bhilai; Chhatisgarh 490006	Silver
5. Sanchar Sharma IV-B, Sector - 2; University Staff Colony; Jodhpur 342033	Bronze

Leaders

1. Dr. Pramendra Ranjan Singh Jagdam College, Jaiprakash University, Bihar	Delegation Leader
2. Shri A. M. Shaker K. J. Somaiya College of Science and Commerce, Mumbai	Delegation Leader
3. Dr. M. K. Raghavendra Shri Bhagwan Mahaveer Jain College, Bangalore	Scientific Observer

INDIAN DELEGATION TO INTERNATIONAL CHEMISTRY OLYMPIAD 2010

The following team represented India at the International Chemistry Olympiad 2010 held at Tokyo, Japan from July 19 to July 28, 2010.

Students	Medals
1. Diptarka Hait GD-362, Flat # 02, Sector 3, Salt Lake, Kolkata 700106	Silver
2. Nikunj Umesh Saunshi F-304, Gokul galaxy, Thakur Complex, Kandivali (E), Mumbai 400101.	Silver
3. Surendra Kotra 208/3, Yeshoda Nivas, V.N. Colony, Moula Ali, Hyderabad, Andhra Pradesh 500040	Silver
4. Amit Panghal 11/309 C, Housing Board, Shivsinghpura, Sikar, Rajasthan 332001	Bronze

Leaders

1. Dr. Lakshmy Ravishankar Vaze College, Mumbai	Delegation Leader
2. Prof. Radha Jayram Institute of Chemical Technology, Mumbai	Delegation Leader
3. Dr. Pradeep Deota M.S. University of Baroda, Vadodara	Scientific Observer

INDIAN DELEGATION TO INTERNATIONAL BIOLOGY OLYMPIAD 2010

The following team represented India at the International Biology Olympiad 2010 held at Changwon, Korea from July 11 to July 18, 2010.

Students	Medals
1. Sahal Kaushik B 02, Ispatika Appartment, Plot 29, Sector 4, Dwarka, New Delhi 110075	Gold
2. Apoorv Singh Yadav L.I.G.10/ B-Sector, Sonagiri, Raisen Road, Bhopal 462 021	Silver
3. Preet Hathi Chandra-Bhushan Hospital, Mahamandir Railway station, Mamdore Road, Jodhpur, Rajasthan 342006	Silver
4. Syed Mustafa Hashmi Flat No. B-201, Nafees Residency, H. No. 10-2-2/1 Beside Income Tax Towers, A.C. Guards, Hyderabad, Andhra Pradesh 500004	Silver

Leaders

1. Dr. Sasikumar Menon Therapeutic Drug Monitoring Laboratory, Mumbai	Delegation Leader
2. Dr. Rekha Vartak HBCSE, TIFR, Mumbai	Delegation Leader
3. Dr. Ansuman Chattopadhyay Visva Bharati, Shantiniketan, West Bengal	Scientific Observer

INDIAN DELEGATION TO INTERNATIONAL ASTRONOMY (Jr.) OLYMPIAD 2010

The following team represented India at the International Astronomy Olympiad 2010 held at Sudak (Crimea), Ukraine from October 16 to October 24, 2010. India sent only the Junior team this year.

Students	Medals
1. R. Sasi Bhushan Bharadwaj Shubham Residency, St No.6, H.No. 3-6-503 Hyderabad 500029	Gold
2. Sharad Mirani 157 Shivganesh Bunglows, Thaltej, Ahmedabad 380059	Gold
3. Pritish Patil 19, Dhavalgiri Society, Takali Road, Nashik 422011	Silver

Leaders

1. Dr. Manojendu C HBCSE, TIFR, Mumbai	Delegation Leader
2. Mr. Hemant Mone Aakash Mitra Mandal, Kalyan	Delegation Leader

INDIAN DELEGATION TO INTERNATIONAL OLYMPIAD IN ASTRONOMY AND ASTROPHYSICS 2010

The following team represented India at the International Astronomy & Astrophysics Olympiad 2010 held at Beijing, China from September 12 to September 20, 2010.

Students	Medals
1. Aniruddha Bapat 202, OM Paradise Apts., 7 Connaught Road, Opp. Sadhu Vaswani Mission, Pune 411001	Gold
2. Chirag Modi 1, Siddharth Nagar, Kesar Bag Road, Indore 452009	Gold
3. Nitesh Kumar Singh 38- Dwaraka, Anushaktinagar, Mumbai 400094.	Gold
4. Kottur Satwik 12-12-191, Ravindra nagar Colony, Seethaphalmandi, Secunderabad 500061	Bronze
5. Shantanu Agarwal 3, Grand Square, Danapur Cantt, Patna, Bihar 801503	Bronze

Leaders

1. Dr. Aniket Sule HBCSE, TIFR, Mumbai	Delegation Leader
2. Mr. Pradip Dasgupta Siddharth College, Mumbai	Delegation Leader
3. Prof. H.C. Pradhan HBCSE, TIFR, Mumbai	Scientific Observer

INDIAN DELEGATION TO INTERNATIONAL INFORMATICS OLYMPIAD 2010

The following team represented India at the International Informatics Olympiad 2010 held at Waterloo, Canada from August 14 to August 21, 2010.

Students	Medals
1. Anish Shankar No 18/1, Rathna Nagar Virugambakkam Chennai 600092	Silver
2. Keshav Dhandhanian AL-174 (first floor) Salt Lake Near Tank No. 8 Kolkata 700091	Silver
3. Archit Karandikar Flat No 5, Plot No 15, Latasadan United Western Housing Society Karve Nagar Pune 411052	Bronze
4. K. Siddharth Thulir, Sittilingi Theerthamalai PO Dharmapuri DT Tamilnadu 636906	Bronze

Leaders

1. Prof Madhavan Mukund Chennai Mathematical Institute, Chennai	Delegation Leader
2. Prof K Narayan Kumar Chennai Mathematical Institute, Chennai	Delegation Leader

INDIAN DELEGATION TO INTERNATIONAL EARTH SCIENCE OLYMPIAD 2010

The following team represented India at the International Earth Science Olympiad 2010 held at Yogyakarta, Indonesia from September 19 to September 28, 2010.

Students	Medals
1. Mr. Aneesh Pasricha A-902, Sheetal Vihar Sector 23 Plot No.10, Dwarka New Delhi-110077	Silver
2. Mr. Varun Rajagopal S No 79 Bazullah Road T Nagar Chennai 600017	Bronze
3. Mr. Nikhil Suhas Deodhar 'Shri Samarth Krupa' 70,Orgaon Marcela, Goa	Bronze
4. Mr. Shreyas Srivastava Flat-2, Floor-III, Block-2, Kashi Enclave, N 16/34, Kolhua, Vinayka, Varnasi-221010	Bronze

Leaders

1. Prof. R. Shankar Mangalore University, Karnataka	Delegation Leader
2. Dr. T A Viswanath Goa University, Goa	Delegation Leader
3. Prof A. C. Narayana University of Hyderabad, Hyderabad	Scientific Observer
4. Dr. Biman Nath Raman Research Institute, Bangalore	Scientific Observer

INDIAN DELEGATION TO INTERNATIONAL JUNIOR SCIENCE OLYMPIAD 2010

The following team represented India at the International Junior Science Olympiad 2010 held at Abuja, Nigeria from December 2 – 11, 2010.

Students	Medals
1. Mr. Aayush Sharma 57 Kalyan Nagar III, Tonk Road, Jaipur-302029	Gold
2. Mr. Ashwin Sreenivas 4A, Rds Avenue One 15th Cross Road, Panampally Nagar Ernakulam, Kerala – 682036	Gold
3. Mr. Yash Gupta Sanitary House, 6, Jain Colony University Road, Udaipur – 313001	Gold
4. Ms. Harine Ravichandiran A 401 - Kavita Niwas, 46/44, Pachappas College Hostel Road Chetpet, Chennai – 600031	Silver
5. Mr. N. Bharath Sivaram New No.44, Old No. 48 Srinivasa Perumal Sannidhi 2nd St Royapetth, Chennai – 600014	Silver
6. Mr. Sai Akhil Suggu 7-6-75/1, 2nd Floor, New Colony Srikakulam – 532001, A.P.	Silver
Leaders	
1. Dr. P. K. Joshi HBCSE, TIFR, Mumbai	Delegation Leader
2. Dr. Ritesh Khunyakari HBCSE, TIFR, Mumbai	Delegation Leader
3. Mr. Chandan Bhosale Garodia International School Mumbai	Delegation Leader

**Felicitations Function for Olympiad Medalists
December 22, 2010**

P r o g r a m m e (09.30 – 13.30 hrs)

Expository Lectures by Scientists

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|-----------------|--|
| 09.30–10.30 hrs | <i>Scientific Innovation & Creativity: Some Case Studies in New Process and Product Development</i>
Prof. Ashutosh Sharma, IIT, Kanpur |
| 10.30–11.30 hrs | <i>Accelerating Universes in String Theory and Einstein's Dream</i>
Prof. Sandip Trivedi, TIFR, Mumbai |
| 11.30–12.00 hrs | T e a |

Award Function (12.00 – 13.30 hrs)

- | | |
|---|---|
| <input type="checkbox"/> Welcome | Prof. H. C. Pradhan, HBCSE |
| <input type="checkbox"/> Address and award distribution | Prof. Ashutosh Sharma
Prof. Sandip Trivedi |
| <input type="checkbox"/> Vote of Thanks | Prof. Vijay Singh, HBCSE |

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