

FELICITATION
of
INTERNATIONAL OLYMPIAD MEDALLISTS, 2017
in the sciences and mathematics

Friday, December 22, 2017

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.

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research

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OLYMPIADS IN MATHEMATICS, SCIENCES AND INFORMATICS

The International Olympiads in Mathematics, Physics, Chemistry, Biology, Astronomy, Astrophysics, Junior Science, Earth Science and Informatics are annual academic competitions to stimulate and challenge bright young pre-university students. The aims of the International Olympiads are to promote academic excellence and also to foster friendship among students and teachers of different countries. India started participating in International Olympiads in Mathematics from 1989, in Physics, Chemistry, Biology, Astronomy and Informatics about a decade later, followed by participation in the Earth Science and the Junior Science Olympiads. India has hosted the International Mathematical Olympiad (1996), International Chemistry Olympiad (2001), International Astronomy Olympiad (2006), International Biology Olympiad (2008), International Earth Science (2013), International Junior Science Olympiad (2013), International Physics Olympiad (2015) and International Olympiad on Astronomy and Astrophysics (2016).

Homi Bhabha Centre for Science Education (HBCSE), Tata Institute of Fundamental Research (TIFR) is the nodal agency for implementing the Olympiad programme in Mathematics, Physics, Chemistry, Biology, Astronomy and Astrophysics, and Junior Science. The Olympiad programme in the five science subjects mentioned is overseen by a National Steering Committee. The Indian Olympiad programme typically involves three stages of selection. The first stage selects a few hundred students from among tens of thousands who appear for the preliminary examinations all over the country. The first stage of the science Olympiads is carried out by the Indian Association of Physics Teachers (IAPT) with support from teacher associations of chemistry and biology. In the mathematics Olympiads carried out by HBCSE under the aegis of National Board of Higher Mathematics (NBHM), the first stage is de-centralised.

The second and higher stages in the five science subjects and mathematics are carried out by HBCSE with support from teachers and scientists nationwide. 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 HBCSE, after which the Indian teams are selected to represent the country at the International Olympiads. The Informatics Olympiad Programme is carried out by the Indian Association for Research in Computing Science (IARCS). The Earth Science Olympiad Programme is carried out by the Geological Society of India (GSI). The Informatics Olympiad training camp is held at The International School, Bengaluru. The Earth Science Olympiad camp is held at Bengaluru or Chennai, while the Junior Astronomy Camp is held at the Nehru Science Centre, Mumbai.

The Science Olympiad Programme in India is funded by the Board of Research in Nuclear Sciences (BRNS) of the Department of Atomic Energy (DAE), the Department of Science and Technology (DST) and the Ministry of Human Resource Development (MHRD). The Mathematics Olympiad Programme is funded by NBHM (DAE) and MHRD. The Astronomy Olympiad Programme is funded by the Department of Space (DOS), DAE, and the National Council of Science Museums (NCSM). The Informatics Olympiad is funded by Indian Association for Research in Computing Science (IARCS), Sasken Communication Technologies Ltd, TCS iON (a division of Tata Consultancy Services), CodeChef (a not-for-profit educational initiative by Directi) and Chennai Mathematical Institute. The Earth Science Olympiad Program is funded by the Ministry of Earth Sciences (MoES).

Felicitation of International Olympiad Medallists, 2017

The Junior Science Olympiad program is funded by MHRD 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 2017 was: Physics (4 Gold, 1 Silver); Chemistry (1 Gold, 3 Silver); Biology (3 Silver, 1 Bronze); Mathematics (3 Bronze, 3 Honourable Mention); Astronomy (Jr.) (1 Gold, 2 Bronze); Astronomy and Astrophysics (1 Gold, 3 Silver, 1 Honourable Mention); Junior Science (4 Gold, 2 Silver); Informatics (3 Bronze); Earth Science (1 Gold, 1 Bronze). Out of the 40 students who were sent to various Olympiads, 33 won either a gold, silver or bronze medals. Our Olympiad students are comparable with the best in the world and we are justifiably proud of them.

ACKNOWLEDGEMENTS

In 2002, Infosys Foundation instituted awards to Indian medalists in the International Olympiads. The awards consist of a cash prize of Rs 15000, the grant for which has been given to the TIFR Endowment Fund. HBCSE (TIFR) expresses its deep gratitude to Smt. Sudha Murty, Chair, 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 proactive interest in the Olympiad programme.

The Government of India has been generously supportive of the Olympiad programme through its various agencies as listed above. We are thankful for this support and for the support for the Informatics Olympiad by the agencies listed. 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), National Council of Educational Research and Training (NCERT), CBSE, IARCS, GSI, NCSM and the large number of scientists and teachers from different institutions across the country for their enthusiastic collaboration in this exciting activity.

K. Subramaniam

Chair, National Steering Committee
Science and Astronomy Olympiads.

Morning Session

Expository Lectures by Eminent Scientists

Lecture 1 (9:30 to 10:30 hrs)

Prof. Rupamanjari Ghosh

Vice-Chancellor, Shiv Nadar University



Manipulating atoms by light

By using interactions between atoms and laser light, it is possible to dynamically manipulate optical properties of an atomic medium, leading to novel applications. In this talk, I will highlight some of these processes and their effects caused by quantum interference, where “coherence” plays a large role. Our story entails not-so-fragile quantum phenomena in a bulk system at room-temperature, posing serious experimental challenges and raising many fundamental questions.

About the Speaker

Prof. Rupamanjari Ghosh is the present Vice-Chancellor of Shiv Nadar University, Uttar Pradesh, India. She is a Professor of Physics with special interest in quantum optics and laser physics.

Prof. Ghosh obtained her M.Sc. degree in Physics from the University of Calcutta in 1980, and Ph.D. in Physics from the University of Rochester, USA in 1987. She was at the Jawaharlal Nehru University (JNU) from 1988 till 2012, where she held many important academic and administrative positions, including Dean of the School of Physical Sciences. She joined the Shiv Nadar University (SNU) in 2012 as the Founding Director of the School of Natural Sciences. Later she held several other leading positions at SNU and became its Vice-Chancellor in 2016. She has also served as the Chief Advisor for the National Council of Educational Research and Training (NCERT) Science textbooks for Classes IX and X. Besides her contribution to science research and training from the university to the school level, she is also well known for her stand and efforts to bring in gender justice and environment consciousness in the higher education system.

Her research interests are in experimental and theoretical quantum optics, laser physics, nonlinear optics, magneto-optics and quantum information. She has made pioneering contributions in quantum optics and quantum information, particularly in the creation and use of sources of single photons and entangled photon pairs.

Prof. Ghosh was awarded the Stree Shakti Science Samman in 2008.

Lecture 2 (10:30 to 11:30 hrs)

Prof. Jaikumar Radhakrishnan

Tata Institute of Fundamental Research



It is entropy that counts

Entropy measures the amount of uncertainty in the outcomes of probabilistic experiments. Using practical motivation from the area of data compression and transmission, we will arrive at a formula for entropy. Then, we will analyze some combinatorial counting problems using entropy as a tool, and derive interesting conclusions. No advance knowledge of mathematics or information theory will be needed to follow the talk.

About the Speaker

Prof. Jaikumar Radhakrishnan is a computer scientist specialising in combinatorics and communication complexity.

Prof. Radhakrishnan obtained his B.Tech degree in Computer Science and Engineering from the Indian Institute of Technology, Kharagpur in 1985 and Ph.D. in Computer Science from Rutgers University, USA in 1991. He has been at the Tata Institute of Fundamental Research (TIFR), Mumbai since 1991, where he is currently a senior professor. He has served as Dean of the School of Technology and Computer Science at TIFR.

His areas of research include combinatorics, randomness, pseudorandomness, information theory, communication complexity, computational complexity theory, quantum computation and quantum information science. He is interested in applying algebraic, combinatorial, probabilistic and information theoretic tools for studying computational problems. He has contributed to results in approximation algorithms, circuit complexity, communication complexity and quantum computing.

Prof. Radhakrishnan was awarded the Shanti Swarup Bhatnagar Prize for Science and Technology in the mathematical sciences in 2008.

Afternoon Session (12:00 – 13:30 hrs.)

Address & Award distribution by

Prof. Arvind Kumar

Former Centre Director, HBCSE



About the Chief Guest

Prof. Arvind Kumar was Centre Director, HBCSE (TIFR) for the period 1994-2008, and Raja Ramanna Fellow at HBCSE till October 2013. Currently, he is a visiting faculty at the Centre for Excellence in Basic Sciences, Mumbai and a member of its Academic Board.

In his early pre-doctoral work at TIFR (1964-69), post-doctoral work at CERN, Geneva (1969-70), Westfield College, London (1970-71), and the University Department of Physics, Mumbai (1971-83) he researched in a range of areas of theoretical physics: particle theory, quantum black hole physics, atomic and optical physics. After joining HBCSE in 1984, he researched in the area of mathematical modeling of educational processes and the emerging field of physics education research.

His educational work spans across university through college to senior secondary and secondary stages. He was a member of the National Steering Committee for formulating the National Curriculum Frame-work (2005) and he chaired the Focus Group on Teaching of Science set up as part of this effort. He has authored/co-authored a number of curricular, co-curricular and expository books and materials at different levels.

He played a central role in launching the Science Olympiad programme in India in 1997, with HBCSE as its nodal Centre. For many years, he was also involved in a number of other national programmes aimed at attracting meritorious students to science. He helped establish a unique Ph.D. School in Science Education at HBCSE, as part of the TIFR Deemed University.

He is a Fellow of the National Academy of Sciences, India. Among several honours, he received the INSA Teacher award (2014). In 2010, he was awarded '*Padma Shree*' for distinguished service in the field of education.

INDIAN DELEGATION TO THE 58th INTERNATIONAL MATHEMATICAL OLYMPIAD 2017

The following team represented India at the 58th International Mathematical Olympiad held at Rio de Janeiro, Brazil during July 12 – 23, 2017.

Students

Medals

1. Anant Mudgal
H. No : 2237, Sector - 28,
Faridabad, Haryana 121008

Bronze



2. Shubham Saha
Flat No : 103, Hrishidham Apts,
South Office Para P.O. Doranda
Ranchi, Jharkhand 834002

Bronze



3. Yash Sanjeev
c/o Chief Manager,
SBI Main Branch
Azamgarh, UP 226001

Bronze



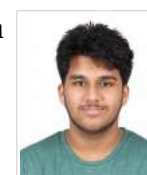
4. Sutanay Bhattacharya
Jhapor More, (Daruka Complex),
Bishnupur, Bankura,
West Bengal 722122

Hon'ble Mention



5. Tarush Goyal
#2, Sec-14, Guru Gian Vhar,
Ludhiana, Punjab 141012

Hon'ble Mention







6. Aditya Prakash
303, Silver Sands Apartments, Chilimbi,
Mangalore, Karnataka 575006

Hon'ble Mention








Leaders and Scientific Observers





- | | | |
|---|---------------------|---|
| 1. Prof. C.R. Pranesachar (Ex-HBCSE)
Dept. of Mathematics
Indian Institute of Science
Bangalore, Karnataka 560012 | Leader |  |
| 2. Dr. Vaibhav Vaish
Stat-Math Unit,
Indian Statistical Institute,
8th Mile, Mysore Road,
RVCE Post,
Bangalore, Karnataka 560059 | Leader |  |
| 3. Dr. M. A. Prasad
Retd., Scientist, BARC,
Mumbai, Maharashtra 400085 | Scientific Observer |  |
| 4. Shri Shubham Sinha (IISC student)
Room no. 15, Krithika hostel
Indian Institute of Science
Bangalore, Karnataka 560012 | Scientific Observer |  |

INDIAN DELEGATION TO THE 48th INTERNATIONAL PHYSICS OLYMPIAD 2017

The following team represented India at the 48th International Physics Olympiad held at Yogyakarta, Indonesia during July 15 – 24, 2017.

Students	Medals	
1. Debaditya Pramanik 2A1 Brook Tower, Hiland Park, 1925 Chak Garia, Kolkata, West Bengal 700094	Gold	
2. Lay Jain Flat No.-604, Block -B, Friend Paradise, Near P. M..C Hospital, Indra Vihar, Kota, Rajasthan 324005	Gold	
3. Ameya Patwardhan B-106, Palvi Bldg., Greenfield CHSL, Plot No.-8, Sector-16A, Vashi, Navi Mumbai, Maharashtra 400703	Gold	
4. Ananye Agarwal First floor, B-109, Gulmohar Park, Delhi 110049	Gold	
5. Pawan Goyal A-338, Talwandi, In front of Modern School Kota, Rajasthan 324005	Silver	

Leaders and Scientific Observers

- | | | |
|---|---------------------|---|
| 1. Mr. Shirish Pathare
Homi Bhabha Centre for
Science Education, (TIFR)
Mumbai, Maharashtra 400088 | Leader |  |
| 2. Prof. Joseph Amal Nathan
Bhabha Atomic Research Centre,
Trombay, Mumbai,
Maharashtra 400085 | Leader |  |
| 3. Prof. A. C. Biyani
Retd., Government Nagarjuna
Post Graduate College of Science
G. E. Road, Raipur
Chhattisgarh 492010 | Scientific Observer |  |
| 4. Prof. Shyamala Bodhane
Assoc. Prof & HOD,
Dept. of Physics,
St. Xaviers' College, Mumbai
Maharashtra 400001 | Scientific Observer |  |

INDIAN DELEGATION TO THE 49th INTERNATIONAL CHEMISTRY OLYMPIAD 2017

The following team represented India at the 49th International Chemistry Olympiad held at Nakhon Pathom during July 6 – 15, 2017.

Students	Medals	
1. Irin Ghosh Shyamali Apartment 3B, M.R.-26 Saptarshi Park P.O.-ABL Township Durgapur, West Bengal 713206	Gold	
2. Dhyey Sankalp Gandhi 17, Gulmohar Park, Behind Classic Complex, Near Akota garden, Akota, Vadodara, Gujarat 390020	Silver	
3. Pranav Ramakrishnan 31/C, Malola Krupa, 4th Street, Shanthi Nagar, Adambakkam, Chennai, Tamil Nadu 600088	Silver	
4. Varun Teja Chowdary Dhanekula Plot No 126, Kavuri Hills, Madhapur, Ranga Reddy Dist, Hyderabad, Telangana 500081	Silver	

Leaders and Scientific Observers

1 Prof. Savita Ladage
Homi Bhabha Centre for
Science Education, (TIFR)
Mumbai, Maharashtra 400088

Leader



2. Ms. Gomathi Shridhar
V.K. Krishna Menon College
of Commerce & Economics
Mumbai, Maharashtra 400042

Leader



3. Dr. Anupa Kumbhar
S. P. Pune University,
Ganeshkhind, Pune,
Maharashtra 411007

Scientific Observer







4. Dr. Sujata Kale
Abasaheb Garware College,
Karve Road, Pune,
Maharashtra - 411004

Scientific Observer






INDIAN DELEGATION TO THE 28th INTERNATIONAL BIOLOGY OLYMPIAD 2017

The following team represented India at the 28th International Biology Olympiad held at Coventry, UK during July 24 – 30, 2017.

Students	Medals	
1. Stuti Khandwala 26-A Navchetan soc., opp. Krushimangal hall, Ring Road, Surat, Gujarat 395001	Silver	
2. Vidushi Varshney 34/507 Pratap Nagar Sanganer, Jaipur, Rajasthan 302033	Silver	
3. Archit Gupta 247, Vindhyanchal Nagar, Airport Road, Indore, Madhya Pradesh 452005	Silver	
4. Alex Abraham Tharakan TC 2/1816 GRA 318 Gowreesapattom Thiruvananthapuram, Kerala 695004	Bronze	

Leaders and Scientific Observers





- | | | |
|--|---------------------|---|
| 1. Ms. Anupama Ronad
Homi Bhabha Centre for
Science Education, (TIFR)
Mumbai, Maharashtra 400088 | Leader |  |
| 2. Dr. P. G. Kale
Department of Biological Sciences,
R. Jhunjhunwala College,
Ghatkopar (W)
Mumbai, Maharashtra 400086 | Leader |  |
| 3. Dr. Kiran Kondabagil
Indian Institute of
Technology (IIT) Bombay,
Powai, Mumbai,
Maharashtra 400076 | Scientific Observer |  |
| 4. Dr. Ranjitsinh Devkar
Department of Zoology,
The Maharaja Sayajirao
University of Baroda,
Vadodara, Gujarat 390002 | Scientific Observer |  |

INDIAN DELEGATION TO THE 11th INTERNATIONAL OLYMPIAD ON ASTRONOMY AND ASTROPHYSICS 2017

The following team represented India at the 11th International Olympiad on Astronomy and Astrophysics held at Phuket, Thailand during November 12 – 21, 2017.

Students	Medals	
1. Mulinti Shaikh Wajid Plot No 126, Kavuri Hills, Madhapur, Ranga Reddy Dist, Hyderabad, Telangana 500081	Gold	
2. Neel Karia A-1008, Ashok Tower Dr. Babasaheb Ambedkar Road Parel (East), Maharashtra 400012	Silver	
3. Navneel Singhal 493 Mantola Paharganj, Delhi 110055	Silver	
4. Saswata Banerjee Flat 31 - 2C, Diamond City North, 68, Jessore Road, Kolkata, West Bengal 700055	Silver	
5. Parth Sastry A-102, Surel Apartments, Opp. Devashish Business Park Bodakdev, Ahmedabad, Gujarat 380015	Hon'ble Mention	

Leaders and Scientific Observers

- | | | | |
|----|--|---------------------|--|
| 1 | Prof. Anwesh Mazumdar
Homi Bhabha Centre for
Science Education, (TIFR)
Mumbai, Maharashtra 400088 | Leader |  |
| 2. | Prof. Narayan Banerjee
Indian Institutes of Science Education
and Research (IISER) Kolkata
Mohanpur, West Bengal 741246 | Leader |  |
| 3. | Prof. M. N. Vahia
Homi Bhabha Road, Navy Nagar, Colaba
Mumbai, Maharashtra 400005 | Scientific Observer |  |
| 4. | Prof. Ajit Mohan Srivastava
Institute Of Physics
P.O.: Sainik School
Bhubaneswar, Odisha 751005 | Scientific Observer |  |

INDIAN DELEGATION TO THE 11th INTERNATIONAL EARTH SCIENCE OLYMPIAD 2017

The following team members represented India at the 11th International Olympiad on Earth Science held at Cote d'Azur, France, during August 22 – 29, 2017.

Students

1. Pratyusha Sethi
105A Keshari Enclave
Near D.A.V. Unit-8, Nayapalli,
Bhubaneswar, Odisha 751012

Medals

1 Gold &
1 Bronze



Leaders and Scientific Observers

1. Dr. K.S. Godhavari
Secretary
Geological Society of India
No.63, 12th Cross
Basappa Layout Gavipuram
Bangalore 560019

Mentor






2. Dr. Hema Achyuthan
National coordinator for
International Earth Science Olympiad
Professor
Institute of Ocean Management
Anna University, Chennai 600025

Mentor





INDIAN DELEGATION TO THE 29th INTERNATIONAL OLYMPIAD IN INFORMATICS 2017

The following team represented India at the 29th International Olympiad in Informatics held at Tehran, Iran during July 28 – August 4, 2017.







Students	Medals	
1. Sidhant Bansal 321, Nav Sansad Vihar Sector 22, Plot 4 Dwarka New Delhi 110075	Bronze	
2. Srijon Mukherjee Villa-1, ATS-Greens 1 A86 Sector-50 Noida, UP 201301	Bronze	
3. Sampriti Panda Plot No – 3C/241, Sector 9, C.D.A., Cuttack, Odisha 743014	Bronze	

Leaders and Scientific Observers

1. Prof. Madhavan Mukund Chennai Mathematical Institute H1 SIPCOT IT Park Siruseri, Kelambakkam Tamil Nadu 603103	Leader	
2. Prof. K. Narayan Kumar Chennai Mathematical Institute H1 SIPCOT IT Park Siruseri, Kelambakkam Tamil Nadu 603103	Deputy Leader	

INDIAN DELEGATION TO THE 14th INTERNATIONAL JUNIOR SCIENCE OLYMPIAD 2017

The following team represented India at the 14th International Junior Science Olympiad held at Arnhem-Nijmegen, Netherlands during December 3 – 12, 2017.

Students	Medals	
1. Akhil Jain 1-CH-21, Vigyan Nagar, Kota, Rajasthan 324005	Gold	
2. Kunal Samanta 18/9 Tilok Road, B-Zone, Durgapur-5, West Bengal 713205	Gold	
3. Mudita Goyal H.No.112, Lane No.5, New Gopal Vihar, Police Line, Baran Road, KOTA, Rajasthan 324001	Gold	
4. Subarno Nath Roy 4B-1004, DREAMS CHS L B S Road, Bhandup West, Mumbai, Maharashtra 400078	Gold	
5. Niyati Manish Mehta Eden K 203, Godrej Garden City, Jagatpur, Ahmedabad, Gujarat 382470	Silver	
6. Aadarshraj Sah Sri sai soc. Plot no. 56, Room no.02, Sector 18A Nerul, Navi Mumbai Maharashtra 400706	Silver	

Leaders and Scientific Observers

1. Prof. Pradip Das Gupta
Retd., Siddharth College of Arts,
Science and Commerce, Fort,
Mumbai, Maharashtra 400001

Leader



2. Ms Sujata Haralkar
Retd., Siddharth College of Arts,
Science and Commerce, Fort,
Mumbai, Maharashtra 400001

Leader




3. Dr. Ritesh Khunyakari
Tata Institute of Social Sciences
Hyderabad, Telangana 500030

Leader



INDIAN DELEGATION TO THE 22nd INTERNATIONAL ASTRONOMY OLYMPIAD 2017

The following team represented India at the 22nd International Astronomy Olympiad held at Weihai Shandong province China from October 27 – November 4, 2017.

Students	Medals	
1. Amit Kumar Mallik c/o T Raghunadh Rao, Vijaya Nilayam, H.no. - 2-2-185/54/2, Srinivasa Nagar Colony, Bagh Amberpet, Hyderabad, Telangana 500013	Gold	
2. Malay Nirav Prajapati 7 Mayukunj Society, Motakumbhnath Road, Nadiad, Kheda, Gujarat 387001	Bronze	
3. Lokesh Satish Kolhe Anubandh, Plot No. 62, Gat No. 76-1/2, Kolhe Nagar, Jalgaon, Maharashtra 425002	Bronze	
Leaders and Scientific Observers		
1. Munikumar Balaji Minnal Curator-C Goa Science Centre & Planetarium, Marine Highway, Miramar, Panaji, Goa 403001	Leader	
2. Madan Gopal Krishnappa Curator-F Visvesvaraya Industrial & Technological Museum, P. B. No. 5216, Kasturba Road, Bangalore, Karnataka 560001	Leader	

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3rd Phase, JP Nagar,
Bangalore – 560 076

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Email: snm@infy.com