

**FELICITATION**  
of  
**INTERNATIONAL OLYMPIAD MEDALLISTS, 2018**  
**in the sciences and mathematics**

**Saturday, December 22, 2018**

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 Olympiad (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 two stages are de-centralised.

The higher stages in the five science subjects and mathematics are carried out by HBCSE with support from teachers and scientists nationwide. The second (third for mathematics) stage is the Indian National Olympiads – the most challenging contests in mathematics and sciences at the pre-college level held in the country. Between 35 and 50 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 Junior Astronomy Olympiad is under the supervision of the National Council of Science Museums (NCSM). 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 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

## *Felicitations of International Olympiad Medallists, 2018*

the Ministry of Earth Sciences (MoES). 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 2018 was: Physics (5 Gold); Chemistry (2 Gold, 2 Silver); Biology (4 Silver); Mathematics (3 Silver, 2 Bronze, 1 Honourable Mention); Astronomy (Jr.) (1 Gold, 2 Silver); Astronomy and Astrophysics (3 Silver, 2 Bronze); Junior Science (5 Gold, 1 Silver); Earth Science (1 Silver, 2 Bronze). Out of the 39 students who were sent to various Olympiads, 34 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), the Mathematics Teachers' Association (MTA), Indian Physics Association (IPA), National Council of Educational Research and Training (NCERT), 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. Krishna N. Ganesh**

Director, IISER, Tirupati



#### **What is science and why do we do science**

“Science” is about asking questions about the *natural* world to understand natural phenomena and natural processes. It cannot provide answers to questions outside the natural world. To a common man and a young student “scientist” as a person remains enigma as to what does he/she do and how does he/she discover things unknown. The systematic method of science involves (i) asking a question (ii) construct a hypothesis based on known facts (iii) testing the hypothesis through an experiment (iv) analysis of results to draw conclusions to validate hypothesis or modify the hypothesis to fit into experimental results through an iterative process. However all discoveries have not been made by this linear and systematic pathway; several personal traits of scientists, intuition and serendipity have made a difference in both discovery and invention. The efforts of science take long time to be useful products for society, but this should not deter the curious and creative nature of human mind. This lecture is aimed to capture the traits of scientists with examples to comprehend the process of science and the minds of scientists. It is meant to motivate and impress upon young minds that to be a scientist takes great effort and sacrifice, but in the end it is worth it.

#### **About the Speaker**

Krishna N. Ganesh (born 1953) obtained his B.Sc (1970) and M.Sc (1972) degrees in Chemistry from Bangalore University and did his Ph.D (1976) in Chemistry at Delhi University. A Commonwealth Fellowship resulted in another Ph.D degree in 1980 from University of Cambridge, UK. He joined the Centre for Cellular and Molecular Biology (CSIR) at Hyderabad in 1981 where he established India’s first microsynthesis DNA facility. In 1987, he relocated to the National Chemical Laboratory (NCL-CSIR) where he became the Head of Organic Chemistry Division in 1994. He was appointed as the first Director of the newly founded Indian Institute of Science Education and Research (IISER) at Pune in 2006. In 2017 he became the Director of IISER, Tirupati, earning the unique distinction of being the founding directors of two IISERs. He has more than 160 publications in reputed international journals, 2 international patents and guided 45 students for their doctoral degrees.

Prof Ganesh is a Fellow of all three Science Academies in India and also a Fellow of The World Academy of Sciences (TWAS). He served as the President of Division of Organic and Biomolecular Chemistry of IUPAC (2012-2013). Prof Ganesh has received many professional awards, including Shanti Swarup Bhatnagar award in Chemical Sciences (CSIR), TWAS Prize for Chemical Sciences, and SASTRA-CNR Rao Award. He has served as a member of various policy making and advisory bodies of major research institutions and departments of the government. Prof. Ganesh has been a member of the editorial boards of a number of reputed international research journals.

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

**Prof. Amol Dighe**

TIFR, Mumbai



**Goodbye, Mr. Kilogram**

For more than a century, a platinum-iridium cylinder kept in a high-security vault outside Paris has defined the kilogram – the SI unit of mass. In a few months, it will be retired, and a kilogram will be defined based on the Planck's constant. In fact, the definitions of many SI units like kelvin, mole, and ampere will also be changed simultaneously. These changes are not just cosmetic, but introduce a new way of thinking about units of measurement and fundamental constants of nature. This talk will address the "why" and "how" of these changes.

**About the Speaker**

Dr. Amol Dighe is a Professor of Physics in Tata Institute of Fundamental Research, in the Department of Theoretical Physics. He works in the area of High Energy Physics, which aims to understand the nature of fundamental interactions by studying properties of elementary particles. His recent research has focused on the particles known as neutrinos: their nature and the role they play in astrophysics and cosmology. He looks for signals of new physics at experiments like the Large Hadron Collider, and in the particles that come from the sky.

He completed his B.Tech. in Engineering Physics (1992) from the Indian Institute of Technology, Bombay. His M.S. and Ph.D. (1997) were from the University of Chicago, where he explored signals of charge-parity violation in particle physics interactions. Later he was a postdoctoral researcher in ICTP (Trieste, Italy), CERN (Geneva, Switzerland) and Max Planck Institute for Physics (Munich, Germany), before joining TIFR as a faculty member in 2003.

He was one of the first Indian Bronze Medalists in the International Mathematical Olympiad, held in Germany in 1989. He has received the Institute Silver Medal from IIT Bombay, and the Worldlab-CERN John Bell Scholarship. He was the Leader of the Max Planck – India Partner Group in Neutrino Physics and Astrophysics for five years. He has been elected Fellow of the Indian Academy of Sciences and the Indian National Science Academy. He has won the Swarnajayanti Fellowship from the Department of Science and Technology, and is the recipient of the Shanti Swarup Bhatnagar Award.

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

### **Address & Award distribution by**



#### **Prof. Suhas Pednekar**

Vice Chancellor, University of Mumbai

#### **About the Chief Guest**

Prof. Suhas Pednekar has been recently appointed Vice Chancellor of the University of Mumbai. He has over 30 years of academic experience as an undergraduate, postgraduate teacher and a researcher. His inherent passion, commitment and dedication towards academics and research led to his appointment as Principal of Ramnarain Ruia College in 2006, a position he held until April 2018.







Prof. Pednekar holds a Doctoral Degree in Organic Chemistry and was a Post-Doctoral Fellow at the Stevens Institute of Technology, New Jersey, USA. Prof. Pednekar's areas of research interest are Green Chemistry, Pharmacological and Chemical Investigation of Medicinal Plants and Marine Biotechnology. He has presented his research findings in many national and international conferences and has published over 50 research papers in national and international journals of repute. He has undertaken collaborative research projects with many Universities in India and abroad and has successfully guided over 25 students for Doctoral and Masters' programmes.

Prof. Pednekar has vast administrative experience and has served as a member of official bodies of the Institute of Chemical Technology (Mumbai), University of Mumbai and various state and national level bodies engaged in the enhancement of quality of education, such as the Working Group on Higher Education (XII Five Year Plan) Planning Commission of India, Committee for Revision of Maharashtra Universities' Act, Government of Maharashtra, Task Force Committee, Government of Maharashtra for New National Education Policy, Education Innovation Committee & Commercial Examination Board, Indian Merchants' Chamber. He has been the President, Vice-President, Joint Secretary and Member of the Executive Committee, Indian Chemical Society, Mumbai Branch. He is also the Life Member of many scientific bodies.

Prof. Pednekar is the recipient of several awards which include the Best Chemistry Teacher Award at National level by Tata Chemicals Ltd. given in association with the Association of Chemistry Teachers, Royal Society of Chemistry, Confederation of Indian Industry and Godrej (2013), and the Best Teacher Award, Government of Maharashtra (2012).

**INDIAN DELEGATION TO THE 59<sup>th</sup> INTERNATIONAL MATHEMATICAL OLYMPIAD 2018**

The following team represented India at the 59<sup>th</sup> International Mathematical Olympiad held at Cluj Napoca, Romania during July 4 – 14, 2018.

<b>Students</b>	<b>Medals</b>	
1. Pranjal Srivastava C1701, Ajmera Infinity, Electronic City Phase 1, Doddathogur, Bangalore, Karnataka 560100	Silver	
2. Pulkit Sinha C-512, Princess Park, Ahinsa Khand 2, Indirapuram, Ghaziabad, UP 201014	Silver	
3. Anant Mudgal H. No : 2237, Sector - 28, Faridabad, Haryana 121008	Silver	
4. Spandan Ghosh 4/5A Bijoygarh, Jadavpur, Kolkata 700032	Bronze	
5. Sutanay Bhattacharya Jhapor More, (Daruka Complex), Bishnupur, Bankura, West Bengal 722122	Bronze	
6. Amit Kumar Mallik C/O T Raghunadh Rao, Vijaya Nilayam H.No. -2-2-185/54/2, Srinivasa Nagar Colony, Bagh Amberpet, Hyderabad 500013	Hon'ble Mention	



**Leaders and Scientific Observers**

1. Prof. B.J. Venkatachala (Ex-HBCSE)  
Dept. of Mathematics  
Indian Institute of Science  
Bangalore, Karnataka

Leader



2. Shri. Prashant Sohani  
41, Shreeniwas Apartments  
Manisha Society, Karvenagar  
Pune

Deputy Leader



3. Prof. Vinod Kumar Grover  
#1479, Pushpak Complex,  
Sector- 49-B  
Chandigarh

Scientific Observer








4. Shri Pranav Nuti  
Plot 20, Bhavyas Alluri Meadows,  
White Fields, Kondapur,  
Hyderabad

Scientific Observer







## **INDIAN DELEGATION TO THE 49<sup>th</sup> INTERNATIONAL PHYSICS OLYMPIAD 2018**

The following team represented India at the 49<sup>th</sup> International Physics Olympiad held at Lisbon, Portugal during July 21 – 28, 2018.




<b>Students</b>	<b>Medals</b>	
1. Bhaskar Gupta H.No.-601, Mahran Chs, Plot No.-16, Gulmohar Cross Road-12, Samarth Ramdas Road, JVPD Scheme, Juhu, Mumbai 400049	Gold	
2. Lay Jain Flat no. 203, Nanak Palace, Bal Mandir Road, Kota Jn 324002	Gold	
3. Nishant Abhangi D-101, Selenium Heritage, B/H Crystal Mall, Opp. I.O.C. Quarters, Kalawad Road, Rajkot 360005	Gold	
4. Pawan Goyal A-338, Talwandi, In front of Modern School, Kota, Rajasthan 324005	Gold	
5. Siddharth Tiwary Flat-2E, Railway Officers' colony, J K Pal Road, New Alipore, Kolkata 700038	Gold	

**Leaders and Scientific Observers**

- |  |                     |   |
|--|---------------------|---|
| 1. Dr. Praveen Pathak<br>Homi Bhabha Centre for<br>Science Education, Mumbai | Leader              |    |
| 2. Prof. K. G. M. Nair<br>Chennai Mathematical Institute,<br>Chennai         | Leader              |    |
| 3. Prof. Surajit Chakrabarti<br>Retd., M. M. Chandra College,<br>Kolkata     | Scientific Observer |   |
| 4. Dr. Manish Kapoor<br>Christ Church College,<br>Kanpur                     | Scientific Observer |  |

## **INDIAN DELEGATION TO THE 50<sup>th</sup> INTERNATIONAL CHEMISTRY OLYMPIAD 2018**

The following team represented India at the 50<sup>th</sup> International Chemistry Olympiad held at Slovakia & Czech Republic during July 19 – 28, 2018.

<b>Students</b>	<b>Medals</b>	
1. Dhyey Sankalp Gandhi 17, Gulmohar Park, Behind Classic Complex, Near Akota Garden, Akota, Baroda 390020	Gold	
2. Jishnu Basavaraju Plot No 126, Opp IGNOU, Kavuri Hills, Madhapur, Ranga Reddy, Hyderabad 500081	Gold	
3. Aayush Kadam C/O Shri S R Nirmal, 2 K 25, New Jawahar Nagar, Kota 324005	Silver	
4. Sanchit Agrawal 413, Sitaram Apatments, I.P. Extension, Patparganj, East Delhi 110092	Silver	

**Leaders and Scientific Observers**

1. Prof. Savita Ladage  
Homi Bhabha Centre for  
Science Education, Mumbai

Leader



2. Dr. Lakshmy Ravishankar  
V. G. Vaze College, Mumbai

Leader



3. Dr. Dimple Dutta  
Bhabha Atomic Research Centre,  
Mumbai

Scientific Observer



4. Ms. Swapna Narvekar  
Homi Bhabha Centre for  
Science Education, Mumbai

Scientific Observer



## **INDIAN DELEGATION TO THE 29<sup>th</sup> INTERNATIONAL BIOLOGY OLYMPIAD 2018**

The following team represented India at the 29<sup>th</sup> International Biology Olympiad held at Tehran, Iran during July 15 – 22, 2018.

<b>Students</b>	<b>Medals</b>	
1. Stuti Khandwala 26-A Navchetan soc., opp. Krushimangal hall, Ring Road, Surat, Gujarat 395001	Silver	
2. Kunjal Parnami 79 Himagiri Meadows, Gottigere, Bangalore 560083	Silver	
3. Shaswat Jain 196, Shastri Colony, Yamunanagar, Haryana 135001	Silver	
4. Vishwesh Bharadiya Vishwesh Childrens Hoapital, Bh. Tupshakre Lawns, Prathamesh Nagar , Tidke colony, Mumbai Naka, Nashik 422001	Silver	

**Leaders and Scientific Observers**

1. Dr. Sasikumar Menon  
Therapeutic Drug Monitoring  
Laboratory, Mumbai

Leader



2. Prof. Kauresh Vacchrajani  
M. S. University, Baroda

Leader



3. Prof. Pradeep Burma  
Delhi University

Scientific Observer








4. Mr. Vikrant Ghanekar  
Homi Bhabha Centre for  
Science Education, Mumbai

Scientific Observer



**INDIAN DELEGATION TO THE 12<sup>th</sup> INTERNATIONAL OLYMPIAD ON ASTRONOMY AND ASTROPHYSICS 2018**

The following team represented India at the 12<sup>th</sup> International Olympiad on Astronomy and Astrophysics held at Beijing, China during November 3 – 21, 2018.

<b>Students</b>	<b>Medals</b>	
1. Prathyush Poduval D-5, MRPL Township, Bala PO, Mangalore 575030	Silver	
2. Harshit Khandelwal 1409 Sch. No. - 114 Part – 1 Madhya Pradesh 452010	Silver	
3. Kaustubh Verma House no 556 Sector 45, Haryana 121010	Silver	
4. Prashant Gokhale A/203, Jay Ghanshyam Society, Tejpal Scheme Road No. 3, Vile Parle East, Mumbai 400057	Bronze	
5. Aditya Pal 40 Kalitala Link Road. Haltu Purbachal (North) Kolkata 700078	Bronze	



**Leaders and Scientific Observers**

1. Dr. Manojendu Choudhury  
University of Mumbai-  
Department of Atomic Energy  
Centre for Excellence in Basic Sciences,  
Mumbai

Leader



2. Prof. Sarita Vig  
Indian Institute of Space Science and  
Technology, Thiruvananthapuram

Leader



3. Prof. Avinash Deshpande  
Raman Research Institute, Bengaluru

Scientific Observer



4. Ms. Vinita Navalkar  
University of Mumbai-  
Department of Atomic Energy  
Centre for Excellence in Basic Sciences,  
Mumbai

Scientific Observer



## **INDIAN DELEGATION TO THE 12<sup>th</sup> INTERNATIONAL EARTH SCIENCE OLYMPIAD 2018**

The following team represented India at the 12<sup>th</sup> International Olympiad on Earth Science held at Mahidol University, Kanchanburi Campus, Thailand, during August 8 – 17, 2018.

### **Students**

1. Vaibhav Khater  
Hariom Computers opp. Mahesh Seva Samiti  
H.M. Sector 5, Shanti Nagar  
Udaipur, Rajasthan 313001
2. Abhinav Srinivas Ivaturi  
H.no- 35, Shiva Residency,  
Teen Mandir Road,  
Mathpurena Sunder Nagar,  
Raipur, Chhattisgarh 492013

### **Medals**

Silver



2 Bronze



### **Leaders and Scientific Observers**

1. Dr. K.S. Godhavari  
Secretary  
Geological Society of India  
Bengaluru
2. Dr. Hema Achyuthan  
National Coordinator,  
Earth Science Olympiad  
Chennai
3. Dr. Jagvir Singh  
Ministry of Earth Sciences,  
Government of India,  
New Delhi

Leader



Leader






Leader



## **INDIAN DELEGATION TO THE 23<sup>rd</sup> INTERNATIONAL ASTRONOMY OLYMPIAD 2018**

The following team represented India at the 23<sup>rd</sup> International Astronomy Olympiad held at Colombo, Sri Lanka from October 6 – 14, 2018.




<b>Students</b>	<b>Medals</b>	
1. Chahel Singh C/023, Forest County, Kharadi, Pune 411014, Maharashtra	Gold	
2. Sai Teja Varanasi 19-9-44, Ayyakoneru South Street, Near Sai Temple, Vizianagaram, Andhra Pradesh 535002	Silver	
3. Adarsh Reddy Madur H.No. 2-48/56, Street No. 7, Telecomnagar, Gachibowli, Rangareddy 500032	Silver	

### **Leaders and Scientific Observers**

1. Suresh Kumar Regional Science Centre Guwahati	Leader	
2. Munikumar Balaji Minnal Goa Science Centre & Planetarium, Panaji, Goa	Leader	
3. Bharat Srivastava National Science Centre, Delhi	Scientific Observer	

**INDIAN DELEGATION TO THE 15<sup>th</sup> INTERNATIONAL JUNIOR SCIENCE OLYMPIAD 2018**

The following team represented India at the 15<sup>th</sup> International Junior Science Olympiad held at Gaborone, Botswana during December 2 – 11, 2018.

<b>Students</b>	<b>Medals</b>	
1. Ameya P. Deshmukh 7, Bhakti Clinic, Jilha Peth Police Station Road, Near Bhaskar Market 425001	Gold	
2. Dhananjay Raman B-102, Mahalaxmi Apartments, Sector-2, Dwarka, New Delhi 110075	Gold	
3. Mohit Gupta 98, Shastri Nagar Dadabari, Kota 324009	Gold	
4. Naman Singh Rana Ikrotia, Kotkasim Road, Bibirani 301702	Gold	
5. Vaibhav Raj Qtr. No. - 39 East, The Park, P. O. - Ishapore Nawabganj, District - 24 Parganas (North) 743144	Gold	
6. Barun Parua C-74 Talwandi Kota 324005	Silver	

**Leaders and Scientific Observers**

1. Prof. Hemant Pande  
Hislop College, Nagpur

Leader



2. Dr. A. K. Rajarajan  
Bhabha Atomic Research Centre,  
Mumbai

Leader



3. Prof. V. G. Gambhir  
Retd., Homi Bhabha Centre for  
Science Education, Mumbai

Leader







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