



IUCAA
ISSN 0972-7647

A quarterly bulletin of the
Inter-University Centre for Astronomy and Astrophysics
(An Autonomous Institution of the University Grants Commission)

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Available online at <http://publication.iucaa.in/index.php/khagol>

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The 5th Asia Pacific Solar Physics Meeting



Contents...

Reports of Past Events	1-12
Welcome and Farewell	1,3,7
Congratulations	3
Colloquia and Seminars	8
Public Outreach Activities	12-14
Visitors	15-16

The **5th Asia Pacific Solar Physics Meeting** was hosted at the Inter-University Centre for Astronomy and Astrophysics (IUCAA) Pune during February 3 - 7, 2020. The meeting was jointly organised by IUCAA and the Indian Institute for Science Education and Research (IISER), Pune. The conference was co-sponsored by the Centre for Excellence in Space Science India (CESSI), IISER-Kolkata; Indian Institute of Astrophysics (IIA), Bengaluru; Aryabhata Research Institute of Observational Sciences (ARIES), Nainital; Indian Institute of Science (IISc), Bengaluru; and the Indian Space Research Organization (ISRO), Bengaluru.

... Contd. on page 2

Welcome ... Addition to IUCAA Core faculty



Debarati Chatterjee

... See page 3



Somak Raychaudhury, Director, IUCAA inaugurated the meeting. About 150 scientists from different countries around the globe attended the meeting. The countries represented were Japan, Australia, South Korea, USA, UK, Germany, Russia. The colleagues from China could not participate in the meeting in person, due to the outbreak of Covid-19. However, a few colleagues from China presented their results through online multi-media. The complete meeting was live-streamed for enabling the colleagues to join remotely.

The meeting discussed all aspects of the Solar Astrophysics starting from Solar Dynamo to Solar wind and heliosphere. There were invited talks, contributed talks and dedicated time slots for posters. There were three public lectures during the meeting. One was arranged at IUCAA, and two at IISER-Pune. One evening also witnessed an interesting cultural programme at IUCAA, put up for the participants.

The *Young Career Award* of the 5th Asia Pacific Solar Physics Meeting was given to Dibyendu Nandi of CESSI, IISER-Kolkata. M. Shimojo of National Astronomical Observatory of Japan was the runner up of the award. In addition, there were three awards: two best presentations made by students and postdocs and one for the best poster presentation that was for a Ph.D. student.



The best presentation awards were given by two journals, namely *Solar Physics* and *Research in Astronomy and Astrophysics*. The local hosts gave the best poster award.

The meeting ended with the award ceremony. The meeting was coordinated by Durgesh Tripathi (IUCAA) and Prasad Subramanian (IISER-Pune).



Welcome ...

One more addition to IUCAA Core faculty ...

Debarati Chatterjee completed her Doctoral degree in Theoretical Astrophysics from Saha Institute of Nuclear Physics, Kolkata in 2010. Her doctoral research focussed on compact stellar remnants, particularly Neutron Stars, and the signature of its internal composition on various astrophysical observations and emission of Gravitational Waves. Upon receiving the prestigious Alexander von Humboldt fellowship, she went on to carry out postdoctoral research at the University of Heidelberg, Germany. There she worked on constraining theories of dense matter using information from observations of neutron stars and heavy ion collision experiments. Upon completion, she was invited to carry out research for a couple of years at the Paris Observatory in Meudon, France. Her research work there involved construction of consistent global numerical models of magnetars (strongly magnetized neutron stars). From 2015 until 2018 she was offered the position of CNRS (French National Science Research Centre) Researcher at the Laboratoire de Physique Corpusculaire in Caen, France. Here she developed a consistent model-independent formalism to describe the crust-core interface of neutron stars. Following a short Humboldt Renewed Research stay project at the University of Frankfurt in Germany, she joined IUCAA as a faculty member (Associate Professor), and is particularly involved with the planned LIGO-India mission.

Congratulations ...

Avyarthana Ghosh for receiving the *K. D. Abhyankar Best Thesis Presentation Award*, by the Astronomical Society of India for the year 2020 during the 38th annual meeting held at IISER-Tirupati.

National Science Day Celebrations - 2020

Taking the advantage of the leap year 2020, IUCAA extended the celebration of the National Science Day that happened on February 28 - 29. The two-day celebrations attracted numerous groups of students along with teachers, parents and public, who came from around Pune and other parts of Maharashtra. Like every year, IUCAA observed the enthusiasm of people to associate better with Science and Scientists. Following are the details of the exhibits and interactive programmes conducted over the course of two days.

One of the main attractions of the National Science Day 2020 celebrations was 'A Hunt for Multi-wavelength Messengers' in Astronomy. The whole campus of IUCAA including Science Park and the area near Chandrasekhar Auditorium was covered by the theme based exhibits covering astronomical observations at different wavelengths. The theme included the famous scale-models of different Astronomy and Astrophysics projects of public interest like, LIGO-India, Thirty Metre Telescope, Aditya L1, and

AstroSat. Number of spectacular posters designed and presented enthusiastically by research scholars of IUCAA were displayed, which made the people aware of the on-going research and new developments in the subject. Apart from these, the Foucault pendulum, the statues of great scientists on the campus, short interactive sessions on Black Hole Imaging, demonstrations of Laser Interferometry and Gravitational Waves, Radio Astronomy and interactive sessions on Chandrayaan II with wonderful animations pulled a large number of people.

Short talks on Cosmology, Gravitational Waves, Next Generation Radio Astronomy, and Understanding the Universe through Large Optical Telescopes were delivered by Swagat Mishra and Sujatha Ramakrishnan, Sayantani Bera, Pratik Dabhade and Ashish Mhaske, and Siddharth Maharana, respectively, which kept the audience rooted in the Chandrasekhar Auditorium during the morning session. These sessions were coordinated by Sujatha Ramakrishnan and Swagat Mishra.



Parallel events like Science Toys demonstrations, models of Satellite Launch Vehicles, and demonstrations on Telescope Making kept the general public magnetized in the Science Park area throughout the day time. These exhibits were coordinated by the SciPOP team.

In the afternoon, there was a live interaction with Jayant Narlikar and Somak Raychaudhury, who eloquently answered several Astronomy related questions from the public. This was coordinated by Surhud More and Anupreeta More. Most of the wonderful questions regarding our universe came forward from young school kids. Following this, there were special talks on Astronomy: the Big Data Science, Giant Eyes in the Sky, Laser Interferometer Gravitational Wave Observatory (LIGO), Exploring the Sun with Aditya L1, Multi-wavelength Science with AstroSat, Science with the Square Kilometer Array, the Thirty Meter Telescope were delivered by Kaustubh Vaghmare, A. N. Ramaprakash, Giles Hammond, Avyarthana Ghosh, Gulab Dewangan, Neeraj Gupta and R. Srikanth, respectively. These sessions were coordinated by Manasadevi P. T.

On the evening of February 28, a public talk on the 2019 Physics Nobel Prize, titled: *Universe Unraveled*, was delivered by Tarun Souradeep (IISER, Pune).



On the evening of February 29, another public talk on the 2019 Physics Nobel Prize, titled: *Exploring the Exoplanets for Extra-terrestrial Life*, was delivered by Sujan Sengupta (IIA, Bengaluru).



Around 10,000 people visited IUCAA in these two days, and around 2,500 odd people attended the sky watching sessions following public talks on both the nights!

As per tradition, there were events for school students prior to the open day. IUCAA Public Outreach personnel conducted a science quiz, along with essay writing, and drawing competitions for the rural students of the Ambegaon Taluka on February 01, 2020. Shreejit Jadhav, Parisee Shirke, Prakash Tripathi (all from IUCAA) enthusiastically





encouraged students from 30 rural schools, who competed at the venue generously provided by the Shasakiya Tantraniketan (ITI), Manchar. A lot of help also came from the IUCAA Girawali Observatory staff, Nilesh Pokharkar along with others.

On February 22, 2020, about 380 students from 54 schools in Pune city responded to IUCAA's invitation and participated in another set of inter-school competitions. Students from classes VIII to X took part in the drawing, essay, poetry and science quiz competitions, with the first round of model making competitions. Manojendu Choudhury (ACE, IUCAA) gave an interactive talk to the teachers, who accompanied the students. After the finals of the quiz competition, all winning students received their prizes from Somak Raychaudhury, which included the students from the rural schools, who were specially invited to IUCAA for a visit that day. All the students were enthused and also very happy to have a chance to interact with the IUCAA scientists during these National Science Day celebrations.

Shortlisted models made by school students on a theme, **'Space - the new frontier for humanity'**, chosen by coordinators, Suresh Doravari, Manasadevi P. T. and Shivaraj Kandhasamy were exhibited on the National Science Day for visitors. The final judging was also done on the same day with the help of Smita Chaturvedi (Savitribai



Phule Pune University). The winning teams received their prizes from Somak Raychaudhury in the presence of Jayant Narlikar.

All the public talks and Ask a Scientist session were streamed live and are available at: <https://www.youtube.com/iucaascipop>. A special walk-through of the National Science Day at IUCAA was made by Ishan Shinde with the help of Shashank Tarphe.



DRAWING COMPETITION WINNERS

Pune City Schools

Drawing Themes :

1. Consequence of Launching Multiple Satellites
2. My School in Space
3. Technology in Our Daily Life



1st

Aarya Sham Patil

Rural Schools

Drawing Themes :

1. My School in Space
2. Celestial events that I have witnessed
3. Importance of Science in day-to-day life



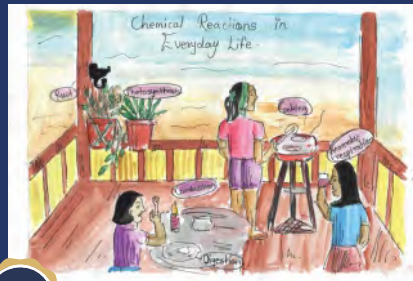
1st

Siddhesh Avinash Darade



2nd

Yash Pratap Singh



2nd

Shravani Milind Walse



3rd

Shloka Ganesh Shetty



3rd

Shreyas Santosh Muluk

Rural Schools

Drawing:

First Prize: Siddhesh Avinash Darade, Jagdishchandra Mahindra High school, Chincholi

Second Prize: Shravani Milind Walse, Pandit Jawaharlal Nehru Madhyamik Vidyalaya, Nirgudsar

Third Prize: Shreyas Santosh Muluk, New English School, Landewadi

Honorary Mention: (1) Pranjal Santosh Londhe, Mahatma Gandhi Vidyalay, (2) Yogesh Ramesh Kakade, Adarsh Madhyamik Vidyalaya

Essay Writing:

First Prize: Samruddhi Shashikant Thorat, Vidya Vikas Mandir, Avsari Bk.

Second Prize: Mahenoor Hamid Inamdar, New English School, Landewadi

Third Prize: Vaishnavi Vilas Punde, Pandit Jawaharlal Nehru Madhyamik Vidyalaya, Nirgudsar

Science Quiz:

First Prize: Gururaj Prashant Saraph, Sakshi Sudarshan Awate, Siddhant Suresh Erande, New English Medium School, Ghodegaon

Second Prize: Vallabh Santosh Dukare, Amaan Salim Momin, Saiesh Balkrishna Indore, New English School, Landewadi

Third Prize: Shreyas Chandrakant Shinde, Akanksha Pravin Kadadhekar, Girij Suryakant Bangar, Nalanda English Medium School, Manchar

Pune City Schools

Drawing:

First Prize: Aarya Sham Patil, Jnana Prabodhini Navanagar Vidyalaya, Nigdi

Second Prize: Yash Pratap Singh, Delhi Public School, Pune

Third Prize: Shloka Ganesh Shetty, Silver Crest School, Pune

Honorary Mention: (1) Amala Rajesh Deodhar, Bharatiya Vidya Bhavan Paranjpye Vidya Mandir, Pune and (2) Riya Bhupesh Parate, Bharatiya Vidya Bhavan Sulochana Natu Vidya Mandir, Pune

Essay Writing: Marathi

No Prize was awarded under this category.

Essay Writing: English

First Prize: Aditya Shailesh Lakhe, Abhinava Vidyalaya High School (English Medium), Pune

Second Prize: Gayatri Rajesh Ghondage, Bharatiya Vidya Bhavan Sulochana Natu Vidya Mandir, Pune

Poetry Writing: Marathi

First Prize: Bhargavi Mayuresh Deshpande Ahilyadevi High School for Girls, Pune

Second Prize: Siddhi Satish Pawar, Jnana Prabodhini Navanagar Vidyalaya, Nigdi

Third Prize: Not awarded

Honorary Mention: Ratan Vikas Pawar, Sou. Tarabai Shankarlal Mutha Kanya Prashala, Chinchwad

Poetry Writing: English

First Prize: Kuhu Goel, Delhi Public School, Pune

Second Prize: Durva Vilas Patil, Muktatangan English School & Jr. College, Pune

Third Prize: Neil Cardoz, Loyola High School & Jr. College, Pune

Science Quiz

First Prize: Chinmay Kale, Amogh Bhosekar, Kshitij Joshi, Symbiosis Secondary School, Pune

Second Prize: Abhishek Charudatta Patil, Aryan Pankaj Mahajan, Spruha Harshal Baviskar, Vikhe Patil Memorial School, Pune

Third Prize: Rajesh Pradip Mahajan, Nilavroh Bondyopadhyay, Navit Gupta, Delhi Public School, Pune

Model Making

First Prize: Anand Rahul Kurpe, Apoorv Makrand Pathakji, Manalee Santosh Sinh, Abhinava Vidyalaya High School (Marathi Medium), Pune

Second Prize: Ameya Sathe, Jay Kelkar, Aadit Mulgund, S.P.M. English School, Pune

Third Prize: Atharava Patwardhan, Yash Kulkarni, Shlok Sangamnerkar, DES Secondary School, Pune

Best School Performance: Delhi Public School, Pune



Farewell ...

Karthik Rajeev, who has joined the Indian Association for the Cultivation of Science (IACS), Kolkata, as a Postdoctoral fellow.

Shabbir Shaikh, who has joined the National Institute of Science Education and Research (NISER), Bhubaneswar as a Research Associate.

Kabir Chakravarty, has taken a Postdoc position at the Frederich Schiller University, Jena in Germany.

Pranoti Panchbhai, who has resigned from IUCAA on personal reasons.

- 02.01.2020 Yogesh Maan on *Targeted Searches for Pulsars and Fast Radio Bursts*.
- 07.01.2020 Bhuvnesh Jain on *Galaxy surveys and the possible breakdown of the standard model of cosmology*.
- 09.01.2020 Laura Cadonati on *Looking through the Gravitational-Wave Window on the Universe*.
- 20.02.2020 Nishant Singh on *Stellar magnetic fields, spots, and their imprints on the seismic modes*.
- 05.03.2020 Tirthankar Roy Choudhury on *Theoretical models of reionization*.

- 08.01.2020 Hamsa Padmanabhan on *Intensity mapping: a new window into the cosmos*.
- 17.01.2020 Shashi Kanbur on *Recent Advances in Stellar Pulsation Theory*.
- 22.01.2020 Kalyan Radhakrishnan on *Wavefront sensing using extended stars - Ingot wavefront sensor*.
- 29.01.2020 Prasun Dhang on *Characterizing the mean field dynamo in a Radiatively Inefficient Accretion Flow*.
- 12.02.2020 Amit Seta on *Nonlinear state of the fluctuation dynamo*.

Workshop on Astrophysics and Astronomy for Women in India



A two-day workshop on Astrophysics and Astronomy for Women in India sponsored by IUCAA, Pune was jointly organised by the Department of Physics, Diamond Harbour

Women University (DHWU), West Bengal and ICARD, North Bengal University (NBU) during January 31 - February 1, 2020 at the DHWU campus at Sarisha, 24

Parganas, West Bengal. About 99 M.Sc. students and Research Scholars registered for the workshop. N. Banerjee (IISER-Kolkata), Partha Guha (S.N. Bose National Centre for Basic Sciences, Kolkata), B. C. Paul (NBU) and Kanak Saha (IUCAA), delivered talks.

A poster session was organised on January 31, 2020 in which 18 students participated. The speakers interacted with the students who had put up posters and were quite impressed on the whole.

In the valedictory session, chaired by A. Ghose Choudhury, B. C. Paul in his concluding address to the participants summarised the various presentations and encouraged the students to enter the domain of astronomical research. He handed over prizes to the three best posters as judged by N.

Banerjee and Partha Guha.

B. C. Paul (NBU) and Ranjeev Misra (IUCAA) coordinated the workshop.



Seminar on X-ray Astronomy



A two-day national seminar on X-ray Astronomy was conducted during February 1-2, 2020, by the Department of Physics, St. Thomas College, Ranni, Kerala. The seminar was mainly intended for post-graduate students, research scholars, and teachers. The objective was to create an awareness in the field of X-ray astronomy and also share knowledge about X-ray Sources and X-ray data analysis.

Out of a total of more than 100 applications 37 students and 5 teachers attended the seminar.

The seminar commenced with the Inaugural ceremony on 1st February. Lata Marina Varghese, Principal of St. Thomas college, Ranni, presided over the inaugural function and Ranjeev Misra (IUCAA), being the Chief Guest, inaugurated the event.

The following talks were delivered at the workshop.

- Ranjeev Misra (IUCAA) [3 talks] on *Black Holes in the Universe, AstroSat, and Radiative Processes in Astrophysics*;

- Jithesh V. (IUCAA) on *Overview of X-ray astronomy and X-ray Binaries*;
- Savithri Ezhikode (IUCAA) on *Introduction to AGN*
- K. Indulekha (M.G. University, Kottayam) on *Looking at Stellar Clusters with X-ray Eyes*;
- Ninan Sajeeth Philip (St. Thomas college, Kozhencherry) on *Statistics in Astronomy*.

On both the days, hands-on training for *Installation of X-ray software*. HeaSoft and XMMNewton Software were handled by V. Jithesh and Savithri Ezhikode.

The students found the seminar to be highly relevant and useful and looked forward to similar seminars in the near future.

Ranjeev Misra and Marykutty James were the co-ordinators of the seminar.

The IUCAA-CUTN School on Introductory General Relativity and Cosmology



The IUCAA-CUTN School on Introductory General Relativity and Cosmology was conducted at the Central University of Tamil Nadu (CUTN), Thiruvavur during January 4 - 11, 2020.

T. R. Seshadri (University of Delhi), L. Sriramkumar (IIT Madras), H. S. Mani (CMI) and Dawood Kothawala (IIT-M) were the resource persons and were assisted by Sampurnanand Jha (IIT-M) and Ramkishor Sharma (IUCAA).

Since it had been noted that the Astronomy & Astrophysics activities in the Universities of Tamil Nadu were very limited as compared to those in the rest of the country, it was felt that such Workshops with special emphasis on teaching A&A in this region could correct this anomaly.

This was the second in a series of Schools/Workshops being

conducted by CUTN and IUCAA. While there were participants from different regions of the country, special emphasis was placed on being beneficial for students from Tamil Nadu.

The School was very well attended, with 49 participants,



where 30 were originally planned for. The broad topics covered were General Relativity, Cosmography and Cosmology.

The lectures were followed by extensive tutorial sessions, which on some days went on until 11 pm voluntarily.

The feedback for the program was overwhelmingly positive with a request for more such programs in Tamil Nadu.

T. R. Seshadri, V. Madhurima (CUTN) and Ranjeev Misra (IUCAA) coordinated the event.

The First Billion Years of the Universe using Next-Generation Telescopes

An international conference and school titled ‘**The First Billion Years of the Universe using Next-Generation Telescopes**’ was organized by one of the IUCAA Centres for Astronomy Research and Development (ICARD), the Discipline of Astronomy, Astrophysics and Space Engineering (DAASE), Indian Institute of Technology Indore at its campus in Indore during January 20-31, 2020. The event was sponsored by a SPARC (MHRD) project titled ‘Imaging the first billion years of the universe with next-generation telescopes’, the Square Kilometre Array India consortium of institutes and IUCAA.

The aim of the conference was to discuss the present status and challenges faced by various ongoing and upcoming experiments around the globe, at radio and other wavelengths, that are trying to observe the most unknown phase in the history of our universe i.e. the Cosmic Dawn and the Epoch of Reionization (CD-EoR). The CD-EoR is the epoch when the first sources of light were born and the universe gradually changed its state from being neutral to

ionized. A large number of leading astronomers (both foreign and Indian) have gathered during the first week of the event (20-24 January 2020) and gave invited and contributed talks on the status of the CD-EoR observations using different presently operating radio interferometers e.g. the GMRT, LOFAR, MWA, PAPER, HERA, HIRAX, Tianlai, CHIME, OWFA etc., and with the upcoming future observations with the humongous SKA.

The alternative to radio interferometry, the radio monopole experiments e.g. EDGES, LEDA, SARAS etc and their importance were also discussed. Some of the speakers also discussed the challenges and advantages of observing this era using several future experiments e.g. Euclid, Athena, WFIRST, JWST, ELT, TMT, SPHEREx, TIME, CONCERTO etc. which will operate in other than radio wavelengths.

A significant number of talks were also focused on strategies to extract the optimum amount of information from such future observations and their accurate interpretations using



numerical simulations, novel statistics, machine learning and artificial intelligence.

The list of invited and contributed speakers (can be found here - <http://tiny.cc/z6fmlz>) had a good mix of nationality (~50% foreign and ~50% Indian), gender and career stage (tenured faculties, early career researchers, postdocs, PhD and Masters students). A detailed list of participants (~70) of the conference with their affiliations can be found here - <http://tiny.cc/wdgmlz>.

To find innovative solutions to the various observational and technical obstacles faced by these new-generation experiments and to analyze and interpret the unprecedented amount of observational data generated by them, we will need a large pool of highly skilled and motivated researchers. With this goal in mind, the following week of the conference was dedicated for a five-days-long school (January 27 - 31, 2020) for Masters and Ph.D. students, postdocs, and early career researchers who wish to conduct active research in this vibrant field.

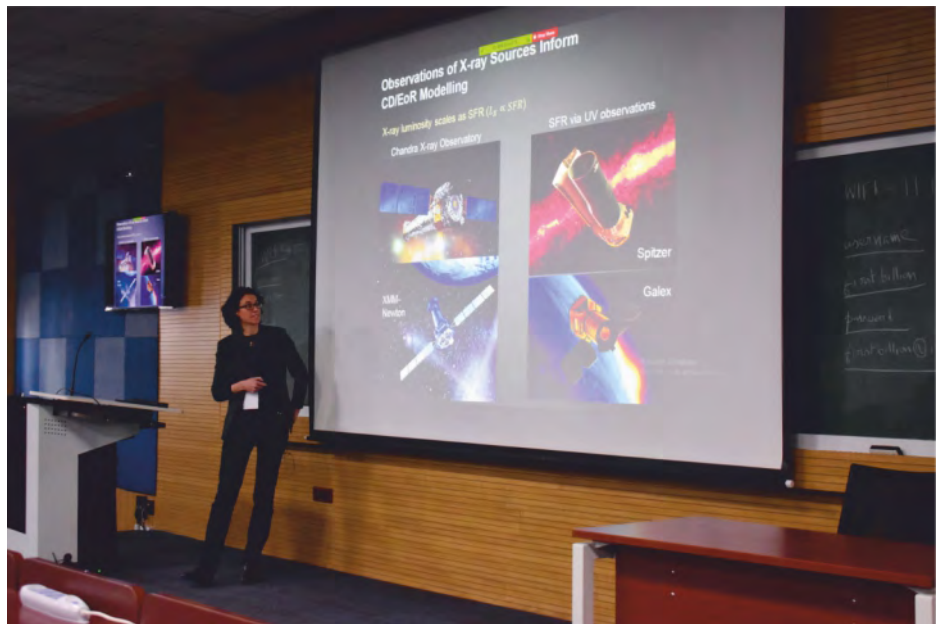
The school consisted of a series of lectures (on cosmology, structure formation, first stars, CD-EoR, numerical simulations, statistical tools, radio interferometry, observational strategy and interpretation techniques), hands-on demonstrations, and discussions by the leading national and international experts in the field (detailed list of topics covered during the lectures and hands on sessions can be found here - <http://tiny.cc/nagmlz>).

The most popular session of the school was

a three hour long game (designed and conducted by Erik Zackrisson of Uppsala University) where the participants were competing against each other to design the best observation strategy for different real life astrophysical problems.

As a part of the school, Erik Zackrisson gave a public lecture on ' Searching for life in outer space '. The public lecture was attended by 150+ people from the IIT- Indore community. This school was part of the ongoing effort of the SKA-India consortium, which has been conducting such schools annually since 2016. A detailed list of participants (~40) of the school with their affiliations can be found here - <http://tiny.cc/87fmlz>.

The Coordinators were Suman Majumdar and Abhirup Datta (IIT-Indore) and Ranjeev Misra (IUCAA).



Public Outreach Activities

Science Toys Demonstrations in Schools, Pune

From January to March, 2020, Rupesh Labade (IUCAA) organised and conducted science toys demonstrations at different schools in and around Pune.

These include Novel Junior College, Chinchwad, Maharshi Karve Vidyalyay, Pune, Mahilashram High School, Pune. Around 300 students benefited from this activity.

Telescope Assembly Workshop at BITS Pilani, Hyderabad

BITS - Pilani, Hyderabad organised telescope assembly workshop during January 18 - 19, 2020.

Tushar Purohit and Atharva Pathak were the resource persons from IUCAA.

Teachers Training, Silvassa

A training event for teachers from all the Government schools of the Union Territory of Dadra-Nagar Haveli was organised by the Office of Education, DNH on January 30, 2020. Sonal Thorve and Atharva Pathak were the resource persons from IUCAA. The training was aimed at providing the teachers an exposure to Astronomy and to allow them to explore hands-on tools and demonstrations to make teaching Astronomy in schools fun and easy to understand. About 80 teachers participated and enjoyed the training.



Thirty Meter Telescope (TMT) Outreach Week, Delhi

The IUCAA SciPOP team consisting of Rupesh Labade, Shivom Gupta and Vaibhav Sawant helped conduct the TMT outreach week (February 4 - 8, 2020) in National Science Centre, Delhi.

They performed a special themed play combined with science demos highlighting the developments since the time of Galileo Galilei.

Several lectures by TMT project experts were also conducted, which saw a good response from school and college students.



Other Events

On January 8, 2020, Samir Dhurde gave an inaugural talk at the inauguration function of the astronomy club of Sir Parshurambhau College, Pune.

Rural Outreach events

Science Toys Demonstrations in Schools, in and around Girawali

Science toys demonstrations during the quarter January to March 2020, were organised and conducted by Rupesh Labade, in Amruteshwar Arts, Commerce and Science College (Vinzar), Shri Hanuman Vidyalay (Gangapur) and Pandharinath Vidyalay (Pokhari). Around 300 students in total participated in and enjoyed the workshop.



Second Saturday Lectures

- February 8, 2020: Helen Mason (University of Cambridge), on *From Sun to Earth (in English)*
- February 8, 2020: Samir Dhurde (IUCAA), on *From Sun to Earth (in Marathi)*

Public Talks

- January 8, 2020: Bhuvnesh Jain, (University of Pennsylvania), on *Pursuing the Shadow of a Black Hole*.
- February 3, 2020: Arnab Rai Choudhuri (Indian Institute of Science, Bengaluru), on *How the Saha Ionization Equation was discovered*.

All talks are being made available at our YouTube channel - <https://www.youtube.com/user/IUCAASciPOP/>

Other Regular Events

The IUCAA Public Outreach team has conducted 5 science toys workshops, 2 basic astronomy workshops, 4 campus visits and 2 sky-watch sessions with an approximate outreach to about 600 people, during the quarter January to March 2020.



Visitors

January - March 2020

Linn Abraham, Rana Adhikari, K. Aditya, Nafisa Aftab, Anirban Ain, Jayesh Ambe, H.M. Antia, Ayumi Asai, Subramania Athiray, Lekshmi B., Ravindra B., Agnibha Banerjee, Dipankar Banerjee, Samuzal Barua, Arnab Basak, Vijay Bedakihale, Ankita Bera, Prasanta Bera, Shubham Bhagat, Aditi Bhatnagar, Shamik Bhattacharjee, Subhra Bhattacharya, Gautam Bhattacharyya, Ramit Bhattacharyya, Souradip Bhattacharyya, Prantika Bhowmick, Arun Kumar Bidhan, Aparna Bisht, Susanta Bisoi, Su-Chan Bong, Kamlesh Bora, Aditi Borse, Dipali Sadashiv Burud, Sangeetha C.R., Thejas C.S., Sariga C.M., Laura Cadonati, Jongchul Chae, Avinanda Chakraborty, Gargee Chakraborty, Sumanjit Chakraborty, Sreelakshmi P. Chakyar, Ramesh Chandra, Satish Chandra, Suresh Chandra, Goutami Chattopadhyay, Surajit Chattopadhyay, Sneha Chaudhari, Mark Cheung, R.K. Chhajlani, Iulia Chifu, S.M. Chitre, Komal Choranghe, Kyuhyoun Chou, Debi Prasad Choudhary, Sarthak Choudhary, Arnab Rai Choudhuri, Rudrani Kar Chowdhury, Sourav Roy Chowdhury, Peter Couvares, Pravart Danggal, Debashis Das, Soumyaranjan Dash, Ranadeep Ghosh Dastidar, Debabrata Deb, Kabita Deka, Giulio Del Zanna, Avinash Deshpande, Pooja Devi, Sapam Gayatri Devi, Prasun Dhang, Payaswinee Dhoke, Dattaraj Dhuri, Indu Kapla Dihingia, Vijayakumar H. Doddamani, Laurent Dolla, Urmi Doshi, Broja Gopal Dutta, Saili Dutta, Bhola N. Dwivedi, Aarti Fulara, Sindhuja G., Bhooshan Gadre, Akash Garg, Garkoti, Blesson George,

Jeethu George, Sushant G. Ghosh, Sarah Gibson, Marcel Goossens, G.K. Goswami, Umananda Dev Goswami, Milind Gowardhan, Sagar Sing Goyary, Girjesh R. Gupta, Manu Gupta, Prateek Gupta, Priti Gupta, Sagar Kumar Gupta, Sree Kanth H., Mubashir Hamid, Giles Hammond, Gajanan D. Harale, Mohammad Hasan, Siraj Hasan, Gopal Hazra, Jyotishree Hota, Nazma Husain, Kiyoshi Ichimoto, Satoshi Inoue, Nazma Islam, Annu Jacob, Dhairyashil Jagadale, Sandhya Jagannathan, Bharat Kumar Jain, Bhuvnesh Jain, Rajmal Jain, Bibhuti Kumar Jha, Jobin Mathew Jose, Bhuwan Joshi, Navin Chandra Joshi, Yogeshkumar Dileepkumar Joshi, Amareswari K., Safna Banu K., Anusree K.G., Peter Kamphuis, Shashi Kanbur, Suny, Juhyeong Kang, Sachin Kaothekar, Maarit Kapyla, Bidya Binay Karak, Aditi Shiv Shankar Kaushik, Sonia Kaushik, Subhash Kaushik, K. Sri Kavaya, Karan Kedia, Sanika Khadkikar, Aafaque Khan, Sheeraz Ahmad Khanday, Roksoon Kim, Yeon-Han Kim, Gopal Krishna, Anil Kumar, Pramod Kumar, Prashant Kumar, Sanjay Kumar, Subham Kuri, Adesh Kushwaha, Aleksander Kutsenko, Hannah Kwak, Ryun Young Kwon, Andreas Lagg, Chia-Hsien Lin, Vishnu Madhu, Ashish Mahabal, Satabdwa Majumdar, Dishari Malakar, Manzoor A. Malik, Zahoor Ahmad Malik, Gitika Mall, Labani Mallick, Ramya Manjunath, Yogesh Mann, Azad Ahmad Mansoori, Manoj Kumar Manuj, Aaqib Manzoor, Helen Mason, Shibu K. Mathew, Takuma Matsumoto, Ram Ajor Maurya, Rakesh Mazumder,

Ashish Meena, Sudheer Mishra, Wageesh Mishra, Shrish Misra, Prabir Mitra, Urmila Mitra-Kraev, Nishant Mittal, Rajsekhar Mohapatra, Chayan Mondal, Soumen Mondal, Aabha Monga, Sneha Prakash Mudambi, Subroto Mukherjee, Vasantharaju N., Sachindra Naik, Dibyendu Nandi, Ankur Nath, Rajesh Nayak, Sushree Sangeeta Nayak, Hafiz Nazeer, K. Niharika, Joe Philip Ninan, Niku Nitin, Angel Priyana Noel, Abid Zainul P., Vemareddy P., Jain Jacob P.T., Manjusha P.V., Shamin Padalkar, Hamsa Padmanabhan, Mayukh Pahari, Atasi Pal, Sanchita Pal, Sambit Kumar Panda, Arun Kumar Pandey, Deepak Pandey, S.K. Pandey, Shravani Pandit, Umangkumar Vijaykumar Pandya, Manu Paranjape, Himaben Patel, Ritesh Patel, K.D. Patil, Abhinav Patra, Sayan Patra, Arghyadeep Paul, B.C. Paul, Nupur Paul, Surajit Paul, Ninan Sajeeth Philip, Andrey Plotnikov, Anil Prabhakar, Maya Prabhakar, Anirudh Pradhan, Ram Prasad Prajapati, Avijeet Prasad, Akshay Priyadarshi, Kalyan Radhakrishnan, A. Mujiber Rahman, Harsha Raichur, Sendhil Raja, Paul Rajaguru, Karthik Rajeev, Rambir, Chayan Ranjit, Sujata Kundu Ranjit, A.R. Rao, Umakant Rapol, Balveer Singh Rathore, Swara Ravindranath, Divya Rawat, Saibal Ray, Prabir Rudra, Sonali Sachdeva, Dinesh Saini, Prasant Kumar Samantray, Joy Sanghavi, S. Sankarsubramanian, Aveek Sarkar, Ranadeep Sarkar, Rathin Sarma, Sujan Kumar Sengupta, Jungjoon Seough, Amit Seta, Suraj Shahu, Zubair Shaikh, Jaidev Sharma, Lakhi Sharma, Vipin

Kumar Sharma, Swarnim Shashank, Gargi Shaw, Juie Shetye, Kazunari Shibata, Toshifumi Shimizu, Masumi Shimojo, Estuti Shukla, Gyan Prakash Singh, Jagdish Singh, K.P. Singh, Prithvi Raj Singh, Vivek Singh, Yatendra Singh, Suvadip Sinha, Ritika Solanki, Deepak Kumar Sondhiya, Shirish Soni, Vikram Soni, Shanwlee Sow Mondal, P. Sreekumar, Neha Srivastava, Vandna Srivastava, Ravi

Subrahmanyam, Annapurni Subramaniam, Harley Suchiang, Yoshinori Suematsu, S. Sunil, Jishnu Suresh, Unnikrishnan Sureshkumar, Subhashree Swain, Sreelakshmi T., Rajalakshmi T.R., Mukul Tewari, Jessymol Thomas, Sanish Thomas, Alexei Toporensky, Vinutha Tummala, Satoru Ueno, Anisul Ain Usmani, Ramshad V.R., Sravani Vaddi, Manoj Varma, Gunjan Varshney, Nisha Vasant,

Ram Vashisht, Punyakoti Ganeshaiah Veena, P. Venkatakrishnan, Murli Manohar Verma, Aditya Vidhate, R.G. Vishwakarma, Pavan Vynatheya, Rahul Kumar Walia, Michael Wheatland, Chin-Chun Wu, Kentaro Yaji, Urjit Yajnik, Daiki Yamasaki, Heesu Yang, Anastasiya Zhukova, Varun, Yamini.

Visitors Expected

April 2020: No visitors

May 2020

Tanwi Bandyopadhyay, Adani Institute of Infrastructure Engineering, Ahmedabad; Sarmistha Banik, BITS-Pilani, Hyderabad; Ujjal Debnath, IEST, Shibpur, West Bengal; Broja Gopal Dutta, Rishi Bankim Chandra College, West Bengal; Saibal Ray, Govt. College of Engineering and Ceramic Technology, West Bengal; Sudipta Sarkar, Indian Institute of Technology, Gandhinagar.

June 2020

Samarjit Chakraborty, St. Xavier's College, Kolkata; Sarbari Guha, St. Xavier's College, Kolkata; Kishor Ram, Central University of Rajasthan, Rajasthan.

Long Term Visitors

Avinash Deshpande, Raman Research Institute (Retd.), Bangalore (Visiting Professor), David Hilditch, University of Lisbon, Portugal (Adjunct Faculty), Ashish Mahabal, CALTECH, USA (Adjunct Faculty), Ninan Sajeeth Philip, Artificial Intelligence Research & Intelligence Systems, Kerala (Visiting Professor), A. R. Rao, Mumbai (Visiting Professor).

Khagol (the Celestial Sphere)
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