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Visit of UK Secretary of State for International Trade

Rt. Hon. Dr. Liam Fox, the UK Secretary of State for International Trade, visited IUCAA on November 9, 2016. He was in India as part of a Trade Delegation, led by the British Prime Minster, attending the UK-India Trade Summit in New Delhi, following which, he spent a day in Pune. His first stop was at IUCAA, along with Mr. Kumar Iyer, the UK Deputy High Commissioner for Western India; Mr. Colin Wells, Deputy Head of Mission; Ms. Lisa Banks, Private Secretary to the Secretary of State; Ms. Amy Tinley, Special Adviser to the Secretary of State, and other members of the British High Commission in India and the Foreign and Commonwealth Office.

Among the topics of discussion were the current and future academic collaborations with UK institutions, student exchange programmes, and academia-industrial partnership between the two countries. In particular, cooperation in space science projects, and capacity building for LIGO-India were discussed. The Secretary of State mentioned the recent announcement of the enhancement of the Newton-Bhabha Fund, and other sources of support.

The Director showed the visitors around IUCAA, after which there was a short discussion meeting with the faculty, some of the students and postdoctoral fellows, who work in the above areas, under the banyan tree with Sir Isaac Newton. Professor Jayant Narlikar and Professor Sanjeev Dhurandhar were also present.

The 28th Foundation Day Lecture

IUCAA Foundation Day Lecture was delivered by Professor Ramakrishna Ramaswamy, currently at the School of

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The 28th IUCAA Foundation Day Lecture continues...

Physical Sciences and the Centre for Computational Biology and Bioinformatics, Jawaharlal Nehru University, New Delhi. Professor Ramaswamy's early career started at Princeton University and the California Institute for Technology, following which, he has worked at TIFR, Mumbai, and at JNU for most of his academic life. He was the Vice-Chancellor of the University of Hyderabad during 2011-2015, and is currently the President of the Indian Academy of Sciences, Bengaluru.

Professor Ramaswamy delivered the lecture on Symmetries and Spontaneous Symmetry Breaking in Coupled Dynamical Systems: Chimeras. Networks of identically coupled non-linear oscillators can in some circumstances spontaneously split into subgroups with different dynamical characteristics. In the simplest examples, there are two subgroups, one of which is fully synchronised, while the other is de-synchronised; more complex dynamical patterns are possible. Chimeras were first discovered in numerical studies, but have, in the past two decades, been seen in a number of experiments, and were believed to underlie interesting physiological states such as uni-hemispheric sleep that sea mammals and birds experience. Other situations where such states of broken symmetry may be relevant, including ventricular fibrillation, and the so-called bump states in neural networks. Professor Ramaswamy expounded these ideas with the help of beautiful examples from nature, such as the periodic flashing of light from certain species of fireflies, as well as fascinating visuals from numerical studies of chimeras that reveal their complex spatio-temporal patterns.

Congratulations to...

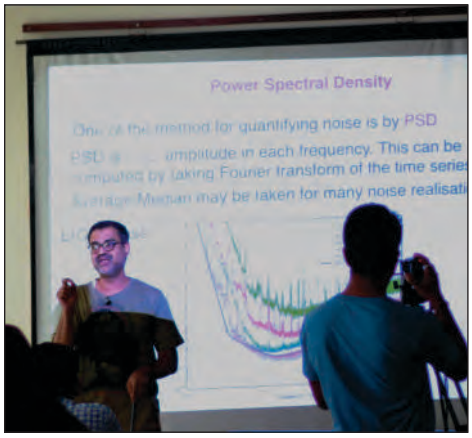
Sanjit Mitra, on being awarded the ***SwarnaJayanti Fellowship*** of the Department of Science and Technology, Government of India.

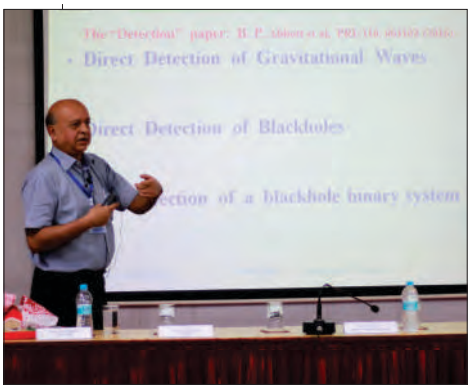
National Workshop on Gravitational Wave Astronomy

A National Workshop on Gravitational Wave Astronomy (NWGWA) was organized by the Department of Physics, Dibrugarh University, in collaboration with IUCAA, during November 2 - 4, 2016. The primary objective of this workshop was to kindle the research interest among the new generation of researchers into this most exciting and challenging new field of astronomy. Fifty seven enthusiasts from all over India participated in this workshop.

The inaugural session was held in the Indira Miri Conference Hall of the Dibrugarh University, and the welcome address was delivered by the local coordinator of the workshop, Umananda Dev Goswami (Dibrugarh University), and the inaugural address was by Prodeep K. Borua (Dean, Research and Development, Dibrugarh University). Tarun Souradeep (IUCAA, the coordinator of NWGWA) spoke about the various programmes of IUCAA for the benefit of university faculty.

The chief guest of the session and the keynote speaker of the workshop was Sanjeev Dhurandhar (IUCAA), and he spoke on Einstein right once again: Gravitational waves detection and astronomy. In this address, he explained lucidly about the physics related with the General Theory of Relativity, its correct predictions of the gravitational waves and its detection. Souradeep, who is also the spokesperson of LIGO-India project, delivered a lecture on scientific prospects and challenges ahead with the LIGO-India. Lectures on the theory of gravitational waves and compact sources were delivered by Sukanta Bose (IUCAA), and Rajesh Kumble Nayak (IISER, Kolkata) gave lectures on tensor analysis, parameter estimation and observed events of gravitational waves with their detection aspects. A course on general theory of relativity, general sources of gravitational waves and gravitational wave astronomy was given by Chandra Kant Mishra (IIT Madras, Chennai). Nathan K. Johnson-McDaniel (ICTS, TIFR, Bengaluru) gave a lecture on the numerical relativity. Tutorial sessions were conducted by Dhurandhar on the general theory of relativity, and Johnson-McDaniel on the python programming language and the gravitational wave data analysis. Indeed it was a most successful event as supported by the feedback of participants.





Introductory Workshop on Astrophysics and Cosmology

The Introductory Workshop on Astrophysics and Cosmology, organized by the Department of Physics, Aliah University (AU), Kolkata, in collaboration with IUCAA Resource Centre (IRC), Kolkata, was held during September 26 - 28, 2016, at the Newtown Campus of AU. AU is rooted to the Calcutta Madrasah, the oldest educational institute of India, established in 1780 by Warren Hastings, the then Governor of India.

Nearly 160 participants from all over India attended the workshop, and was inaugurated by Amitava Roy (VECC, Kolkata). The first introductory lecture by Somak Raychaudhury (IUCAA), entitled, Observing stellar mass and super-massive black holes, set the tune of the workshop. Ajit Kembhavi (IUCAA) gave a lecture on White dwarfs and neutron stars, which inspired the participants, particularly the students and research scholars. The second session started with the sequel lectures of Raychaudhury and Kembhavi, and concluded with the energetic lecture of Suchetana Chatterjee, entitled, The cosmological evolution of super-massive black holes.

On the second day, there were lectures by Biplab Raychaudhury on Prediction and experimental tests of Einstein's theory of gravitation, Narayan Banerjee on Quantum cosmology, Sailoananda Mukherjee on Strange star: Theory and observation, Subenoy Chakraborty on Universal thermodynamics in the perspective of dynamical black hole, and Farook Rahman on Casual structure of spacetime. On the third day Bikash Chandra Paul gave a lecture on Emergent universe: Theory and observations. Astrophysical modelling through Monte-Carlo simulation was briefly described by Tanuka Chattopadhyay, and Saibal Ray delivered a lecture on Accelerating universe: Role of dark energy. Mehedi Kalam (AU, and Visiting Associate of IUCAA), and Ranjeev Misra (IUCAA) were the conveners of the workshop.

Workshop on Structure Formation in Standard Cosmology

The Department of Mathematics, BITS-Pilani-Hyderabad Campus, organized a workshop on Structure Formation in Standard Cosmology, during December 19 - 23, 2016. The workshop was sponsored by IUCAA. There were 30 participants from different universities, IISER-Tirupati, and BITS-Pilani-Hyderabad. The idea behind organizing the workshop was to identify the candidates from various universities at the early stage of their research career, and introduce them to the field of structure formation and the different ways in which one can contribute to the field, i.e., theoretical modelling, data analysis or simulations. The first half of the lectures was to brush up the knowledge of standard cosmology and also introduce the participants to the basics of structure formation. Second half of the workshop was focused on understanding the data gathered from various surveys, connecting it with the theoretical models of structure formation, and also analyzing this data. Aseem Paranajape, R. Srianand (both from IUCAA), Subhabrata Majumdar (TIFR, Mumbai),Nishikanta Khandai (NISER, Bhubaneshwar) and N.D. Haridass (TCIS, Hyderabad) handled the lectures and hands-on sessions.

The organizing committee for the workshop consisted of Bivudutta Mishra (BITS-Pilani-Hyderabad), and Aseem Paranjape (IUCAA) as the coordinators, and Rahul Nigam, and Pradyumn K. Sahoo (both from BITS-Pilani-Hyderabad) as the conveners.

Farewell to ...

Sumanta Chakraborty, has joined Indian Association for Cultivation of Science, Kolkata, as a Post-doctoral Fellow.

Suvodip Mukherjee, has joined CNRS, France, as a Lagrange Post-doctoral Fellow.

Debarshi Basu, has joined the Indian Institute of Technology Delhi, as a Research Scholar.

International Conference on Oriental Astronomy

The International Conference on Oriental Astronomy (ICOA) was organized during November 15 - 18, 2016, at the Indian Institute of Science Education and Research (IISER), Pune. The conference was a collaborative effort between various institutes, with IUCAA a partner. The ICOA series focuses on the history of Asian astronomy. This conference, the ninth in the series, focused on the Indian astronomy, which itself was poorly understood outside India, and has only been studied systematically within India in the last couple of decades.

A pre-conference workshop, during November 11 - 14, was held to expose the Indian astronomy to young researchers, post-docs, and students in this field. The main event of ICOA was inaugurated by Jayant Narlikar (IUCAA). There were about 40 Indian and Asian scholars, who presented their studies on subjects ranging from Megalithic and other pre-historic astronomy to the relation between astronomy and mathematics, Chronology, Maritime astronomy, etc. A public lecture, titled "The Emergence of Radio Astronomy in Asia: Opening a New Window on the Universe" was also delivered by Wayne Orchiston (National Astronomical Research Institute, Thailand) and Govind Swarup (NCRA).

Mayank Vahia and Aniket Sule (both from the Tata Institute of Fundamental Research, Mumbai) were the driving force of this conference. Jayant Narlikar as Chairperson and Ajit Kembhavi (IUCAA) were part of the National Advisory Committee, with Samir Dhurde (IUCAA) being part of the Local Organising Committee of ICOA. Sonal Thorve (IUCAA) gave additional support as volunteer and logistics coordinator.

Workshop on Introduction to Solar Astrophysics

Even though Sun is our nearest star and is very important to us, solar astrophysics does not form a part of the usual science curricula in colleges. In recent times, very interesting and new knowledge in this field has emerged through the launch of many international satellite missions. The upcoming Indian solar mission, 'Aditya - L1', expected to be launched by ISRO in the beginning of the next decade, is sure to usher in an era of great advancements in this field, in the country. In this scenario, it was high time to introduce this very interesting and important topic of astronomy to the student community, and this was the motivation for conducting a workshop in this field.

The Workshop on Introduction to Solar Astrophysics was held during November 30 - December 2, 2016, at M. A. College, Kothamangalam, Kerala, under the auspices of the IUCAA Resource Centre, Kochi. The workshop was attended by fifty selected post-graduate and under-graduate physics students from all over the country, and was inaugurated by Helen Mason (Solar Astrophysicist, University of Cambridge, U.K.) Densely Jose (Principal, M.A. College) presided, and Smitha Thankachan (Department of Physics, M.A. College), V.C. Kuriakose (IRC, Kochi) and Durgesh Tripathi (IUCAA) felicitated the workshop.

The resource persons were: Mason, Tripathi, Venkita Krishnan (Formerly of PRL, Ahmedabad), Nandita Srivastava (PRL), and Aveek Sarcar (PRL). The major topics of lectures were: Introduction to the Sun, Solar activity and eruptive phenomena, Solar interior and Helioseismology, Magneto-hydrodynamics of Sun, Solar wind and space weather, High resolution spectra from the Sun and Current and upcoming facilities for solar observations.

An important feature of the workshop was the sessions conducted at the evenings, wherein the participants presented posters in different aspects of solar astrophysics. Each poster was prepared by a group of students from the participating institute/college. The resource persons viewed these posters and discussed with the participants.

Tripathi was the coordinator, and Joe Jacob (Newman College, Thodupuzha) and Benoy M. D. (M. A. College) were the local conveners of the workshop.

IUCAA- APT Workshop on Virtual Observatory

IUCAA Resource Centre at Cochin University of Science and Technology (CUSAT), Kochi, along with Academy of Physics Teachers (APT), Kerala, organised a Workshop on Virtual Observatory during July 16 – 17, 2016 at S. H. College, Chalakudy, Kerala. The uniqueness of the programme was that it was targeting teachers from various colleges and universities in the region, and was attended by 45 physics teachers from southern states. The workshop gave them hands-on training for doing basic and advanced projects using the Virtual Observatory tools. The workshop was envisaged as a training programme to reach out to the large student community to meet the high demand in astronomy research foreseen in the coming decades.

The resource persons were: Sheelu Abraham (IUCAA), Savithri Ezhikkode (St. Thomas College, Kozhencherry), Ajit Kembhavi (IUCAA), V. C. Kuriakose (CUSAT), Ranjeev Misra (IUCAA), Ninan Sajeeth Philip (St. Thomas College, Kozhenchery), and C. D. Ravikumar (University of Calicut, Kozhikode).

The workshop included basic topics on astronomy fundamentals, astronomical jargon, compact objects, and galaxies, besides lectures on the core topics in astronomical data analysis and virtual observatory.

The two hands-on sessions were handled by Sheelu Abraham, Savithri Ezhikkode, and Ninan Sajeeth Philip. A brief introduction to astronomical data, data access methods, virtual observatory tools and Linux fundamentals were introduced prior to the hands-on sessions. Porteus ATMA (portable Linux OS), copied in pen-drives, was given, using which the participants did their projects. The use of Astronomical Data Service websites, like Aladin, Vizier, Sinbad was also demonstrated.

The workshop was inaugurated by Kembhavi with a talk on compact objects. Nijo Varghese (S. H. College), G. Harikrishnan (Government College, Madappally, and Secretary, APT) and Joe Jacob (Newman College, Thodupuzha) were the local organizers/coordinators of the workshop.

Public Outreach Activities at IUCAA

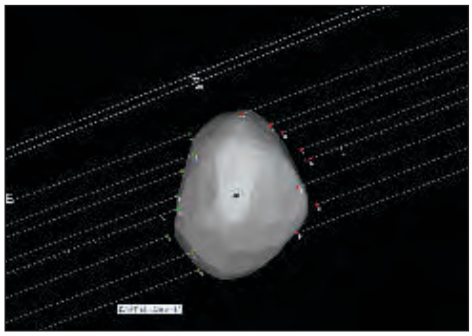
FameLab Regional Competition and Science Communication Workshop

Ruchika Seth presenting her theme at the Famelab Competition

Ruchika Seth (IUCAA Research Scholar) and Sumeet Kulkarni (IUCAA Project Student) have participated in the Western Region leg of "FameLab", the world's biggest science communication competition, organised by the British Council, at the Indian Institute of Technology, Mumbai, during December 13 - 16, 2016. Sumeet has been selected for the regional finals. They also attended the special workshop on Science Communication. The resource persons of the workshop included Iain Stewart (U.K. Facilitator) and Subhra Priyadarshini (Nature India). Samir Dhurde (IUCAA) was invited to present the Indian perspective on the field of science communication for science students.

Occultation of Asteroid 22 Kalliope

A successful collaborative observation of Occultation of the Asteroid 22 Kalliope was conducted at various locations on December 25, 2016, by the amateur astronomy group, Jyotirvidya Parisanstha, and expert observer Paul Maley (International Occultation Timing Association, USA) in consultation with IUCAA. As a precursor to this, a special seminar by Maley was arranged on December 22, 2016. This helped to prepare the groups and better coordinate the observations. Teams from three other groups: Akashmitra, Centre for Citizen Science, and Nehru Planetarium participated in the observations from 22 sites in Maharashtra. Kanti Jotania (The M.S. University of Baroda, Vadodara) and his five students also time the occultation from Gujarat. This effort resulted in the rough estimation of the shape of the asteroid.



Asteroid Kalliope: Approximate shape of the Asteroid has been estimated via the collaborative observations

Other Regular Events

The staff of IUCAA Muktangan Vidnya Shodhika has conducted 18 science toys workshops, 7 basic astronomy workshops, 6 campus visits, and 7 sky watching sessions, with an approximate reach to about 2,000 people.

Second Saturday Lecture

October: Samir Dhurde (IUCAA) on DIY Geology.

November: Shrikant Pawar (National Centre for Cell Science, Pune) on Wonders of Microbiology.

December: Dilip G. Kanhere (S. P. Pune University, Science Park) on The Ecology in and Around us.

Workshop on Hands-on Astronomy

As part of IUCAA's teacher training efforts, a 2-day Workshop on Hands-on Astronomy was organised at MVS, IUCAA, during October 17 - 18, 2016, for the mentors of a voluntary organisation, ARCH, which has been working in the tribal belt in Gujarat. Ten mentors and 4 trainee participants, engaged in educational work, were part of this workshop, which gave them an opportunity to learn basic astronomy principles, simple hands-on activities as well as provided interaction with IUCAA astronomers. Sanjit Mitra talked about how to answer challenging science queries that often come from the public. The workshop was coordinated by Samir Dhurde and Sonal Thorve, with support from Maharudra Mate and Nilesh Pokharkar.

Colloquia

06.10.2016 Aseem Paranjape on ***Assembling the Universe***. 18.10.2016 David Hilditch on ***Dual foliation formulations of general relativity.*** 03.11.2016 Guillermo Blanc on ***Chile: The world capital of astronomy***.11.11.2016 Sze-Leung Cheung on ***To make astronomy available for everyone - the roadmap of the IAU Office for Astronomy Outreach***. 17.11.2016 Janardhan P. on ***Is a Maunder like "grand" solar minimum around the corner***? 01.12.2016 Sanjit Mitra on ***Stochastic gravitational waves: Windows to the unknowns***. 15.12.2016 Govind Swarup on ***GMRT observations of Venus***. and 22.12.2016 Paul D. Maley on ***An eclipse of a star by a minor planet over India as a catalyst for future astronomical research.***

Seminars

19.10.2016 Ahmedov B.J. on ***Optical properties and shadow of axially symmetric black holes,*** 26.10.2016 Bindu Rani on ***High-energy emission from blazars,*** 16.11.2016 Sambit Roychowdhury on ***BAO from integrated neutral gas observations (Bingo),*** 07.12.2016 Sourav Chatterjee on ***Star cluster dynamics and merging black hole binaries,*** 14.12.2016 Amit Seta on ***Cosmic ray propagation: A correlated random walk,*** and 21.12.2016 Manu Paranjape on ***Gravitationally induced quantum transitions and the graviton laser.***

Visitors

(October - December 2016)

Oluwashina Adegoke, Rana Adhikari, Chaitanya Afle, P.C. Agrawal, Poonam Agrawal, Shubham Rajiv Agrawal, Bobomurat Ahmedov, Md. Sabir Ali, Muhammed Amir, S.W. Anwane, Jagdish Arora, Kalyani Bagri, C. Balamurugan, Srikumar Banerjee, Naseer Iqbal Bhat, Pallavi Bhat, Parag Bhattacharya, Shanti Bhattacharya, Swastik Bhattacharya, Maitraya Kanta Bhattacharyya, Yashpal Bhulla, Satyaban Bhunia, K.G. Biju, Preeti Biren, Nigel Bishop, Guillermo Blanc, Jeandrew Brink, Koushik Chakraborty, Supratic Chakraborty, Vikas Chand, Harish Chandra, Suresh Chandra, Sourav Chatterjee, Subhamoy Chatterjee, Asis Kumar Chattopadhyay, Goutami Chattopadhyay, Surajit Chattopadhyay, Tanuka Chattopadhyay, Kapil Sitaram Chaudhari, Virander S. Chauhan, Sze-Leung Cheung, Kaushik Chonkar, Akash Mukeshbhai Chothani, Manojendu Choudhury, Rudrani Kar Chowdhury, Sourav Roy Chowdhury, Maria Rosario D'Antonio, Abhishek Das, Amit Das, Indranil Das, Arnab Dasgupta, Vinayak Dave, Debabrata Deb, Tirna Deb, Ujjal Debnath, Shantanu Desai, Atri Deshamukhya, Payaswinee Dhoke, Suresh Doravari, P. Duraisamy, Jibitesh Dutta, Savithri Ezhikode, Andreas Freise, Ritesh Ghosh, Shounak Ghosh, Sushant G. Ghosh, Sutapa Ghosh, Rupjyoti Gogoi, Arun Grover, Tamal K. Guha, Anshu Gupta, Prateek Gupta, Rajalakshmi Gurumurthy, Richard Bryan Hall, K.P. Harikrishnan, David Hilditch, Tanvir Hussain, Varun Immanuel, Bala Iyer, Joe Jacob, Shreejit Jadhav, Dhairyashil Jagadale, Jayesh Chandmaljibhai Jain, Karan Jani, Sharda Keshav Jogadand, Reju Sam John, James Johnson, Kaushik Joshi, Rajas Joshi, U.C. Joshi, Kanti Jotania, Anusree K.G., Bhaskar Kanseri, Disha Kapasi, Dalip Kapur, Adarsh Kashyap, Rajendra Khairnar, Rukaiya Khatoon, Ram Kishor, Ioannis Komis, Praveen Kumar, S. Rathna Kumar, Sonal Kumawat, Sayan Kundu, Pankaj Kushwaha, D.D. Lal, Anant Madhukar, Shiva Kumar Malapaka, Aadil Aiyubbhai Malek, Paul Maley, Abhijit Mandal, Soma Mandal, Sana Mansoori, Bari Maqbool, Helen Mason, Sujay Vivek Mate, Kunal Mooley, Mostako, Pradip Mukherjee, Pramod G. Musrif, Juli Nagda, Sachindra Naik, K. Rajagopalan Nair, Remya Nair, Nilam Navale, Rajesh Kumble Nayak, Rahul Nigam, Mohammed Owais, Sreejith Padinhatteeri, Janardhan Padmanabhan, Archana Pai, Barun Kumar Pal, Judy Lynn Palmer, Ramesh Chandra Panda, Mahadev Pandge, P.N. Pandita, Uma Papnoi, Manu Paranjape, Rohankumar Maheshbhai Patel, K.D. Patil, M.K. Patil, B.C. Paul, Debdutta Paul, Surajit Paul, Pramod Pawar, Anil Prabhakar, Dinesh Ranjan Pradhan, Ved Prakash, Kalyan Radhakrishnan, Usuf Rahaman, Ashok Kumar Rai, Sendhil Raja, Sabareesh Geetha Rajasekharan, Karthik Raman, Ramakrishna Ramaswamy, Priyanka Ramchandani, Nirmala A. Ramtekkar, Bindu Rani, A.R. Rao, B.S. Ratanpal, B.T. Ravishankar, Saibal Ray, Sambit Roychowdhury, P.C. Sachin, Anirban Saha, Sanjay Kumar Sahay, Sunder B. Sahayanathan, Manuel Jose Saldias, Nirmalya Samanta, Prasant Kumar Samantray, Aveek Sarkar, Amit Seta, Biren Shah, Parita Rajkumar Shah, Zahir Ahmad Shah, Brett Noah Shapiro, Aishawnnya Sharma, Ajay Sharma, Kunal Sharma, Parag Sharma, Ramkishor Sharma, Ranjan Sharma, N.C. Shivaprakash, H.S. Sunil Simha, H.P. Singh,Neha Singh, R.P. Singh, Ram Singh, Suprit Singh, Ravi Sinha, Mark Sirota, Surendranath Nadh Somala, P. Sreekumar, C.S. Stalin, Avinash Surendran, Govind Swarup, Himanshi Tiwari, Buddhi Vallabh Tripathi, Kruti Trivedi, Paniveni Udayashankar, Sanil Unnikrishnan, Poorva Upadhyaya, Deepa Venkatesh, R.G. Vishwakarma, Priyanka Vyas, Naveel Wani, Yue Wu, Frank Wuerthwein, Urjit Yajnik, and Ayanda Romanis Zungu.

Visitors Expected

January 2017

Bobomurat Ahmedov, Ulugh Beg Astronomical Institute, Uzbekistan; Aiswarya Andavan, Alphonsa College, Pala, Kerala; Arun Kumar Aniyan, Square Kilometer Array, South Africa; Manjari Bagchi, The Institute of Mathematical Sciences, Chennai; Coryn Bailer-Jones, MPIA, Germany; Bidisha Bandyopadhyay, University of Delhi; Tanwi Bandyopadhyay, Adani Institute of Infrastructure Engineering, Ahmedabad; Sarmistha Banik, BITS-Pilani, Hyderabad Campus; Sudhanshu Barway, SAAO, South Africa; Tomaso Belloni, INAF, Brera, Milan, Italy; Swetha Bhagwat, Syracuse University, USA; Naseer Iqbal Bhat, University of Kashmir, Srinagar; Sudipto Bhattacharjee, Jadavpur University, Kolkata; Prajakta U. Chaudhari, S. P. Pune University; Jamie Court, University of Southampton, UK; Saili Dutta, NISER, Bhubaneswar; Pranjupriya Goswami, Tezpur University; Umananda Goswami, Dibrugarh University; Sarbari Guha, St. Xavier's College, Kolkata; Anshu Gupta, Centre for Excellence in Basic Sciences, Mumbai University; Priyanka Jalan, ARIES, Nainital; Reju Sam John, Pondicherry University; Nandita Lahkar Kalita, Girijananda Chowdhury Institute of Management and Technology, Guwahati; Sanjeev Kalita, Gauhati University, Guwahati; Badri Krishnan, Max Planck Institute for Gravitational Physics, Germany; S. Vishakha L., Fergusson College, Pune; Albert Lazzarini, Caltech, USA; Sunil Malik, University of Delhi; Arun Mangalam, IIA, Bengaluru; Abhisek Mohapatra, National Institute of Technology, Rourkela; Sajal Mukherjee, IISER, Kolkata, Sargam Mulay, DAMTP, Cambridge, UK; K. Rajagopalan Nair, Cochin University of Science and Technology, Kochi; Rajesh Nayak, IISER, Kolkata; Vaidehi Paliya, Clemson University, USA; Biswajit Pandey, Visva-Bharti University, Santiniketan; Mahadev Pandge, Dayanand Science College, Latur; Khun Sang Phukon, IIT, Kanpur; Frederick Raab, LIGO Hanford Observatory, USA; N. R. Shankar Ram, IIST, Thiruvananthapuram; tam Saikia, Tezpur University; Sudipta Sarkar, IIT, Gandhinagar; Pranjal Sarmah, Tezpur University; Zahir Ahmad Shah, University of Kashmir, Srinagar; Anvar Shukurov, University of Newcastle, UK; Pranjal Trivedi, Venkateswara College, Delhi; Naveel Wani, University of Kashmir, Srinagar; and Andrzej Zdziarski, NCAC, Warsaw, Poland.

February 2017

Susmita Chakravorty, Indian Institute of Science, Bengaluru; Arianna Cortesi, IAG-Universidade de Sao Paulo, Brazil; Luis C. Ho, Kavli Institute for Astronomy and Astrophysics, Peking University, China; Romesh Kaul, The Institute of Mathematical Sciences, Chennai; Molla Mengesha, Andhra University, Visakhapatnam; Priti Mishra, HRI, Allahabad; Bibhudatta Panda, Indira Gandhi Institute of Technology, Orissa; Roberto Trotta, Imperial College, London; and Vinutha Tummala, Andhra University, Visakhapatnam.

March 2017

Tevian Dray, Oregon State University, USA; Bidya Binay Karak, High Altitude Observatory, USA; Donald Lynden-Bell, IoA, University of Cambridge, UK; and S. R. Valluri, University of Western Ontario, Canada.

Long Term Visitors

Ajesh Gulati, TMT Project Office, USA; and Shamin Padalkar, Tata Institute of Social Sciences, Mumbai.

Know Thy Birds 16

Black Kite

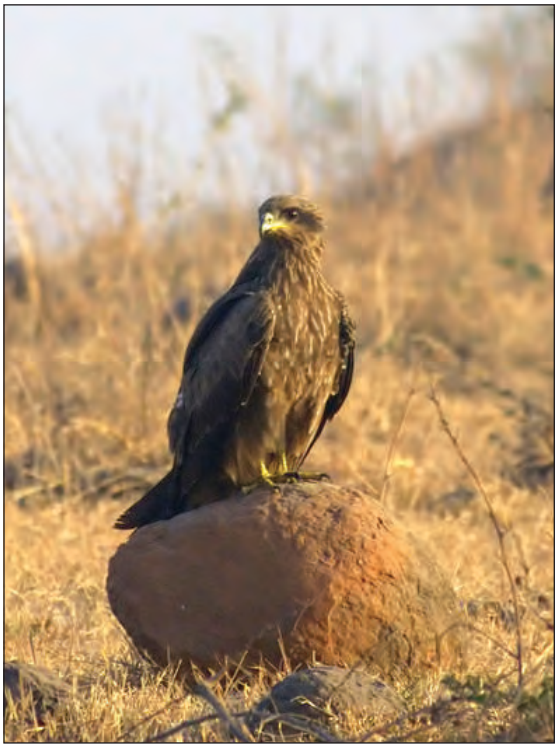
- Chaitanya Rajarshi

Hello friends,

Which is the most common *bird of prey* seen in the sky of your city? I hope you may know what is *bird of prey* - birds that hunt and feed on rodents, small birds, insects, lizards, etc.

The answer is indeed Black Kite (*Milvus migrans*). It is a medium size *bird of prey* (raptor), with about 50 - 60 cm long, wingspan of about 150 cm. The plumage of Black Kite is, in fact, dark brown, but from distance it appears almost black. Its tail is forked. The lower parts of the body are whitish brown. The body feathers are streaked. The area around nostril is yellow and the bill is black. The legs are yellow and the claws are black.

Black Kites are well distributed in Europe, Asia, Africa and Australia. They are *Least Concerned* in IUCN list. The global population is about 5 to 6 million.



▲ **Black Kite**
Photo Courtesy : Bhalchandra Pujari

Black Kites in India breed in winter. They build platform like nest with twigs (even I have noticed artificial nest material like nylon ropes, plastics, sticks of rocket crackers, rags). Both the male and female play equal role in building nest, incubation and raising chicks. They lay 2-3 eggs; the incubation period is about a month. The juvenile fly in about 2 months.

As the Indian sub-continent has nearly lost its main scavenger Vultures due to Diclofenec, they are replaced by Kites and Crows. With no predators over them in cities, and with adequate food options (garbage dumping sites, road kills) Kites rule the city skies. They are a major nuisance at some airports (hazard of bird strike). In this winter, you may check the sky for their soaring in thermals, and try to recognize a penetrating two toned whistle.

Call for Photos of Birds

I am very happy to share that I have received second response to *Call for photographs* of Birds from Sunil Bhavsar. He wrote to me that scaly breasted Munias (known as "Nutmeg Mannikin" in the US) have established a thriving population in Southern California, presumably from a population of escaped birds. Several of these Munias are regular visitors in the garden of his residence in San Diego, California, where he has set up a bird bath.

Readers of *Know Thy Birds* are invited, hereby, to submit photographs of birds taken by you. Selected photos will be published in this article with due credit. Please mail your photos to cvr@iucaa.in (Please mention "Photos for KTY" in subject").

Wish You A Very
Happy Birding

Khagol (the Celestial Sphere) is the quarterly bulletin of

IUCAA

We welcome your responses at the following address:

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