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AT THE HELM...

Professor Somak Raychaudhury has taken over as the Director, IUCAA, with effect from September 1, 2015 on my superannuation. He had his undergraduate education at Presidency College, Kolkata and the University of Oxford. For his Ph.D. he worked with Professor Donald Lynden-Bell at the Institute of Astronomy, University of Cambridge, UK, followed by post-doctoral fellowships at the Harvard-Smithsonian Center for Astrophysics, Cambridge, Harvard University, USA, and at the Institute of Astronomy. He was a faculty member at IUCAA during 1995 - 2000, and then at the University of Birmingham. In 2012, he joined the Presidency University, Kolkata, where he was the Head of the Department of Physics and Dean, Natural Sciences.

Professor Raychaudhury's research interests are in the areas of Galaxy Groups, Galaxy Clusters and Large Scale Structures, and carries out Observational work in the Optical, Radio and X-ray domains. Professor Raychaudhury is deeply involved in teaching of Astronomy and Public Outreach,



Somak Raychaudhury (Left) and Ajit Kembhavi

and will be greatly concerned with the University Programmes of IUCAA.

The IUCAA family looks forward to his leadership in taking IUCAA further along the path of progress.

Ajit Kembhavi

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Professor Ajit Kembhavi was one of the founding members of IUCAA, and served in various key positions, notably as the Dean of Visitor Academic Programmes, and then as the third Director. He has had a very distinguished academic career, spanning his early work on cosmological singularities and various aspects of active galactic nuclei to more recent contributions to observational studies of galaxy evolution.

From the early days of IUCAA, as Professor Jayant Narlikar and Professor Naresh Dadhich, and later Professor Varun Sahni and Professor T. Padmanabhan consolidated and led the research in relativity, and in theoretical astrophysics and cosmology, Professor Shyam Tandon in instrumentation and Professor Sanjeev Dhurandhar in the field of gravitational waves, it was Professor Kembhavi, who was largely responsible for building the observational programme at IUCAA. As the Dean of VAP, Professor Kembhavi's tireless efforts in widening the scope to IUCAA research, particularly in computational and observational astrophysics to researchers at Indian universities, largely helped IUCAA establish itself as a premier institution of research in the world, as well as succeed in its original mandate to being a central facility for connecting university faculty and students to the international stage of astrophysics research. The outstanding library and



computational facilities at IUCAA are the results of Professor Kembhavi's singular contribution to the establishment and growth of IUCAA.

Professor Kembhavi was one of the pioneers in the use of internet in India, leading the establishment of network access to institutions of higher education in India, and later, facilitating the access to online library and journal facilities through INFONET. The establishment of IUCAA's regional centres also provided crucial support in computational and library facilities to the universities in the various corners of the country. For over a decade, he has led the worldwide Virtual Observatory initiative, making India a major player in astronomical data mining, and in doing so, showed the way to effective partnerships with private enterprise, in particular the software industry. In the last few years, he has also led India's foray into the worldwide mega-projects, like the Thirty Metre Telescope (TMT) and LIGO-India, and made possible the partnerships with other major observatories like the SALT and LSST.

Professor Kembhavi has always led from the front, and the network of astrophysics research in India, and IUCAA's place within it, would currently have been very inadequate without his efforts. It is a privilege, and a challenge for me to be given this opportunity to succeed him as the Director of this unique and illustrious institution.

Somak Raychaudhury

IRC WORKSHOP ON TIME DOMAIN ASTRONOMY AND COSMOLOGY



St. Thomas College, Kozhancherry, in association with the IUCAA Resource Centre (IRC), CUSAT, Kochi and C.M.S. College, Kottayam, conducted a three day workshop on Time Domain Astronomy and Cosmology, during July 9 - 11, 2015, at C.M.S. College. The programme was intended to sensitize the participating post-graduate and young Ph.D. students from the region on the latest trends in the area of the workshop. There were 35 participants, who took part in all the activities of the workshop.

On the first day morning, there was a special public meeting to express the warmth and gratitude of the astronomy community in Kerala towards Ajit Kembhavi, who was



completing his term as the Director of IUCAA, and has always been a pillar of strength in the propagation and sustainment of astronomy research and education. The meeting was presided over by the Mar Thoma Valiya Metropolitan, Rt. Rev. Philipose Mar Chrysostom, who was the manager of St. Thomas College when Ajit Kembhavi first visited the institution to introduce IUCAA in 1996. Ninan Sajeeth Philip (St. Thomas College) welcomed the audience. V. C. Kuriakose (IRC, CUSAT, Kochi), S. K. Pandey (Vice-Chancellor, Pt. Ravishankar Shukla University, Raipur), Sailo Mukherjee (formerly with North Bengal University, Siliguri), H. P. Singh (Delhi University), K. Indulekha (M.G. University, Kottayam) felicitated and reminisced the services of Ajit Kembhavi. Joe Jacob gave the vote of thanks. Asha Kembhavi was also present at the meeting. A subsequent public lecture on New Astronomy by Ajit Kembhavi witnessed a large crowd comprising of students, teachers, and the public.



The workshop sessions commenced in the afternoon with lectures by S.K. Pandey and H. P. Singh. On the second day, there were lectures by Ajit Kembhavi, V.C. Kuriakose, P.P. Divakaran (formerly with TIFR), Ranjeev Misra (IUCAA), and A.N. Ramaprakash (IUCAA). This was followed by a hands-on training session on Virtual Observatory Tools and its Applications to determine the various galaxy parameters by Sheelu Abraham (IUCAA) and Kaustubh Vaghmare (IUCAA). A special outreach programme for school students was also held on the second day of the workshop. On the third day, the lectures were led by Ranjan Gupta (IUCAA), Sailo Mukherjee, and K. Indulekha.



Selected two hundred students from neighbouring schools participated actively in the "A day with an Astronomer" programme, which was conducted by A.N. Ramaprakash, and Koshy George (IIA, Bangalore). This was followed by an interactive session in the afternoon, that was chaired by Ajit Kembhavi, in which the students asked questions on various aspects and the prospects in astronomy.

P. Rajagopal, Head, Department of Physics, C.M.S. College was the local host, and Blesson George, Department of Physics, C.M.S. College was the local coordinator.



REGIONAL MEETING ON TRENDS AND CHALLENGES IN ASTRONOMY AND ASTROPHYSICS

The Department of Applied Mathematics, Calcutta University and IUCAA Resource Centre (IRC), Kolkata, jointly organized the regional meeting on Trends and Challenges in Astronomy and Astrophysics, during September 10 - 12, 2015. During the first two days, the venue was at the Department of Applied Mathematics, and on the last day, it was at the Department of Statistics, Calcutta University.

Recently, there has been increasing interest for research in Astronomy and Astrophysics in the universities/colleges in the eastern part of India. Further, in view of the fact that several national level projects are being undertaken by different institutes including IUCAA, it is necessary to coordinate and consolidate the expertise available to meet the requirements of these mega national projects. The meeting was organized in order to involve IUCAA Associates, other researchers and students in and around Kolkata in these projects.

On the first day, after the welcome address by Krishna Kundu, Head, Department of Applied Mathematics, Calcutta University, Swagata Sen, Pro-Vice-Chancellor for Academic Affairs, inaugurated the meeting. Somak Raychaudhury, Director, IUCAA and Sonali Chakravarti Banerjee, Pro-Vice-Chancellor for Business Affairs and Finance, spoke as Chief Guest and Special Guest respectively. Ajit Kembhavi, former



Ajit Kembhavi giving the inaugural address.



The meeting was inaugurated by Swagata Sen and Sonali Chakravarti Banerjee, and Somak Raychaudhury lighting the ceremonial lamp.

Director, IUCAA, was the Guest of Honour. Sanjay Sen chaired the session, and Suma Debsarma gave the formal vote of thanks.

After the inaugural session, Sushant Ghosh (Jamia Millia Islamia, New Delhi), Narayan Banerjee (IISER, Kolkata), Sayan Kar (IIT, Kharagpur) and Sailo Mukherjee (formerly with North Bengal University, Siliguri) Kamal Nandi (North Bengal University, Siliguri), Jishnu Dey (Presidency University, Kolkata), S.S. Dey (Formerly with Calcutta University, Kolkata), Subenoy Chakraborty (Jadavpur University, Kolkata) and Bikash Chandra Paul (North Bengal University, Siliguri) gave lectures on various topics.

On the second day, in the first session, Kandaswamy Subramanian (IUCAA), H.P. Singh (Delhi University), and Ranjan Gupta (IUCAA) spoke. In the session on mega projects, Ranjeev Misra (IUCAA) spoke on X-Ray Astronomy and ASTROSAT Project, and Tarun Souradeep (IUCAA) gave a vivid demonstration on A Launch Pad for Gravitational Wave Astronomy Related to LIGO Project. In the post lunch session, Ajit Kembhavi delivered a lecture, in which he discussed about the TMT Project and Mathematical Concepts Behind the Construction of Lenses with Large

Diameters. Somak Raychaudhury, and Sajeeth N. Philip (St. Thomas College, Kozhencherry) also spoke on different topics.

On the last day, there were lectures by S.K. Pandey (Pt. Ravishankar Shukla University, Raipur), and Dipankar Bhattacharya (IUCAA). After a tea break, there was a panel discussion session on Mega Projects and IUCAA-University Interactions, and was conducted by Ajit Kembhavi, Somak Raychaudhury, Sailo Mukherjee, and Asis Chattopadhyay (Calcutta University). All the lecturers, participants, including IUCAA Associates, local college and university faculty members, research scholars and students took part in this session.

In the after lunch session, the local Associates of IUCAA felicitated Ajit Kembhavi for his untiring contributions in the development and sustainment of astronomy research and teaching in the country. Tanuka Chattopadhyay, Department of Applied Mathematics, Calcutta University was the convener of the local organising committee. Ranjeev Misra and Asis Chattopadhyay were the coordinators on behalf of IUCAA and IRC, respectively.

SCHOOL ON GRAVITATION AND COSMOLOGY

IRC, CUSAT, Kochi organized a School on Gravitation and Cosmology during August 24 - 26, 2015. The school was mainly intended for post-graduate students in Physics, but a few highly interested undergraduate students were also selected. There were 50 participants. The programme consisted of lectures and tutorial sessions. Lectures on basic topics like, tensor analysis, general theory of relativity and cosmology and on advanced topics like, large scale structures, gravitational waves, computational cosmology, cosmic microwave background radiation and cosmology of gamma-ray bursts were given. Tutorial (problem solving) sessions and a sky watch programme were also arranged. The participants felt that the whole programme, was very useful and they all appreciated very much the tutorial sessions.

The resource persons of the school were Aseem Paranjape (IUCAA), K. Indulekha (M.G. University, Kottayam), K.G. Arun (Chennai Mathematical Institute), Ninan Sajeeth Philip (ST. Thomas College, Kozhancherry), Minu Joy (Alphonsa College, Pala), L. Resmi (Indian Institute of Space Technology, Thiruvananthapuram), Charles Jose (S.B. College, Changanacherry) and V. C. Kuriakose (CUSAT). The tutorial sessions and sky watch programme were handled by CUSAT research scholars, Jishnu Suresh, Prasia P. and Lini Devassy, and former research scholars Tharanath R. and Nijo Varghese.



IUCAA Preprints

IUCAA preprints released during July - September can be obtained from the IUCAA library (library@iucaa.ernet.in). The preprints can also be freely downloaded from <http://www.iucaa.ernet.in/~library/main.html>.



ANNOUNCEMENTS FOR THE UPCOMING WORKSHOPS

School on Best Practices in Astro-Statistics

Astro-statistics is an important upcoming field due to large astronomical data available now and this database is ever increasing. One requires specialized statistical tools to handle this kind of data and analyze. IUCAA will organize this school during January 28 - 30, 2016 at IUCAA, Pune. Experts in this field (from Germany/USA/India) will give several talks and coordinate the afternoon hands-on sessions.

Interested participants (Ph.D. students and young post-docs from Indian Universities and Institutes) should apply to aocp@iucaa.ernet.in latest by December 10, 2015 along with a brief C.V., statement of their interest in attending this school, and students must send recommendations from their supervisors by email. Knowledge of working with linux operating system and with *R*, *Python*, etc. softwares is essential since the hands on sessions will be using them. Travel support will be provided to the selected participants as per IUCAA rules and accommodation will be provided at IUCAA guest house.

Maximum 20 participants will be selected and informed latest by December 20, 2015.

Workshop on Electromagnetic Scattering as a Tool in Astronomy and Astrophysics

A two day workshop on "Electromagnetic Scattering as a Tool in Astronomy and Astrophysics" is planned during January 4 - 5, 2016 at the Department of Physics, M.K. Bhavnagar University, Bhavnagar, Gujarat. Researchers from universities, colleges and other research institutions are invited to send their request for participation before November 10, 2015 to spb@mkbhavuni.edu.in. Please include your area of interest and reason to participate along with a brief resume. Research students are advised to send it through their supervisors. Participation will be by invitation and will be communicated to the selected participants well in time. Selected participants will be paid TA as per M.K. Bhavnagar University / IUCAA rules. Local hospitality will be provided in the university guest house to about 20 participants.

The workshop will cover topics related to basic Electromagnetic scattering theory, Scattering by non-spherical particles, Scattering by porous, fluffy, and composite particles, Scattering by oriented particles, Scattering by cometary dust, Circumstellar dust, Interstellar dust, Interstellar extinction and polarization, Light scattering in planetary atmospheres, and Experimental / Theoretical investigations on scattering in magnetic suspensions by senior scientists.

National workshop on Astronomy with Small Telescopes

School of Physical Sciences of SRTM University, Nanded will be hosting a 4-day National Workshop on *Astronomy with Small Telescopes* sponsored by IUCAA during **December 8-11, 2015**. Scientific rationale of the workshop is to bring together the small telescope users and discuss various observing activities that can be carried out using the small telescopes owned by the universities and colleges. As this workshop is planned for serious users, it is desired that the participants have experience of astronomical observations and data reduction strategies. Participants for this workshop will be mainly research scholars (M. Phil./Ph.D.), M.Sc. final year students, and teachers from universities and colleges. A few highly motivated B.Sc. final year students with Astrophysics background and strong desire to pursue research in **Observational Astronomy** will also be considered for participation. Total number of outstation participants will be restricted to 30.

It is planned to have a series of lectures on the basics and advanced topics in observational astronomy by eminent scientists from IUCAA and other institutes in the morning sessions, while afternoon sessions will be devoted for the hands-on training on the observations and data analysis using small telescopes. Each participant will be required to do one project during the workshop.

For participation, send applications giving a brief C.V., information on the telescope setup(s) and the projects carried out using the available setup. To substantiate the application, send **at least three best CCD images** acquired using the available observational setup. M.Sc. and research scholars are required to arrange a recommendation letter from their guide or head of the department in support of their application. Limited travel (up to sleeper class) support and free accommodation, hospitality will be provided to the selected out station participants; however, they need to mention the requirements in their application. Applications must be sent to ast.srtmun@gmail.com (with a copy to patil@iucaa.ernet.in) **on or before November 15, 2015**. Selected participants will be informed by **November 20, 2015**.

Contact Address: M. K. Patil, School of Physical Sciences, Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded - 431 606 (Maharashtra) Email: ast.srtmun@gmail.com, Contact No. 08308298063.

WELCOME TO ...



Pankaj Kushwaha obtained his B.Sc. degree (Physics Honors) from the Banaras Hindu University in 2008 and subsequently joined the Tata Institute of Fundamental Research, Mumbai for his M.Sc. and Ph.D. He joined IUCAA as a Post-doctoral Fellow in August 2015. Pankaj's research is focused on understanding the high-energy emission (X-rays and Gamma-rays) from blazars, galaxies with a highly active central region with their jet oriented towards the Earth, and associated physical processes. He has explored the processes responsible for broadband emission from blazars using spectral and temporal variability in the multi-wavelength data and theoretical modeling. Pankaj is also interested in exploration of jet-central engine connection and particle acceleration using multi-wavelength data (currently under investigation).

Md. Wali Hossain joined IUCAA as a Post-doctoral Fellow in August 2015. He obtained his B.Sc. degree in 2006 from Malda College (University of North Bengal), M.Sc. degree in 2008 from Jadavpur University and Ph.D. degree from the Centre for Theoretical Physics, Jamia Millia Islamia, New Delhi. During Ph.D., he has worked on cosmological model building for inflation and dark energy in modified theories of gravity. Apart from the cosmological model building, his current research interest also includes cosmological structure formation.



Sourav Bhattacharya completed his under-graduate from the Presidency College (now Presidency University), Kolkata, in 2003. He got his Masters degree from the University of Calcutta in 2005 and joined S. N. Bose National Centre for Basic Sciences, Kolkata, as a Ph.D. student. He worked on some aspects of black hole spacetimes endowed with a positive cosmological constant. After submitting the Ph.D. thesis in 2011, he joined Harish-Chandra Research Institute, Allahabad, as a Post-doctoral Fellow. He further worked on aspects of general relativistic accretion astrophysics, chiefly on the propagation of acoustic perturbations. He did his second post-doc at the Institute of Theoretical and Computational Physics and Department of Physics, University of Crete, Greece. He joined IUCAA as a Post-doctoral Fellow in August 2015, and started working on the Schwinger pair creation in de Sitter spacetime and continuing on alternative gravity as well.

Welcome to ...

Debabrata Adak, Rajorshi S. Chandra, Sayak Datta, Siddharth Maharana, Karthik Rajeev, Prantik Saha, Shalabh, and Vidushi, who have joined us as research scholars.

... Farewell to

Nilkanth D. Vagshette (Project Scientist) and Jayanti Prasad (DST-Fast Track Fellow) on completion of their term at IUCAA.

ADDITIONS TO THE IUCAA FAMILY

IUCAA extends warm welcome to the new Visiting Associates of the twenty-sixth batch joining us for a tenure of three years, beginning from August 2015.

New Visiting Associates

Rizwun Ul Haq Ansari,

Maulana Azad National Urdu University,
Hyderabad.

Ritabrata Biswas,

Krishnagar Women's College, Nadia.

Debasish Borah,

Tezpur University, Assam.

Jibitesh Dutta,

North-Eastern Hill University, Shillong.

Priya Hasan,

Maulana Azad National Urdu University,
Hyderabad.

Charles Jose,

St. Berchmans College, Changanacherry,
Kerala.

Biswajit Pandey,

Visva Bharati, Santiniketan.

Sanjay Kumar Pandey,

L.B.S.P.G. College, Gonda.

Dipankar Paul,

Ramkrishna Nagar College, Karimganj,
Assam.

Ananta Charan Pradhan,

National Institute of Technology, Rourkela.

Parthaprathim Pradhan,

Vivekananda Satavarshiki Mahavidyalaya,
Midnapur.

Swati Routh,

Jain University, Bangalore.

Prasant Samantray,

Indian Institute of Technology, Indore.

Kunwar Alkendra Pratap Singh,

UM-DAE Centre for Excellence in Basic
Sciences, Mumbai University.

Sanil Unnikrishnan,

University of Delhi.

Extension of term to the twenty-third batch of Visiting Associates

Gazi Ameen Ahmed,

Tezpur University, Assam.

Sk. Saiyad Ali,

Jadavpur University, Kolkata.

Shyamal Kumar Banerjee,

University of Petroleum and Energy
Studies, Dehradun.

Prasad Basu,

National Institute of Technology, Sikkim.

Koushik Chakraborty,

Government Training College, Chinsurah,
West Bengal.

Mamta Dahiya ,

S.G.T.B. Khalsa College, Delhi.

Broja Gopal Dutta,

Y.S. Palpara College, Purba-Medinipur,
West Bengal.

Sarbari Guha,

St. Xavier's College, Kolkata.

Joe Jacob.

Newman College, Thodupuzha, Kerala.

Deepak Jain,

Deen Dayal Upadhyaya College,
University of Delhi.

Minu Joy,

Alphonsa College, Arunavaram, Pala,
Kerala.

Soumen Mondal,

Ramakrishna Mission Residential College,
Narendrapur, Kolkata.

Hemwati Nandan,

Gurukula Kangri University, Haridwar,
Uttarakhand.

Rajesh Kumble Nayak,

IISER Kolkata, Mohanpur, West Bengal.

Bikash Chandra Paul,

North Bengal University, Siliguri,
West Bengal.

Amit Pathak,

Tezpur University, Assam.

Farook Rahaman,

Jadavpur University, Kolkata.

C.D. Ravikumar,

University of Calicut, Kozhikode, Kerala.

Somak Raychaudhury,

Presidency University, Kolkata,
(until August 31, 2015)

Sanjay Kumar Sahay,

BITS, Pilani, K.K. Birla Goa Campus.

Sandeep Sahijpal,

Punjab University, Chandigarh.

Asoke Kumar Sen,

Assam University, Silchar.

Somasri Sen,

Jamia Millia Islamia, New Delhi.

Shanthy K.,

Academic Staff College, University of
Mumbai.

Ranjan Sharma,

P.D. Women's College, Jalpaiguri,
West Bengal.

Parijat Thakur,

Institute of Technology, Guru Ghasidas
Central University, Bilaspur, Chattisgarh.

Pranjal Trivedi,

Sri Venkateswara College, University of
Delhi.

SEMINARS

09.07.15 Ravi Joshi on *Probing circumgalactic medium of high-redshift galaxies.*

16.07.15 Pankaj Jain on *The fine tuning of the cosmological constant in a conformal model.*

14.07.15 Paniveni Udayashankar on *Solar supergranulation.*

14.07.15 Sanjay Kumar Sahay on *Volution and detection of second generation malwares.*

21.07.15 Sunandan Gangopadhyay on *Generalized uncertainty principle and black hole thermodynamics.*

21.07.15 Anirban Saha on *Can we probe the granular structure of space using gravitational wave data?*

23.07.15 Nidhi Pant on *Semi-analytic approach to deal effects of mask and non-circular beam on CMB correlation function.*

28.07.15 Bhag Chand Chauhan on *Revisiting a quark-lepton complementarity model.*

29.07.15 Irshad Mohammed on *Towards precision cosmology: The halo model and necessary modifications.*

29.07.15 Brajesh Gupta on *Loop quantum cosmology: Very early universe and recent observations.*

03.09.15 T. Padmanabhan on *Distribution function of the atoms of spacetime and the nature of gravity.*

09.09.15 Sharvari Nadkarni-Ghosh on *Non-linear velocity-gravity relation from phase-space dynamics.*

16.09.15 Mandeep Gill on *Recent developments in gravitational weak lensing constraints on cosmology from the dark energy survey and projections for the large synoptic survey telescope.*

23.09.15 Tejaswi Neralla on *The red shifted 21-cm line as a cosmological probe of magnetic fields and gravitational waves.*

30.09.15 Cheng-Yang Lee on *ELKO and mass dimension one fermionic dark matter.*

VISITORS

(July- September 2015)

Ahmadjon A. Abdujabbarov, Aditi Agarwal, Vipin Aggarwal, Poojan Agrawal, D. V. Ahluwalia, Gazi Ameen Ahmed, Bobomurat Ahmedov, Mohd. Shah Alam, Atma Anand, Rahul Kumar Anand, Anu, Mahasweta Bagchi, Rohit Baghel, Kalyani Bagri, Srikumar Banerjee, Ujjwal Banerjee, Monmoyuri Baruah, Aru Beri, Anupam Bhardwaj, Naseer Iqbal Bhat, Ravinder S. Bhatia, Manisha Bhatnagar, R.C. Bhatt, Debbijoy Bhattacharya, K.G. Biju, Aritra Biswas, Navneet Boda, Archana Bora, Pritam Jyoti Borah, Susmita Chakravorty, Avtar Chand, Subhamoy Chatterjee, Asis Kumar Chattopadhyay, Tanuka Chattopadhyay, Avinash Chaturvedi, Nita Chaudhary, Bhag Chand Chauhan, Jai Verdhhan Chauhan, Sayantan Choudhury, Haeun Chung, Pratik Dabhade, Ramkrishna Das, Sanskriti Das, Susmita Das, Bipash Dasgupta, Ujjal Debnath, S. Dev, Rameshwar Dhurwey, Mithun Dongre,

Reetika Dudi, Hariram Durve, Jayanta Dutta, Savithri Ezhikode, Ophelia Fabre, Gary J. Ferland, Sunandan Gangopadhyay, Taparati Gangopadhyay, Sharad Gaonkar, Ritesh Ghosh, Mandeep Gill, Utkarsh Giri, Rupjyoti Gogoi, Sushmita Gogoi, G.K. Goswami, Arun Grover, Brajesh Gupta, Alok C. Gupta, Prateek Gupta, Siddhartha Gupta, Swapnil Gupta, Sreeniketh H., Mubashir Hamid, Peter Hersted, Tanvir Hussain, Safiqul Islam, Joe Jacob, Pankaj Jain, V.K. Jain, Sanjay Jhingan, V. Jithesh, Sharda Keshav Jogadand, Reju Sam John, James Johnson, Cosmos Joseph, Kanti Jotania, Sathyanarayanan K., Shashi Kanbur, Simple Kanwar, Navpreet Kaur, Tejpreet Kaur, G.S. Khadekar, Samananda Khangembam, Rakesh Khanna, Hemant Kumar, A.S. Kiran Kumar, Dalpat Kumar, Parveen Kumar, V.C. Kuriakose, Cheng-Yang Lee, Siddharth Maharana, Suresh Maheshwari, Bari Maqbool, Sankalp Meshram, Sapna Mishra, Irshad Mohammed, Aditya Sow Mondal, Anindita Mondal, Kiran More, Arunava Mukherjee, S. Mukherjee, Sowgat Muzahid, Sharvari Nadkarni-Ghosh, Tapish Namdeo, Mithun Neelakandan, Mayra Mabel Valerdi Negreros, Nehruram, Tejaswi Nerella, Rahul Nigam, Joe Philip Ninan, Vineet Ojha, Roshan Padval, S.K. Pandey, Vihan Pandey, Mahadev Pandge, P.N. Pandita, Dishant

Pandya, Abhishek Parida, Anish Parwage, Abhishek Paswan, Amit Pathak, Shankar Dayal Pathak, K.D. Patil, M.K. Patil, Devraj Pawar, Pramod Pawar, Ninan Sajeeth Philip, Khun Sang Phukon, Anirudh Pradhan, Ramrao Pudo, G.V. Punyakoti, D. Radhika, C. Meenakshi Rajagopal, Het Ram, Hari Rams, Katherine Rawlins, Somak Raychaudhury, Javlon Rayimbaev, B. Eswar Reddy, P.C. Sachin, Anirban Saha, Subhajit Saha, Sanjay Kumar Sahay, Sunder B. Sahayanathan, Eeshankur Saikia, Gautam Saikia, Prasant Kumar Samantray, Shishir Sankhyayan, Pawan Saran, Kartick Sarkar, Souvik Sarkar, Meenakshi Sati, Seema Satin, A. S. Kiran Kumar, Asoke Kumar Sen, T.R. Seshadri, Rajesh Shah, Zahir Ahmad Shah, Mohammed Shaheer, K. Shanthi, Aishawnniya Sharma, Ashu Sharma, Gazal Sharma, Rahul Sharma, Vishnu R.K. Sharma, Gargi Shaw, Suhail Ahmad Siddiqui, H.P. Singh, K. Yugindro Singh, Neha Singh, Akshat Singhal, Mark Sirota, Mufaddal Travadi, Anurag Tyagi, Paniveni Udayashankar, Anisul Ain Usmani, Santosh Vadawale, Chhaganbhai Vaghela, Nilkanth Dattatray Vagshette, Hum Chand Varma, Kumar Venkataramani, Kalpana Verma, V. Vinu, Naveel Wani, Zak Yacoob, Bal Krishna Yadav, Ayanda Romanis Zungu.

VISITORS (EXPECTED)

October 2015

Ayan Banerjee, Jadavpur University, Kolkata; Sumita Banerjee, Budge Institute of Technology, West Bengal; Sandip Bhattacharya, B.M. Birla Planetarium, Jaipur; Ritabrata Biswas, Bankura University, West Bengal; H.B. Bohidar, JNU, Delhi; Koushik Chakraborty, Government Training College, Hooghly; Ritaban Chatterjee, Presidency University, Kolkata; P.S. Debnath, A.B.N. Seal College, West Bengal; P. P. Divakaran, NCBS-TIFR, Bangalore; Ritesh Ghosh, Visva Bharati University, Santiniketan; Tanul Gupta, SAC, Ahmedabad; Asif Iqbal, University of Kashmir, Srinagar; Rinku Jacob, The Cochin College, Kochi; Manasvita Joshi, Boston Univ., USA; Nick Kaiser, Institute of Astronomy, Hawaii; Pradip Karmakar, University of Calcutta, Kolkata; Abhijit Mandal, Jadavpur University, Kolkata; Pradip Mukherjee, Barasat Govt. College, Kolkata; Sargam Mulay, University of Cambridge, UK; Saraswati Narasimhan, Bangalore; Dishant Pandya, Pandit Deendayal Petroleum University, Gandhinagar; B.C. Paul, North Bengal University, Siliguri; Pramod Pawar, Swami Ramanand Teerth Marathwada University, Nanded; Timothy Pearson, Cahill Centre for Astronomy and Astrophysics, USA; Mussadiq Qureshi, University of Kashmir, Srinagar; Anthony Redhead, Cahill Centre for Astronomy and Astrophysics, USA; Ranjan Sharma, P. D. Women's College, Jalpaiguri, West Bengal; Juie Shetye, Armagh Observatory, UK; Pranjal Trivedi, Sri Venkateswara College, Delhi; Nilkanth Vagshette, Swami Ramanand Teerth Marathwada University, Nanded; D. B. Vaidya, Ex-Gujarat College, Ahmedabad; Yue Wu, NOAC, Beijing, China.

November 2015

Sushant Ghosh, Jamia Millia Islamia, New Delhi; K. P. Harikrishnan, The Cochin College, Kochi; Joe Jacob, Newman College, Kerala; Kanti Jotania, The M.S. University of Baroda, Vadodara; Nick Kaiser, Institute of Astronomy, Hawaii; Suman Kundu, IIT, Kanpur; Soma Mandal, Taki Govt. College, West Bengal; Helen Mason, University of Cambridge, UK; Mamta Pandey Pommier, Observatoire de Lyon, France; P. N. Pandita, Indian Institute of Science, Bangalore; Changbom Park, KIAS, South Korea; Shishir Sankhyayan, IISER, Pune; Henk Spruit, Max Planck Institute of Astrophysics, Germany; Lunchakorn Tannukij, Mahidol University, Thailand; Pitayuth Wongjun, Naresuan University, Thailand.

December 2015

Tomaso Belloni, INAF, BRERA, Italy; Ritabrata Biswas, Bankura Univ., West Bengal; Subenoy Chakraborty, Jadavpur University, Kolkata; Luke Chamandy, University of Cape Town, South Africa; Avtar Chand, SLIET, Longowal, Punjab; Garima Chauhan, University of Glasgow, UK; Amit Das, IEST, Shibpur, West Bengal; R. N. Dewangan, Kalyan P.G. College, Bhilai; Sourav Dutta, Jadavpur University, Kolkata; Ram Kishor, Central Univ. of Rajasthan, Ajmer; Shibesh Kumar, Jamia Millia Islamia, New Delhi; Titus K. Mathew, CUSAT, Kochi; B.C. Paul, North Bengal University, Siliguri; Anirudh Pradhan, GLA University, Uttar Pradesh; Rajagopal, CUSAT, Kochi; Bharat Ratra, Kansas State University, USA; Saibal Ray, Govt. College of Engineering and Ceramic Technology, Kolkata; Sourita Saha, IIST, Trivandrum; Anvar Shukurov, University of Newcastle, UK; Saraswati

Vidyananda, Chennai; R. G. Vishwakarma, Universidad Autonoma de Zacatecas, Mexico.

Long Term Visitor

Yogesh Wadadekar, NCRA, Pune.

Congratulations to ...

Ajit Kembhavi, for being elected a *Vice-President* of the International Astronomical Union.

Aseem Paranjape, on being selected as an *Associate of the Indian Academy of Sciences, Bengaluru*.

Hello friends,

There is one interesting small bird (about 10 cm long) hovering fast around flowers of Spethodia or Jacaranda in the Kund area of IUCAA in early morning hours. You may misidentify it as a *Hummingbird*, but remember Hummingbirds are not found in Indian Subcontinent.

You are probably looking at Purple-rumped sunbird. The name comes from the purple coloured rump of the male bird. It has blue-greenish head, yellow breasts and belly, dark throat and white under parts. The female is comparatively unappealing with white throat, yellow breast and greyish-greenish upper side.



▲ Female of Purple-rumped Sunbird (*Leptocoma zeylonica*);
Marathi: Surypakshi

Photo : Chaitanya Rajarshi @ IUCAA

◀ Purple Sunbird: Female feeding on nectar of Palash flowers

(Photo Courtesy: Umesh Vaghela)



In the summer of 2011, I found sunbird's pouch type nest hanging on the tall Bamboo Grass in the courtyard near the Bank in IUCAA. The nest was made up of lots of cobwebs, lichens and soft plant material. There were chicks inside and the female was feeding them with insects for a rich protein diet.

Later, I found another nest on the wall climber just outside the Library glass window (near Kund), but that was vacant.

Sunbirds breed throughout the year. Female lays two eggs, oval in shape, greenish in colour with streaks on it. Incubation period is about two weeks.

Interesting fact: Just like koels deceive crows to take care of chicks, some cuckoo family birds trick sunbirds by parasite their nest. If you are lucky enough, you may see small size sunbird feeding big size cuckoo chick.

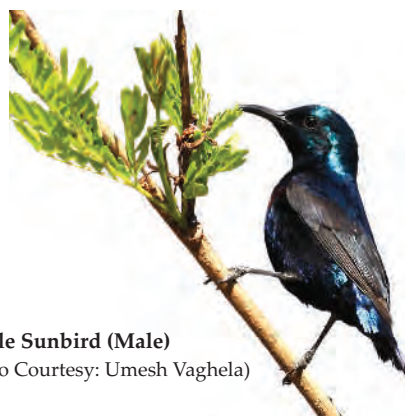
(There is a nice photograph with the relative story published in "Aasmant" a book by Shrikant Ingahlalikar.)

Another species of sunbird - Purple Sunbird (*Cinnyris asiaticus*) can also be seen around. In this species, males appear total violet-black. You may get confused with females of this species as they look like females of Purple-rumped. However, the females of purple sunbird have yellowish throat, while it is greyish white in purple-rumped



▲ Purple-rumped Sunbird (Male)

(Photo Courtesy: Umesh Vaghela)



▶ Purple Sunbird (Male)

(Photo Courtesy: Umesh Vaghela)

females. Also, a stripe just above eye is clearly visible in females of purple sunbirds.

Friends, winter is near, the best season for bird watching. Are you ready for it?

Wish You A Very
Happy Birding

Khagol (the Celestial Sphere)
is the quarterly bulletin of



We welcome your responses at the following address:

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