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First IUCAA Reunion Meeting

IUCAA has recently completed twenty glorious years and to celebrate this occasion, the First IUCAA Reunion Meeting was arranged during August 11-14, 2009. The former Faculty Members, Post-doctoral Fellows, Research Scholars, Senior Visiting Associates, Governing Board and Council members, and distinguished members of international community, who have been on the Scientific Advisory Committee, were invited to attend this meeting. There were 150 participants attending the lively academic, cultural, and social programmes. This meeting was envisaged as a get together of all former IUCAAites, who are spread around the globe at highly acclaimed academic environment, to contribute their expert opinion on the future scientific direction for IUCAA, and seek ways in which they could remain engaged in the growth and expansion plans of the institute. This also gave the alumni an occasion to recall the fond memories of their stay at IUCAA and proved to be emotionally enriching for many of them.

The scientific theme of this meeting was Gravitation and Astronomy : Frontiers in Theory and Observation. Following were the major topics on which lectures were conducted : Gravitational Waves, Cosmology, Observational Astronomy and data Analysis Techniques, Classical Gravity,

Instrumentation, Theoretical Astrophysics, and Quantum Aspects of Gravity and Early Universe. There were three panel discussions covering different aspects on (1) IUCAA Gravitational Wave Research Legacy, (2) IUCAA Scientific Programmes : Present and Future, and (3) IUCAA and the World. On August 10, 2009, there were two parallel satellite meetings on Indian Gravitational Waves Experimental Effort-Scope and Feasibility, and Large Data Sets and Follow up Observations. These focused meetings helped to shape the discussions during the meeting.

The Director, Naresh Dadhich, and the senior Faculty Member and Distinguished Professor, Shyam Tandon, would be retiring, and there was a special function to felicitate them. It was a very touching moment for everyone, because of their long association and valuable contribution to IUCAA. A performance of the famous cartoonist, R. K. Laxman's, Common Man, by Ajit Kelkar was also arranged on one of the evenings. Overall, it was a home coming feeling for everyone. Tarun Souradeep coordinated the scientific programmes, and V. Chellathurai took care of the local arrangements with the help of many others.

Glimpses of First IUCAA Reunion Meeting



Introductory Workshop on Optical Observations and Data Analysis



An Introductory workshop on Optical Observations and Data Analysis was held during June 9-10, 2009 at Vigyan Bhavan, Mohanlal Sukhadia University, Udaipur, where IRC is located in a separate block. There were 37 participants, including faculty members, research scholars, M.Sc. students and interested persons in Astronomy. The workshop was inaugurated by P. Venkatakrishnan, Director of Udaipur Solar Observatory, Udaipur. He delivered the inaugural talk on activities of Udaipur Solar Observatory and scope of the optical observations and data analysis. The other speakers were Arvind Paranjpye, IUCAA, Pune and S. N. A. Jaaffrey, Coordinator of IRC, Visiting Associate of IUCAA, Department of Physics, M. L. S. U., Udaipur.

The main theme of the workshop was to expose the participants to optical observations, both stellar and solar, and also to promote the thrust and interest in Astronomy and Astrophysics. The participants were also given an opportunity to operate a telescope of six inch (donated by IUCAA, Pune, to IRC, Udaipur). They were also taught to couple the telescope with computer, and how to take good quality pictures of celestial objects for their observations in optical wavelength. A brief

description was also given on how to identify stellar objects and their positions in sky. This activity helped much in popularizing Astronomy among the people of Udaipur regional colleges and schools.

On the second day, hands on practice was given to the participants, in which they tried to calculate some physical observables of observed stellar objects.

During the workshop, the following animation movies were screened:

- (a) Cosmic Collisions and
- (b) Chandra : The journey of a Star

A public outreach programme was also organized as a part of workshop. The college, school students and other interested people were invited for sky gazing. A six inch telescope was used to observe the planet Saturn and its rings. Newspapers, Rajasthan Patrika, and Dainik Bhaskar gave enough coverage of this workshop for the people to know about the facilities available at recently opened IRC at Udaipur, and kind of research work which can be pursued by research students.

IUCAA International Year of Astronomy Programmes G++ Galileoscope and Spectroscopy Workshops



Glimpses of G++ Galileoscope Workshop



IUCAA Public Outreach Cell continued its G++ Galileoscope programme at IRC, Udaipur (August 25-26), Saurashtra University (September 12 -13), Gangtok, Sikkim (September 21-22), and North Bengal Science Centre (September 23).

The Udaipur workshop was conducted at the historical town of Nathdwara, about 50 kms north of Udaipur, during August 25-26, 2009, in collaboration with Shrinathji Institute of Technology and Engineering (SITE), Udaipur.

There were 22 registered schools from Rajasthan, Gujarat, and Madhya Pradesh, with three participants including one lecturer and two students. Faculty members, research scholars, M.Sc. students, and other interested persons in Astronomy also attended this Workshop.

The workshop was inaugurated by Onkar Singh. The inaugural talk was delivered by P. C. Agrawal, TIFR, Mumbai on Visphot Bhara Brihmand. Other talks were given by Arvind Paranjpye, IUCAA, S. N. A. Jaaffrey, Department of Physics, M.L.S.U., Udaipur. The training to assemble the telescope and seeing sky was given by Arvind Paranjpye.

The workshop at Saurashtra University, Rajkot was requested by K. N. Iyer, Department of Physics, coordinated by Neelish Rana and was held at Shri. O. V. Sheth Regional Community Science Centre, Rajkot. Tushar Purohit (MViSA volunteer) and Srirang conducted the workshop, in which 23 telescopes were made by the participants. This workshop was first of its kind held at the centre, which carries out many activities to promote amateur astronomy.

All the telescopes were tested on the same night, where everyone was very excited to view Jupiter, which was at a very favourable location.

Kanti Jotania, of M. S. University of Baroda and IUCAA Associate, delivered a popular lecture on Black Holes in Gujarati, and Shakuntala Nene gave a lecture on Spectroscopy, which was followed by a demonstration of spectroscopy using a compact disc by Srirang. The participants included individuals, interested in astronomy, university students, and school students accompanied by their teachers.

The Gangtok workshop was organised by Rabin Chettri, an IUCAA Associate from Government College Sikkim, and Ivan Lepcha, PNG School, Gangtok. The workshop was supported by the DST, Sikkim and the venue was the Sikkim Science Centre. Twenty enthusiastic schools and amateur clubs from various parts of the state of Sikkim participated in the one-day workshop on September 21, 2009. The workshop was conducted by Samir Dhurde from IUCAA and preceded by a talk on Astronomy and Telescopes.

Samir also carried out a training on how to read sky maps for astronomical observations. Free constellation charts were distributed to all students. Following this, the local teachers have shown interest in starting astronomy clubs in the respective schools.

The North Bengal Science Centre in Siliguri, West Bengal, hosted an Astronomy Popularisation programme on September 23, 2009, with an emphasis on Spectroscopy. The event focussed on getting students of classes 10, 11, and 12 interested in basic astronomy. A talk titled Fingerprinting Astronomical Bodies and a hands on CD-spectroscope making workshop was conducted by Samir Dhurde. The 70 participants from 20 different schools and junior colleges learnt the basics of spectroscopy and made their own spectroscope to observe various light sources.

Introductory Workshop for ASTROSAT Data Products Software Team



Participants of the ASTROSAT Workshop

With ASTROSAT, the Indian Multiwavelength Astronomy Satellite, due for launch next year, software teams in ISRO have recently been entrusted with the responsibility of the development of software for the data pipeline for its various instruments. A team in Space Application Centre (SAC), Ahmedabad has been given the responsibility of developing the pipeline to produce final processed science data products for release.

In order to acquaint this team with the astronomical context involved, and the various necessary steps in the data processing, a 5-day workshop was organised in IUCAA during June 29 to July 3, 2009. Eight members of the software team from SAC participated. Over 14 hours of lectures were delivered by about a dozen lecturers from IUCAA; TIFR; Mumbai; and RRI, Bangalore. All five payloads - the Large Area X-ray Proportional Counter (LAXPC), the Ultraviolet Imaging Telescope (UVIT), the Soft X-ray Telescope (SXT), the Cadmium Zinc Telluride Imager (CZTI), and the Scanning

Sky Monitor (SSM) were discussed in detail by members of the respective instrument teams. In addition, more than 15 hours of demonstration and hands-on data analysis sessions were organised.

The topics covered included introduction to basic astronomy and astrophysics, the special niche areas of ASTROSAT, such as, multi-wavelength timing, broadband spectroscopy and ultraviolet imaging, as well as technical details of the five science payloads and the steps needed to convert the data recorded by them to the expected release level data products. The hands-on sessions demonstrated examples of such data products, and how an astronomer would use them to derive final scientific conclusions.

Following this workshop, the Data Products team has started work on the required software development in earnest. This activity is now continuing.

Seminars

Listed below are the seminars and colloquia given at IUCAA during July-September 2009.

17.08.2009 Edith Hadamcik on Polarization imaging of cometary comae dust; and 17.09.2009 Smriti Mahajan on Star formation and environment of galaxies.

Colloquium

06.07.2009 Ronojoy Adhikari on Markov chains for the indus script.



IUCAA-NCRA Graduate School Courses

The IUCAA-NCRA Graduate School (conducted jointly with the National Centre for Radio Astrophysics (NCRA), Pune) is divided into two semesters (four terms) spread over one year. Each term is of roughly eight weeks duration. During the Graduate School, the Ph.D. students (Research Scholars) are taught relevant advanced courses in Physics and are also introduced to courses in Astronomy and Astrophysics (A & A). The Graduate School structure is given below. The number of teaching hours is shown in brackets after each course.

Semester I, Term I, From August second week to October first week.

01. Methods of Mathematical Physics I (21)
02. Introduction to Astronomy and Astrophysics I (14)
03. Electrodynamics and Radiative Processes I (14)
04. Quantum and Statistical Mechanics I (14)

Semester I, Term II, From October third week to December second week.

05. Methods of Mathematical Physics II (14)
06. Introduction to Astronomy and Astrophysics II (14)
07. Electrodynamics and Radiative Processes II (14)
08. Quantum and Statistical Mechanics II (14)

Semester II, Term I, From January first week to February fourth week.

09. Astronomical Techniques I (14)
10. Galaxies : Structure, Dynamics and Evolution (21)
11. Extragalactic Astronomy I (21)

Semester II, Term II, From March third week to May second week.

12. Astronomical Techniques II (14)
13. Interstellar Medium (14)
14. Extragalactic Astronomy II (14)
15. Project Work (During May - July).
16. Topical Course (for earlier batch of students) (< 21)

1. The courses are designed, emphasizing the aspects which are directly relevant to A & A. It is assumed that unnecessary repetition of material, which is already taught at M.Sc. is avoided.

2. The syllabus provides enough avenues for topics which are of "local interest" to be included in the graduate school. This is necessary so that graduate students coming out of IUCAA/NCRA, not only have a comprehensive grasp of the A & A, but are also aware of the key research areas in which these two institutions are concentrating at present. Detailed syllabus may be found in the website : <http://www.iucaa.ernet.in/Academics-->Ph.D.Programme>.

If any of the Research Scholars from Indian universities/colleges are interested in attending any of these courses, they may contact : The Coordinator, Core Programmes, IUCAA, e-mail : vch@iucaa.ernet.in.

Proposals for holding Workshops/Schools Outside IUCAA

Proposals to conduct workshops/schools in Astronomy and Astrophysics or related areas, to be supported by IUCAA, are invited from university departments/affiliated colleges and the same may be sent to the Coordinator, Core programmes, IUCAA (vch@iucaa.ernet.in), by March 1, 2010 (for events to be conducted during August 2010 - July 2011), so as to be included in the academic calendar for the next academic year.

The following details should be given while sending the proposals : (i) the title (topic), (ii) duration of the workshop/school, (iii) topics to be covered and number of lectures in each topic, (iv) the level of audience and their number, (v) the number of resource persons available locally and the number of resource persons expected from IUCAA and, (vi) a description of the facilities available and the budget estimates (clearly stating the support offered by the host university/institute).

It is generally expected that infrastructural facilities and accommodation to the participants as well as the resource persons will be provided by the host institution. Other expenses will be borne by IUCAA. The proposers are encouraged to consult IUCAA faculty while framing the proposal.

Once the workshop/school is approved, IUCAA will nominate a coordinator from its faculty, who will interact with the organiser in relation to academic programme, budget, and identifying and approaching the resource persons.

Welcome to the IUCAA Family

IUCAA is happy to announce the selection of the Twentieth Batch (2009) of Visiting Associates. The Visiting Associateship is for a tenure of three years beginning August 1, 2009

Extension of Term to the Seventeenth Batch of Visiting Associates :

01. B. R. S. Babu, University of Calicut, Kozhikode.
02. Shyamal Kumar Banerjee, University of Petroleum and Energy Studies, Dehradun.
03. Sarbari Guha, St. Xavier's College, Kolkata.
04. Ngangbam Ibohal, University of Manipur, Imphal.
05. Joe Jacob, Newman College, Thodupuzha.
06. Deepak Jain, Deen Dayal Upadhyaya College, New Delhi.
07. Bikash Chandra Paul, North Bengal University, Siliguri.
08. C. D. Ravikumar, University of Calicut, Kozhikode.
09. Sandeep Sahijpal, Panjab University, Chandigarh.
10. Asoke Kumar Sen, Assam University, Silchar.
11. K. Shanthi, University of Mumbai.
12. M. Sivakumar, University of Hyderabad.

New Visiting Associates :

01. Sk. Saiyad Ali, Jadavpur University, Kolkata.
02. Surendra Nath Borah, Dergaon Kamal Dowerah College, Goalghat, Assam.
03. Anjan Dutta, University of Delhi.
04. Minu Joy, Alphonsa College, Pala, Kerala.
05. Mamta, S. G. T. B. Khalsa College, Delhi.
06. Farook Rahaman, Jadavpur University, Kolkata.
07. Ranjan Sharma, St. Joseph's College, Darjeeling.
08. Pranjal Trivedi, Sri Venkateswara College, Delhi.

Visitors Expected

October

Gour Bhattacharya, Presidency College, Kolkata; Gaveshna Gupta, Jamia Millia Islamia, New Delhi; Bhuvnesh Jain, University of Pennsylvania; Kanti Jotania, The M. S. University of Baroda, Gujarat; Saptarshi Mondol, Calcutta University; and Annie Robin, Besancon Observatory, France.

About 8 students from Presidency College, Kolkata will be attending lectures during October 18 - 29, 2009.

About 100 participants from India and abroad will be attending the Workshop on High Performance Computing in Observational Astronomy : Requirements and Challenges, during October 12-16, 2009.

November

Alireza Molaie-nejad, Zanjan University, Iran; Sarah Motta; Teo Muoz Dariais; Tomaso Belloni; V. Bhatnagar, Delhi University; Alex Craik, University of St. Andrews, U.K.; N. Kanda, H. Tagoshi, Hirota.

December

Jibetesh Dutta; and P. Balaram, Indian Institute of Science, Bangalore.

Visitors

(July - September 2009)

Jitesh V., Jeena K., A. Pradhan, P. Yadav, Shuvendu Chakraborty, A. K. Singha, R. Adhikari, A. R. Rao, S. Gupta, B. Tarde, R. Tikekar, P. McCarthy, M. Johns, R. Dutta, B. E. Reddy, G. C. Anupama, B. Ramesh, B. R. Prasad, R. S. Jhon, P.N. Pandita, D. Pawar, K. R. Jotania, N. K. Lohani, Stuti Prasad, Ashish R., B. Chirade, De Romanis Federico, S. C. Kaushik, Kp. Sharma, S. R. Valluri, Vinu V., N. S. Philip, A. Shafieloo, L. Chaware, S. Kulkarni, Aseem Paranjape, Reza Tavakol, A. Kakodkar, A. Raychaudhuri, M. Sami, G. Baskaran, Akshatha Mohan, S. Boraskar, Nidhi Joshi, Sudhanshu Barway, K. S. V. S. Narasimhan, B. Ishwar, Shankaran Kumar, Santanu Das, Joe Jacob, S. Mahajan, Anjan A. Sen, Sanjay Kumar, Donald Lynden Bell, and Navin Chandra.

Around 120 persons had participated in the first IUCAA Reunion Meeting held during August 11 - 14, 2009.

Listed below are the IUCAA preprints released during July to September 2009. These 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>

Joydeep Bagchi, Joe Jacob, Gopal-Krishna, Nitin Wadnerkar, J. Belapure, Norbert Werner, and A.C. Kumbharkhane, *Diffuse bubble-like radio-halo emission in MRC 0116+111 : Imprint of AGN feedback in a distant cluster of galaxies*, IUCAA-16/09; Joydeep Bagchi, Gopal-Krishna, Marita Krause, and Santosh Joshi, *A giant radio jet of very unusual polarization in a single-lobed radio galaxy*, IUCAA-17/09; R. J. van Weeren, H. J. A. R. Nottgering, J. Bagchi, S. Raychaudhury, H. T. Intema, F. Miniati, T. A. Enslin, M. Markevitch, and T. Erben, *Radio observations of ZwCl 2341.1+0000 : A double radio relic cluster*, IUCAA-18/09; Joydeep Bagchi, Joe Jacob, Gopal-Krishna, Norbert Werner, Nitin Wadnerkar, Jaydeep Belapure and, A. C. Kumbharkhane, *A diffuse bubble-like radio-halo source MRC 0116+111 : Imprint of AGN feedback in a low-mass cluster of galaxies*, IUCAA-19/09; Nishant Mittal, Kumud Pandey, Udit Narain, and S.S. Sharma, *On properties of narrow CMEs observed with SOHO/LASCO*, IUCAA-20/09; N. Gupta, R. Srianand, P. Petitjean, P. Noterdaeme, and D. J. Saikia, *21-cm absorbers at intermediate redshifts*, IUCAA-21/09; Saumyadip Samui, Kandaswamy Subramanian, and Raghunathan Srianand, *Models of high redshift luminosity functions and galactic outflows : The dependence on halo mass function*, IUCAA-22/09; Andrew J. Fox, J. Xavier Prochaska, Ce'dric Ledoux, Patrick Petitjean, Arthur M. Wolfe, and Raghunathan Srianand, *Metal-enriched plasma in protogalactic halos : A survey of $N V$ absorption in High- z damped & sub-damped Lyman-alpha systems*, IUCAA-23/09; P. Noterdaeme, C. Ledoux, R. Srianand, P. Petitjean and, S. Lopez, *Diffuse molecular gas at high redshift : Detection of CO molecules and the 2175 A* dust feature at $z=1.64$* , IUCAA-24/09; Saumyadip Samui, Raghunathan Srianand and,

Kandaswamy Subramanian, *Understanding the redshift evolution of the luminosity functions of Lyman-alpha emitters*, IUCAA-25/09; P. Noterdaeme, P. Petitjean, C. Ledoux, and R. Srianand, *Evolution of the cosmological mass density of neutral gas from Sloan Digital Sky Survey II - Data Release 7*, IUCAA-26/09; M. Vivek, R. Srianand, P. Noterdaeme, V. Mohan, and V. C. Kuriakose, *SDSS J092712.64+294344.0: Recoiling black hole or merging galaxies?* IUCAA-27/09; Patrick Petitjean, Raghunathan Srianand, Hum Chand, Alexander Ivanchik, Pasquier Noterdaeme, and Neeraj Gupta, *Constraining fundamental constants of physics with quasar absorption line systems*, IUCAA-28/09; C. S. Stalin, Patrick Petitjean, R. Srianand, A. J. Fox, F. Coppolani, and A. Schwobe, *Optical identification of XMM sources in the CFHTLS*, IUCAA-29/09; T. R. Seshadri, and Kandaswamy Subramanian, *Cosmic microwave background bispectrum from primordial magnetic fields on large angular scales*, IUCAA-30/09; S. Sridhar, and Kandaswamy Subramanian, *A non-perturbative quasilinear approach to the shear dynamo problem*, IUCAA-31/09; Andrew W. Baggaley, Carlo F. Barenghi, Anvar Shukurov, and Kandaswamy Subramanian, *A reconnecting flux rope dynamo*, IUCAA-32/09; S. Sridhar and, Kandaswamy Subramanian, *Shear dynamo problem : Quasilinear kinematic theory*, IUCAA-33/09; Axel Brandenburg, Karl-Heinz Radler, Matthias Rheinhardt and, Kandaswamy Subramanian, *Magnetic quenching of alpha and diffusivity tensors in helical turbulence*, IUCAA-34/09; Shiv K Sethi, Biman B. Nath, and Kandaswamy Subramanian, *Primordial magnetic fields and formation of molecular hydrogen*, IUCAA-35/09; L. Christensen, P. Noterdaeme, P. Petitjean, C. Ledoux, and J. P. U. Fynbo, *Uncovering strong MgII absorbing galaxies : Imaging below the Lyman limit*, IUCAA-36/09 and Mudit K. Srivastava, A. N. Ramaprakash, Mahesh P. Burse, Pravin A. Chordia, Kalpesh S. Chillal, Vilas B. Mestry, Hillol K. Da, and Abhay A. Kohok, *TELICS-A telescope instrument control system for small/medium sized astronomical observatories*, IUCAA-37/09.

Congratulations to...

T. Padmanabhan on being elected *President* of Commission-47 of the International Astronomical Union.

Shyam N. Tandon on being the recipient of the UGC National Hari Om Ashram Trust Award, entitled Sir C.V. Raman Award for Research in Physical Sciences.

PEACOCK FLOWER TREE



The Nalanda guest house quadrangle in IUCAA is currently a sight to behold with orange and yellow flowers of the 'Krishna chura', also called as 'Sankeshwar' in Marathi. These beautiful bushy shrubs have a few prickles and grow to a height of about 3m. The tree has a marked similarity, and can be mistaken for the Gul Mohur tree. The name Caesalpinia honours the 16th Century botanist and philosopher Andrea Caesalpini and 'Pulcherrima' means beautiful. The tree is quite common, and is also called the Pride of Barbados in English.

The large sprays of flowers appear at the ends of the branches. Ten long stamens give the sprays a whiskery appearance. The pods are 7-8 cm long. Legend connects the "Peacock Flower Tree" with Lord Shiva and the tree is considered sacred. The tree starts flowering when it is just 8 months old and being leguminous fixes nitrogen.

Welcome to ...

Manjari Bagchi, who has joined as a Post-doctoral Fellow. Her areas of research are Pulsars in Globular Clusters, Radio Pulsar Timing Analysis, and Observable Properties of Neutron and Strange Stars.

Surajit Paul, who has joined as a Post-doctoral Fellow. His areas of research are Cosmological Structure Formation Shocks, Computational Astrophysics, Modelling Shocks and Turbulence, and Radio Observations of Large Scale Structures.

Sanil Unnikrishnan, who has joined as a Post-doctoral Fellow. His areas of research are Cosmological Perturbations Theory, Dark Energy, Cosmic Microwave Background Radiation, and Modified Gravity Models.

Luke Chamandy, Mohammad Hasan, Suprit Singh and Kaustubh Vaghmare, who have joined as Research Scholars.

... Farewell to

Chiranjib Konar, who has completed his tenure as a Post-doctoral Fellow at IUCAA, and joined the Indian Institute of Astrophysics, Bangalore, as a Post-doctoral Fellow.

Kuntal Misra, who has joined the Space Telescope Science Institute, Baltimore, U.S.A., as a Post-doctoral Fellow.

Biswajit Pandey, who has joined the Visva Bharati University, Santiniketan, as a Lecturer in Physics.

Sudipta Sarkar, who has joined the University of Maryland, U.S.A., as a Post-doctoral Fellow.

Khagol (the Celestial Sphere)
is the quarterly bulletin of IUCAA
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