

Programme

02nd Annual Meeting of Modern Engineering Trends in Astronomy (META 2019)

15 - 17, September, 2019, Indian Institute of Astrophysics (IIA), Bengaluru

Sunday, September 15, 2019

08:15 - onwards Registration opens and breakfast

Welcome and Plenary Sessions

09:00– 09:10 Welcoming Remarks - Dean, IIA, Bengaluru

09:10 – 10:00 "L&T's contribution to Mega Science Projects"-**Ravi Kataria**, Head Business Development & Marketing, Missiles & Aerospace Business, Larsen & Toubro Limited.

Invited Talks

10:00 – 10:30 "India and the Square Kilometre Array"-**Y. Gupta**, Centre Director, NCRA

10:30 – 11:00 "India's contribution to TMT hardware"-**N Viswanatha**, Former GD, ISRO & Consultant TMT Project, IIA, Bengaluru

11:00 – 11:30 **Poster Presentation & Coffee/Tea Break**

**Session-1: Instrumentation
(Chair: Mr. P.K. Mahesh, IIA & Mr. A. Raghunathan, RRI)**

11:30 – 11:45 "Wide Field Optical Spectrograph for Thirty Meter Telescope – India's contribution in the design and development"-**Devika K Divakar**, Project Scientific Associate, India-TMT Coordinate Center, IIA, Bengaluru

11:45 – 12:00 "Investigating Single Photon Interaction produced by type II SPDC" -**Mr. Subhro Das**, IIT (BHU) Varanasi

12:00 – 12:15 "Sky Watch Array Network (SWAN): Wide-band Receiver Instrumentation development and Current Status"- **Mr. Raghavendra Rao K.B.**, RRI

12:15 – 12:30 "The Infrared Astronomy Group (IR group) of TIFR" – **Mr. Milind Naik**, TIFR

12:30 – 12:45 "Low cost - 21cm observation on Sun from Kodaikanal Solar Observatory"-**Mr. Manickavasagam G** (SBM college of Engg. and Technology, Dindigul)

12:45 – 13:00 "Low cost Characterisation of Sun and Nadir Sensors for Attitude Control of Nano Satellites"- **Mr. Asir Nesa Dass N**, IIST

13:00 – 14:00 **Lunch Break**

**Session-2: Mechanical Structures and Systems
(Chair: Mr. Suresh Kumar, NCRA & Mr. S.Kathiravan, IIA)**

14:00 – 14:30 "Engineering challenges in realization of Visible Emission Line Coronagraph on-board Aditya-L1"-**Mr. Subramanya Nagabhushan** IIA, Bengaluru

14:30 – 14:45	“Design and development of mechanical systems of SUIT Payload onboard Aditya-L1”- Mr. Akshay Kulkarni , IUCAA
14:45 – 15:00	“Brush arrangement for dome of 3.6m Devasthal optical telescope at ARIES”- Tarun Bangia , ARIES, Vaibhav Sharma , Zakir Husain College of Engineering & Technology, Aligarh Muslim University
15:00 – 15:15	“Design and Development of stress relieving support system for TMT primary glass blanks”- Mr. Alikhan Basheer , IIA, Bengaluru
15:15 – 15:30	“Design and Development of Telescope Cover Structure for 3.6m Telescope at ARIES”– Dr.Tarun Bangia , ARIES
15:30 – 16:00	Poster Presentation & Coffee/Tea Break
Session-3: Digital Signal Processing, RFI and EMI/EMC Mitigation (Chair: Mr.Amit Kumar, IIA & Mr.Yogesh Arora,TIFR)	
16:00 – 16:15	“Radio Frequency Interference and its mitigation at upgraded GMRT”- Mr.Sureshkumar S. , NCRA-TIFR Pune
16:15 – 16:30	“Testing a Multi-element, Multi-beam, FPA Beamformer in Free-space Test Range”- Ms Bela Dixit , GMRT, NCRA-TIFR
16:30 – 16:45	“Development of tools and methods to characterize low noise power supplies for the purpose of Astronomical instrumentation”- Mr. Anwesh Kumar Mishra IIA, Bengaluru
16:45 – 17:00	“Accelerated Tile Processor”- Prabu T , RRI
17:00 – 17:15	Challenges in Designing a Digital Spectrometer for Detection of Signals from CD/EoR, Girish B. S , RRI
17:15 – 17:30	“FPGA-based Focal Plane Array Beamformer Architectures for the Expanded GMRT”- Mr.Kaushal Buch , GMRT, NCRA-TIFR
17:30 – 18:00	Coffee/Tea Break
Engineers’ Day Lecture	
18:00 – 19:30	Ultra-Precision Engineering-Enabling human’s fundamental quest to decode the COSMOS - Sendhil Raja S. Ph.D. , RRCAT
19:30 onwards	Dinner at ICNAPP

Monday, September 16, 2019

Invited Talks	
09:00 – 09:45	“Software for the Thirty Meter Telescope”- Prof. Annapurni Subramaniam , IIA, Bengaluru
09:45 – 10:30	“VELC payload on ADITYA-L1” – Prof.B.R.Prasad , PI VELC ADITYA L1,IIA, Bengaluru
10:30 – 11:00	Poster Presentation & Coffee/Tea Break
Session-4: Photonics: Optical system Design and Analysis (Chair: S. Nagabhushana,IIA & S.Sriram,IIA)	
11:00 – 11:30	“INSIST: A Proposed Wide-Field, UV-Optical, Imaging and SpectroscopicSpace Telescope”- Mr.Sriram Sripadmanaban , IIA, Bengaluru
11:30 – 11:45	“Adaptive Optics Program at IIA”- Dr.Sridharan Rengaswamy ,IIA, Bengaluru
11:45 – 12:00	“Non-spherical representation of optical surfaces - An advanced study”- Mr Totan Chand , IIA, Bengaluru
12:00 – 12:15	“FE analysis for the mechanical structure of Prototype Segmented Mirror Telescope”- MrSandeep D.S. IIA, Bengaluru
12:15 – 12:30	“Mirror Segment Error Budget Development for 10-meter class Telescope - NLOT/MSE”- Ms Janani Varadhachari , IIA, Bengaluru
12:30 – 12:45	“Conceptual Design of Primary Mirror Cover for the proposed 2m classNational Large Solar Telescope”- Mr. Govinda K.V. IIA, Bengaluru
12:45– 13:00	"Conceptual design for TMT high resolution optical spectrograph"- Amirul Hasan , Project Engineer I, India-TMT Coordinate Center, IIA, Bengaluru
13:00 – 14:00	Lunch Break
Session-5: Image Processing, Antennas and RF & Electrical System, Observatory Control System and Software (Chair: Dr. T.S. Kumar, ARIES & Mr. Tarun Bangia, ARIES)	
14:00 – 14:30	“Telescope Control Software and Communication server for 30 inch Telescope, VBO - an Overview / Software aspects of 2.4 M mirror coating plant, VBO”- V Arumugam ,Engineer-E,IIA, Bengaluru
14:30 – 14:45	“The 3.6 m DOT electronics: Maintenance and future upgradation strategies”- Dr Kumar T. S. ARIES
14:45 – 15:00	“RF over fibre optic backplane for phased array antennas”- Mr.Sanjeet Kumar Rai ,NCRA TIFR
15:00 – 15:15	“RASCAL (Reflector Antenna Sensitivity Calculator) Software”- Mr. Sougata Chatterjee ,GMRT-NCRA-TIFR
15:15 – 15:30	“Antenna and RF”- Abdipour
15:30 – 15:50	Poster Presentation & Coffee/Tea Break
Session-6: Electrical Systems and Others (Chair: Mr. Ramaswamy, IIA & Mr. Sanjiv Gorka, IIA)	
15:50 – 16:05	“Dual polarized broadband dipole antenna feed with conical reflector for uGMRT”- Mr Hanumanth Rao Bandari , TIFR

16:05 – 16:20	“Design of Drive Circuit for piezo walker for configurable slit unit”- Mr Pankaj Madhwani , TIFR, Mumbai
16:20 – 16:35	“Evolution of GMRT Servo Computer with RTAI: Status and Updates”- Mr.Thiyagarajan Beeman, Mr.Shailendra Bagde , GMRT, TIFR,
16:35 – 16:50	“Developmental status of X-ray polarization sensitive mirrors”- Mr Panini Singam , IIA, Bengaluru
16:50 – 17:05	“An overview of Analog Receiver System for Detection of Global EoR Signal” - Somashekar R , RRI
17:05 – 17:20	Feasibility Study of Early Digitization implementation at GMRT (GMRT-NCRA, TIFR Sandeep C. Chaudhari, Mekhala Muley
17:20 – 17:30	Vote of Thanks
17:30 –	High Tea

Tuesday, September 17, 2019

06:00 – 09:30	Visit to VBO (Starting Point: IIA, Koramangala)
09:30 – 10:00	Breakfast at VBO
10:00 – 11:15	Visit to VBT (90")
11:15 – 11:30	Coffee/Tea
11:30 – 13:00	Visit to JCBT,40" & 30" Telescopes
13:00 – 14:00	Lunch Break
14:00 – 17:30	Departure from VBO and arrival to IIA Bangalore, Conference closure

List of Posters:

Date: 15/09/2019

S.N.	Title and Author
38	Advanced technology used in LIGO, Ms Richal Abhang (IUCAA)
9	Closed-loop control of Filter Wheel for 70 cm GROWTH telescope, Mr Aniruddh Herle
12	Recent and Future development of Far Infra-Red (FIR) Balloon borne experiment, Mr Pradeep Sandimani (TIFR)
11	Concept Design of retractable dome for the proposed 2m class National Large Solar Telescope, Mr Hari Mohan Varshney, IIA
8	Study of performance of segment support assembly for NLOT/MSE primary mirror segments, Mr SANDEEP D S (IIA, BENGALURU)
45	Opto-mechanical design and analysis of Cubesat based NUV Spectrograph Dr. Binukumar Nair, IIA
40	Prototype for raw voltage recording in the backend system of the upgraded GMRT, Shelton Gnanaraj
54	Radio telescope observation planning using machine learning techniques, Prabu T (Raman Research Institute)
41	Towards an Optimal Real-time Broadband RFI Filter for the Upgraded GMRT, Mr Kaushal Buch GMRT, NCRA-TIFR
19	Filter integrated Low Noise Amplifier to suppress out of band Radio Frequency Interference, Mr VILAS VILAS BHALERAO
20	Reducing effects of cross talk in a Radio Telescope using Walsh modulation Mr Sandeep Chaudhari (GMRT-NCRA, TIFR)

Date: 16/09/2019

S.N.	Title and Author
58	Configuration Design for a Prototype Segmented Mirror Telescope, Mr Abhishek Goudar (engineer trainee)
6	Study of Alignment Sensitivity of TMT Primary Mirror Segments on Image Quality, Varun Prakash P (Christ University), Athulkurian (Christ University)
55	21 cm Horn Receiver, Prabu T (Raman Research Institute)
51	Monopole antenna for detecting the signal during Cosmic Dawn to Epoch of Reionization – Current status, Mr Raghunathan Agaram (Raman Research Institute)
21	Single Antenna Receiver Design for Radio Astronomy, Mrs Sweta Gupta (GMRT-NCRA-TIFR)
27	Characterisation of Upgraded Frequency Standard for the GMRT

	Observatory, Mr Navnath Shinde (NCRA-TIFR)
49	Telescope automation and Control, Heena Aslam, ZHCET, Aligarh Muslim University
46	Reliability Study of GMRT Analog Backend Receiver System ,Mr.SudhirPhakatkar (GMRT Khodad)
39	GMRT back-end system monitoring system ,MrAtulGanla (NCRA-GMRT)
18	Power and Heat Management of New Era Electronic Systems (GMRT), MrIrrappaHalagali (GMRT, NCRA-TIFR)