

Brief report on the activities of IUCAA Centre for Astronomy Research And Development, Department of Physics, University of Calicut during April 1, 2019 – March 2020

### **Area of research**

ICARD in the University of Calicut is involved in the morphological analysis of galaxies and high energy studies of active galaxies. Sruthi, Baheeja and Vinod are studying the connection between the central intensity ratio and various other photometric and spectroscopic parameters in order to understand the co-evolution scenario of galaxies. Sitha, Amina and Habib Rahman study broadband spectra of blazars in an attempt to unravel the mysteries associated with production of extremely energetic emission from the central region of galaxies.

### **Seminars conducted.**

#### 1. Two day Astronomy Congress-2019

The IUCAA Centre for Astronomy Research and Development (ICARD) initiated its activities in the Department of Physics by joining hands with Kerala Sastra Sahitya Parishad to conduct the Astronomy Congress-2019, during April 27-28, 2019, in connection with the celebrations of 50<sup>th</sup> anniversary of first Moon Landing. The fully residential programme hosted about 150 participants including over 100 children from schools in the districts of Calicut and Malappuram. The Hon'ble Vice Chancellor Dr. K. Mohammed Basheer inaugurated the function. Soon after the inauguration and preliminary ice breaking sessions, the participants were split into 3 parallel groups to conduct day time astronomy experiments. There were experiments to find due north, to understand precession of the Earth, observation of Sun and to mimic eclipses. There were demonstrations and presentations by K Pappootty, P. T. Ramachandran, Jiji Varghese, V. V. Manikandan, C. Subramanian, P. Sajin, Ilyas Perumbilam, Ananthamurthy, P. Sudhir, A. Sreedharan and Ravikumar C.D. In addition, a night sky watch was also conducted.

#### 2. National Seminar on Observations and Research in Astronomy and Astrophysics

This programme was intended for motivated post-graduate students of Physics from colleges affiliated to University of Calicut and was held during November 27-29, 2020. The programme was inaugurated by Prof. Ajit Kembhavi and resource persons included G. Rajasekharan, A.N. Ramaprakash, K. Indulekha, Ninan Sajeeth Philip, C. S. Stalin, Anand Narayanan, M. Vivek and Sachin Pachat. In addition, there was a detailed telescope making and night watch session during the programme.

### **Outreach Activity**

#### 1. Workshop on Tools and Techniques for Watching and Recording the Sky

The workshop, held during December 20-21, 2019, was intended for students from nearby colleges and public to help make smaller telescopes and observe the sky. Training was given on selecting small ready-made telescopes and to make small telescope. There was session on astrophotography also.

#### 2. Solar Eclipse Watch on Dec 26, 2019.

The Vice Chancellor Dr. Anil Vallathol inaugurated the watching programme in connection with the total solar eclipse on Dec 26, 2019. This was done in collaboration with Kerala Sastra Sahitya Parishad and live observation of solar eclipse was provided in five locations near the Administrative block using projection methods. Over 500 people participated in it.

### **Publication**

1. Aswathy, S. & Ravikumar, C. D., Co-evolution of nuclear rings, bars and the central intensity ratio of their host galaxies, Research in Astronomy and Astrophysics, 2020, Volume 20, Issue 2, id.015. DOI: [10.1088/1674-4527/20/2/15](https://doi.org/10.1088/1674-4527/20/2/15)