

Our Respected **Director, Prof. CSP Rao** congratulated **Mr. Karthik R**, MME 3rd B.Tech student for presenting and securing **THIRD** prize in *Poster Presentation* at the national level conference “*Recent Innovations in Advanced Materials (RIAM - 2018): Physics of Advanced Materials*”, Jointly Organized by CSIR-AMPRL, Bhopal Chapters of MRSI & IIM and MPCOST, Bhopal during 18th – 19th September, 2018.



SELECTIVE RADIO FREQUENCY REFLECTING SMART MATERIAL FOR RADIO TELESCOPE ANTENNAS

In the radio astronomy, the signal collection by radio telescope antennas has serious issues due to the noisy and unwanted background signals. In the present paper, I have proposed a smart material made of different metal dielectric combination for selective radio frequency reflection in radio telescope antennas. The purpose of the present work is to find a solution for the problems faced by the radio telescopes in decoding data from a mixture of wanted and unwanted radio signals coming from space and manmade radio waves. An experiment is carried out to study the metal dielectric antenna response towards the reflection strength of selected range radio-waves. These proposed smart materials (metal-dielectric combinations) may be suitable in radio astronomy application, where the unwanted radio frequency bandwidths can be attenuated by the antenna material. This material when used for the parabolic antennas of the radio telescopes can filter the required frequencies before it enters the signal processing system so maximum noise reduction can be done. Conventional steel structure based antennas do not have any of the above mentioned smart properties, so the application of this material will be a new pursuit for radio astronomy.