

## **ICTS Astrophysics & Relativity Seminar**

- Title** : Physics of Fast Radio Burst and Their Use as Cosmological Probes
- Speaker** : Pawan Kumar (University of Texas at Austin, USA)
- Date** : Monday, 15 July 2024
- Time** : 11:00 AM (IST)
- Abstract** : The detection of a Fast Radio Burst (FRB) in 2007 was a major, unexpected discovery in astronomy. It has opened a new frontier in the field, which is undergoing rapid expansion. Hunting for FRBs and measuring their physical properties have become major scientific goals in astronomy. It is well established that most FRBs are located several billion light-years away and are, therefore, the brightest known transients in the radio band. An FRB was discovered in our galaxy in April 2020, confirming that at least some FRBs are associated with neutron stars with very strong magnetic fields (magnetars). I will describe recent work regarding how these coherent, powerful radio outbursts are produced. Additionally, I will discuss how FRBs can be used as probes of the baryon distribution in the universe and for investigating the era of reionization, when the very first stars were formed roughly half a billion years after the Big Bang, transitioning the universe from neutral to ionized gas.
- Venue** : Emmy Noether Seminar Room
- ZoomLink: <https://icts-res-in.zoom.us/j/98900485142?pwd=KeG778Jqd8bMikEEHG3Pb96Rw7cvRQ.1>  
Meeting ID: 989 0048 5142  
Passcode: 151516