

Cosmological Frontiers in Fundamental Physics Triangular Conference : APC - Perimeter - Solvay 2021



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Fast Radio Burst Physics & Cosmology

jeudi 27 mai 2021 16:20 (40 minutes)

The detection of a Fast radio burst (FRB) in 2007 was a major unexpected discovery in astronomy in decades. Hunting for FRBs and measuring their physical properties have become one of the leading scientific goals in astronomy. It is well established that many FRBs are located at a distance of several billion lightyears, and therefore they are the brightest known transients in the universe in the radio band. Using very general arguments, I will show that the radio emission is coherent, and the magnetic field strength associated with the source of these events should be 10^{14} Gauss or more. Recently, an FRB was discovered in the Galaxy and it confirmed that at least some FRBs are associated with magnetars. I will describe my recent work regarding how the FRB radiation is produced and provide a unified picture for the weak Galactic FRB as well as the bright bursts seen at cosmological distances. I will discuss how FRBs can be used as a probe of the baryon distribution in the universe and for investigating the epoch of reionization.

Orateur: Prof. KUMAR, Pawan (U. of Texas, Austin)

Classification de Session: First Session, Thursday