Colloquium # 240

Institute for Plasma Research

Title : Gravitational-wave astronomy: A new window to the Universe

Speaker : Prof. Parameswaran Ajith
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Date : 10th November 2014 (Monday)

Time : 03.30 PM

Venue : Seminar Hall, IPR

Abstract:

The existence of gravitational waves (GWs) is one of the most intriguing predictions of the General Theory of Relativity, propounded by Albert Einstein. GWs are freely propagating oscillations of spacetime, produced by dynamics in mass-energy concentrations expected in violent astrophysical or cosmological phenomena. Although GWs are yet to be directly detected, radio observations of the orbital decay of binary pulsars provide a strong indirect evidence of their existence. The first direct detection of GWs is likely to happen in the next few years. Once detected, GW observations will open up a fundamentally new astronomical window on to the Universe, complementing the existing astronomical windows. This talk will survey the ongoing worldwide effort for the direct detection of GWs (some in India, related to the proposed LIGO-India project, in which the IPR playing a major role) and the expected science from GW observations by the end of this decade.