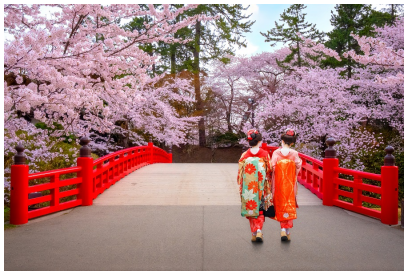

ID de Contribution: **6** Type: **Non spécifié**

A viable model to explain the Fast radio burst using the Gertsenshtein-Zel'dovich effect

mercredi 29 mars 2023 08:45 (15 minutes)

Fast Radio Bursts (FRBs) are one of the super-energetic radio pulsed signals with a short (< 1 sec) time duration. In recent years, numerous theoretical explanations for the origin of FRBs have been proposed. However, even with exotic physics, models have been unable to universally explain the properties of these events, such as peak flux and pulse width. In this study, we present a novel model that explains the origin of FRBs of GHz frequency radio waves. The model has three ingredients: compact object, progenitor with very strong effective magnetic field strength, and GHz frequency gravitational waves (GWs). Due to the Gertsenshtein-Zel'dovich effect, when GWs pass through the magnetosphere of such compact objects, their energy is converted into electromagnetic waves. This conversion produces bursts of electromagnetic waves in the GHz range, leading to FRBs. Therefore, we infer that millisecond pulsars may be the origin of FRBs. Further, our model offers a novel perspective on the indirect detection of GWs at high-frequency beyond detection capabilities. (Based on arxiv:2202.00032)

Auteurs principaux: KUSHWAHA, Ashu (Indian Institute of Technology Bombay); Dr MALIK, Sunil (Indian Institute of Technology Bombay and Institut für Physik und Astronomie, Universität Potsdam); Prof. SHANKARA-NARAYANAN, S. (Indian Institute of Technology Bombay)

Orateur: KUSHWAHA, Ashu (Indian Institute of Technology Bombay)

Classification de Session: Dark and Primordial Universe & Gravitational Waves

Classification de thématique: Gravitational Waves