Contribution ID: **53** Type: **Presentation**

Millicharged fermion vacuum polarization and superluminal photon propagation.

Monday 18 June 2018 17:00 (5 minutes)

In this talk I discuss the possibility of vacuum polarization due to millicharged fermions in a gravitational field and the possibility of superluminal photon propagation in an expanding universe. Vacuum polarization in a graviational field is known to generate photon superluminal propagation in many situations such as in the metric of a black hole, in an expanding universe etc. Based on the recent observations made by LIGO/VIRGO, I discuss the implications that millicharged fermion vacuum polarization has on the velocity of photons from astrophysical sources such as that of GW170817. In addition, I discuss some constraints on the millicharged fermion parameter space based on the electromagnetic counterpart of the GW170817 source detected by the FERMI-GMB collaboration.

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Session Classification: Plenary short presentations