Poster Session #B
Observational and space tests of gravitation

B03

Searching for new physics during gravitational waves propagation

Leïla Haegel (Laboratoire Astroparticules et Cosmologie Paris)

The direct detection of gravitational waves opened an unprecedented channel to probe the existence of new physics, including alternative theories of gravitation and violation of Lorentz invariance by low-energy manifestation of a possible theory of quantum gravity. The dispersion of gravitational waves during their propagation would be a clear flag for new physics, and would affect the signal morphology as well as the inferred luminosity distance of the source. This poster presents constraints on the gravitational waves dispersion using the LIGO and Virgo detection during the first three observational runs. It also outlines a novel study aiming at measuring the Standard Model Extension coefficients for polarisation-dependent dispersion due to spacetime birefringence.