Contribution ID: **35** Type: **Talk/seminar**

Gravitational Wave lensing beyond Einstein's General Relativity

Wednesday 8 September 2021 17:10 (20 minutes)

Gravitational lensing of light is a well established test of gravity. However, little is known about how gravitational waves (GW) propagate beyond the simplest space-times in theories beyond Einstein's General Relativity (GR). I will present a framework for GW lensing beyond GR at leading order in frequency. The modified causal structure and kinetic mixing between metric and additional degrees of freedom leads to new phenomena, providing clear-cut tests that do not require an electromagnetic counterpart. I will present detailed predictions for static, spherically symmetric lenses in an quartic Horndeski theory in which novel GW lensing effects can provide tests far more stringent than the multi-messenger event GW170817. The next terms in the frequency expansion will further enrich the phenomenology of GW lensing and enable new precision tests of gravity.

Authors: EZQUIAGA, Jose Maria (University of Chicago); Dr ZUMALACARREGUI, Miguel (University of California at Berkeley)

Presenter: Dr ZUMALACARREGUI, Miguel (University of California at Berkeley)

Session Classification: Regular Sessions