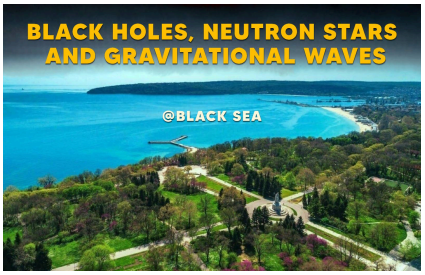

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Tidal effects in gravitational waves from neutron star binary inspirals in scalar-tensor gravity

Wednesday 18 June 2025 11:30 (30 minutes)

Neutron stars are useful laboratories for many areas of physics, including subatomic physics and the coupling of nonlinear gravity with matter. To gain further insights into the fundamental information contained in observable neutron star properties and potential degeneracies between modifications to different sectors of physics, it is useful to consider theories of gravity beyond General Relativity. A feature of many such theories is the presence of extra fields, as also motivated by proposed scenarios for inflation, dark energy, or dark matter. This talk will focus on features of neutron stars in a class of scalar-tensor theories of gravity involving a scalar field. I will discuss consequences for gravitational-wave signals from binary inspirals, focusing on matter signatures from a richer set of tidal interactions that arise due to the presence of the scalar field, the associated characteristic parameters and expected imprints in gravitational waves.

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