

Gravitational wave generation in effective field theories of dark energy

Tuesday, 24 October 2023 12:30 (30 minutes)

I will review how non-linearities can allow for screening solar-system scales from non-tensorial gravitational polarizations, focusing on the case of scalar-tensor theories with derivative self-interactions (K-essence). I will then present fully relativistic simulations in these theories in 1+1 dimensions (stellar oscillations and collapse) and 3+1 dimensions (binary neutron stars), showing how to avoid breakdowns of the Cauchy problem that have affected similar attempts in the past. I will show that screening tends to suppress the (subdominant) dipole scalar emission in binary neutron star systems, but that it fails to quench monopole scalar emission in gravitational collapse, and quadrupole scalar emission in binaries

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Session Classification: Neutron Stars to test Cosmology scenarios