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Coalescence of Exotic Compact Objects

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The direct detection of gravitational waves (GWs) by the LIGO and VIRGO interferometric detectors has begun a new era of GW astronomy, allowing us to study the strong regime of gravity through GW signals produced by coalescence of compact objects. In this talk, I will present our numerical studies on coalescence of binary Exotic Compact Objects (ECOs) performed by solving the Einstein equations with different types of exotic matter: boson stars, dark boson stars and Neutron Stars that contain a small fraction of dark matter particles clustered inside. These binaries lead to different dynamics and gravitational waves emission during their coalescence, which might be crucial to distinguish them with current/future LIGO and Virgo observations.

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