

12th Iberian Gravitational Waves Meeting



Contribution ID: 23

Type: **Contributed Talk (20 minutes)**

A numerical-relativity gravitational-wave catalogue of spinning Proca-star collisions

Tuesday 7 June 2022 12:00 (20 minutes)

We have performed a systematic study of the dynamics and the emission of gravitational radiation in head-on collisions of dynamically robust spinning vector boson stars, {it aka} Proca stars. We find that the wave-like nature of bosonic stars has large impact on the gravitational-wave emission. The energy emitted in gravitational waves critically depends on the difference between the oscillation frequencies of the primary and secondary stars $\Delta\omega/\mu = (\omega_1 - \omega_2)/\mu$ in a non-monotonic way. In the unequal-mass case we observe a periodic modulation of the radiated energy as a function of ω_2/μ of the secondary star with fixed ω_1/μ that we relate to constructive and destructive interference due to the interaction of the Proca field with itself.

Which topic best fits your talk?

GW Theory and Fundamental Physics

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