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Magnetized Strange Stars and Gravitational Waves signals

We investigate the emission of gravitational waves from spheroidal, magnetized strange stars in two scenarios: an isolated, slowly rotating star and a binary system. For the isolated star, we compute the quadrupole moment and the amplitude of the gravitational waves that may be emitted. In the case of the binary system, we determine the tidal deformability by simultaneously solving the spheroidal structure equations and the Love number equation. Our results are compared with data inferred from the GW170817 event, which is also used to estimate the mass and tidal deformability of the companion star in the binary system. Our model supports the existence of binary systems formed by magnetized strange stars, predicting gravitational wave signals that are consistent with other models of binary systems composed of magnetized hadronic stars or non-magnetized quark stars.

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