

Relativistic multipole moments provide a key ingredient for the description of the orbital evolution of coalescing binary systems and encode valuable information on the nature of the binary's components, which leaves a measurable imprint in their gravitational wave emission. In this talk I will present a new study on the features of the multipole moments for self-interacting rotating boson stars. Our results strengthen and extend previous numerical works, showing that even for the most compact configurations, the multipolar structure of these hypothetical stellar objects deviates significantly from that of a Kerr black hole. We explore the characteristics of a class of BSs in the large self-coupling region, where solutions are expected to be stable, and provide accurate data for the multipole moments as functions of the object's mass and spin, which can be directly used to construct inspiral waveform approximants and to perform parameter estimations and searches for boson star binaries.