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## Tidal deformability of ultracompact Schwarzschild stars in the BH limit

One of the macroscopically measurable effects of gravity is the tidal deformability of astrophysical objects, which can be quantified by their tidal Love numbers. For compact objects, these numbers measure the resistance of their material against the tidal forces, and the resulting contribution to their gravitational multipole moments. According to GR, the Love numbers for nonrotating black holes are zero. In this talk I will discuss different configurations of nonrotating compact and ultracompact stars to bridge the compactness gap between black holes and neutron stars and calculate their Love number  $k_2$ . In particular, I will discuss our results for  $k_2$ , for the first time, for uniform density ultracompact stars, with compactness beyond the Buchdahl limit. We found that  $k_2$  approaches smoothly to zero as the compactness approaches the Schwarzschild limit. Our results provide insight on the zero tidal deformability limit and we use current constraints on the binary tidal deformability  $\Lambda$  from GW170817 (and future upper limits from binary black hole mergers) to propose tests of alternative models.

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