

Tidal Love Numbers and Scattering Amplitudes

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Black holes, neutron stars and other compact gravitating objects can be described at long distances by a point particle effective field theory. In such effective theory, tidal effects and/or the dynamics of the horizon are captured in a series of Wilson coefficients, the so-called Love numbers, which can be determined by matching with a complete description of the compact object in general relativity. Surprisingly, even in the classical theory, these coefficients undergo a renormalization group flow, which arises from an ambiguity in separating the compact object environment. In this talk I will explain the basic setup of this EFT and a systematic procedure to carry out the matching and running of the Love numbers using scattering amplitudes.

Alternate track

I read the instructions above

Yes

Author: PARRA-MARTINEZ, Julio (University of British Columbia)

Presenter: PARRA-MARTINEZ, Julio (University of British Columbia)

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