Contribution ID: **26** Type: **not specified**

Absorptive Effects and Classical Black Hole Scattering

Thursday 14 December 2023 09:45 (30 minutes)

I will describe an approach to incorporating absorption effects into the post-Minkowskian effective description of two-body classical gravitational scattering. By coupling the usual point-particle effective description to an invisible sector of gapless internal degrees-of-freedom, the leading-order absorptive effects are encoded in the low-energy expansion of a spectral density function; for black holes this spectral function is obtained by matching an absorption cross-section calculated in black hole perturbation theory. This information is then recycled using the scattering amplitudes-based KMOC formalism to calculate the impulse on and change in rest mass of a Schwarzschild black hole scattering with a second compact body sourcing a massless scalar, electromagnetic or gravitational field. I will show that the results obtained are consistent with both worldline Schwinger-Keldysh calculations and numerical scalar self-force results.

Author: JONES, Callum

Presenter: JONES, Callum

Session Classification: Thursday AM 1