

# Gravitational self-force and the hunt for extreme-mass-ratio inspirals

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## **Abstract**

With the successful detection of gravitational waves by LIGO in 2015, there has been an increased interest in the field of gravitational wave astronomy. One of the goals of the LISA mission, planned for launch in 2034, is the detection of extreme-mass-ratio inspirals (EMRIs). These systems involve the slow inspiral of an object of  $\sim 10$  solar masses in to one of up to  $10^6$  solar masses. This talk will present a formalism that will enable calculations of certain second-order perturbative effects required for an accurate EMRI model.