

Detecting disk-induced environmental effects

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Gravitational-wave observations of extreme mass ratio inspirals (EMRIs) hold incredible potential to probe gravity, astrophysical and exotic environments. One of the main effects of astrophysical environments is the torque exerted by gas disks of active galactic nuclei, which force the EMRI to “migrate” (mostly) inward like a planet. We present a Bayesian model-independent framework to detect and characterise these effects with LISA. We will also explore a new, potentially detectable interaction between magnetised stars and the disk.

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Session Classification: Environmental Effects