

**Title:**

Pulsar timing in extreme mass ratio binaries: a general relativistic approach.

**Abstract:**

The detection of a pulsar in a tight, relativistic orbit around a supermassive or intermediate mass black hole - such as those in the Galactic centre or in the centre of Globular clusters - would allow for precision tests of general relativity in the strong-field, non-linear regime. I will present a fully general relativistic framework for the calculation of the theoretical time-frequency signal from a pulsar in such a system. This model will provide an accurate theoretical basis, applicable to the strong-gravity regime, to then compare with observations in order to test fundamental physics.