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Orbital perturbation theory in Schwarzschild space-time

Thursday, 26 September 2024 16:30 (20 minutes)

In our work, we obtain a set of Gaussian orbital perturbation equations in the Schwarzschild space-time in terms of Weierstrass elliptic functions, and solve it for several external forces in linear approximation. We consider forces defined from: the cosmological constant in the Schwarzschild–de Sitter space-time, various quantum gravity corrections, angular momentum from the Kerr space-time and some others. From this we obtain several observables, in particular, we consider a simple "kludge" scheme for gravitational waveforms.

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