

EMRI accuracy requirements: How important are the post-adiabatic components of the self-force for parameter estimation?

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It is commonly stated within the self force (SF) community that, in order to not significantly bias results, we require accurate tracking of the phase to within 1 radian. However, although frequently stated, this criterion is yet to be tested through a general Bayesian analysis. Armed with complete first order post-adiabatic (1PA) circular-Schwarzschild EMRI waveforms, we discuss the impact of neglecting this post-adiabatic information from a data analysis perspective. Within the view-point of the within-one-radian-of-phase criterion, we present results of our attempt to recover full 1PA waveforms simply using approximate 0PA waveforms using a fully Bayesian framework. For the class of source considered in this talk, we will conclude by discussing the potential impact on both astrophysics and tests of general relativity if the post-adiabatic components of the SF are neglected.

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