

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

Post-newtonian approach for spin effects in compact objects binaries SYLVAIN MARSAT, University of Maryland College Park — The upcoming new generation of ground-based detectors such as LIGO and VIRGO is likely to allow for the first direct detections of gravitational waves, opening a new window on the universe and on extreme events in the regime of strong-field gravity. Compact object mergers are the most promising sources for these detectors, as for the future space-based experiments. The faintness of the signal has driven a lot of effort to model it as accurately as possible, which is done using a combination of analytical and numerical methods. In this talk, we will address the question of the analytical modelling of spin-orbit effects in the inspiral of compact binaries, within the post-Newtonian approach. From astrophysical observations, black holes spins are expected to be generically close to maximal, and they play an important role by causing orbital plane precession modulating the signal. After a presentation of the formalism, we will report results recently obtained for the spin-orbit dynamics at higher order, as well as the new corresponding contributions to the emitted flux and phasing of the binary, and discuss briefly their importance.

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Date submitted: 10 Jan 2014

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