

GEODETIC PRECESSION IN BINARY PULSARS

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ABSTRACT. We have calculated the probability of observing geodetic precession in the binary pulsar PSR1913+16 for several different progenitor systems. Such an observation would support the asymmetric kick hypothesis for the origin of pulsar velocities. The results are shown to be dependent on the assumed progenitor but not to a strong degree. It is concluded that the probability of an observation to date is less than 20 percent in contrast to past predictions. In 15 years we expect this figure to be near 60 percent. We conclude that the null result to date cannot be taken as evidence against the asymmetric kick hypothesis for the origin of pulsar velocities. We develop our model and apply it to binary pulsars in general. We conclude that the likelihood of observing geodetic precession in the near future is low.

A complete version of this paper is soon to be submitted to a scientific journal.