PULSAR TIMING IN DOUBLE-NEUTRINO-STAR BINARY:
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of its timing solution. At the present time, $\dot{\omega}$, $\gamma$ and $s$ are measured extremely precisely, and also agree with the predictions of general relativity to better than 1%. 8

It should be noted that the agreement between these PK parameters represents a test of the purely quasi-static regime of general relativity, complementing the mixed quasi-static and radiative test obtained from PSR B1913+16. The range of Shapiro delay, $\tau_s$ is also in agreement with general relativity despite a large measurement uncertainty; this should improve with further timing observations.

The orbital period derivative of PSR B1534+12 merits special discussion. The observed value of $P_\dot{\nu}$ cannot be compared directly to the value predicted by general relativity. The relative acceleration of the Solar System Barycenter and the center of mass of the pulsar system induce a bias in the observed value. In the case of PSR B1534+12, the bias is dominated by a proper motion term dependent on the distance of the pulsar from the earth. 19 At present, the only, and rough, estimate of the distance to the pulsar comes from its dispersion measure and a model of the free electron content in the galaxy, 18 which yield an estimate of 0.7±0.2 kpc. When the bias is calculated using this value for the distance, the resultant measured intrinsic $P_\dot{\nu}$ is $(-0.167 ± 0.018) \times 10^{-12}$, only 87% of the value predicted by GR. $-0.192 \times 10^{-12}$. 8 Under the assumption that GR is the correct theory of gravity, the test can in fact be inverted and an improved distance to the pulsar calculated; 11 by this method, the distance to PSR B1534+12 is found to be 1.1±0.2 kpc. 8 An independent measurement of the pulsar distance, through a timing or interferometric parallax, will automatically lead to a greatly strengthened test of general relativity from this pulsar system.

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References