

Binary pulsars as a test of general relativity

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We report on discovery of first binary pulsar, hence leading a test of general relativity.

Given the measured masses, rotational rate and orbital diameter, general relativity predicts that their "year" is shortening by 78.8 seconds per million earth years. Hulse and Taylor[1] measured the shortening of the orbital period to be 76.5 ± 0.8 seconds per million earth years, where 0.8 is the uncertainty due to limitation of instrumental precision. The experimental data says the rate is most probably between 75.7 and 77.3, which confirms the prediction of general relativity to a precision of 1%.

References

- [1] R.N. Manchester & J.H. Taylor, *Pulsars* (1978)
- [2] Robert.L. Piccioni, *Einstein for everyone* (2010)

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