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## Testing gravity and the strong equivalence principle with pulsars

General relativity has been tested with exquisite accuracy in the Solar system. However, tests in the strong-field regime require a compact object. This is why a new era of strong-field tests opened up in 1974 with the discovery of the first binary neutron-star system by Hulse and Taylor in 1974 for which they both obtained the 1993 Nobel prize.

I will briefly review tests of general relativity with binary pulsars and then focus on a new test allowed by the discovery of the pulsar in a triple stellar system PSR J0337+1715. This pulsar is orbiting with two white dwarfs within an area comparable to the orbit of the Earth. I will show how this so far unique configuration has allowed for a dramatic improvement over previous tests of the strong equivalence principle with pulsars. Finally, I will show that the various experiments and observations can be combined consistently to constrain a particular theory of gravity, in this case the class of scalar-tensor theories. We will see that strong-field tests with pulsars play a key role in such exercise.

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