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The Double Pulsar – Unique tests of Einstein's predictions

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The first ever double pulsar, discovered by our team in 2003, consists of two pulsars, one with a period of only 22 ms and the other with a period of 2.7 s. This binary system with an orbital period of only 2.4 hr is the most relativistic system ever discovered and provides a truly unique laboratory for relativistic gravitational physics, putting the predictions of Einstein's theory of general relativity (GR) to the test. The possibility to measure two clocks orbiting each other in a strong gravitational field allows tests of GR and other theories of gravity that have not been possible before. Indeed, two years after the discovery, the Double Pulsar already provides us with the most stringent test ever performed in the strong-field regime. This talk will report on the achieved tests, will focus on the most recent results and looks ahead into the future and the prospects provided by the system.