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Probing neutron star properties with pulsar glitches

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The superfluid state of neutrons strongly affects the rotational properties of neutron stars, since their angular momentum is quantized in vortex lines whose interaction with the nuclear lattice in the crust can explain the rotational glitches observed in numerous pulsars. The study of those interactions at the microscopic level and their implementation in macroscopic and realistic models for the rotating star are crucial to put constraints on the EoS and on the superfluid state of matter as well as on the pulsar's mass. In this lecture, we review the main aspects of the theory of pulsar glitches, as well as recent advances in their realistic modelling.

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