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Starquakes on millisecond pulsars and gravitational waves emission

In accreting neutron stars (NSs), centrifugal forces can cause the failure of the crust. This event, called starquake, may produce a rotating mass quadrupole moment that allows the emission of gravitational waves (GWs). The angular momentum lost via GWs can balance the one gained from accretion, stopping the stellar spin-up. We use a Newtonian model, describing a compressible, stratified NS, to study the above physical picture. In particular, we calculate the breaking and equilibrium frequency for different EoS and masses. Furthermore, we estimate an upper limit for the ellipticity due to a sequence of starquakes. The study of the corresponding gravitational waves emission allows us to discuss their detectability.

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