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On the quasi-periodic variations of period derivatives of pulsars

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Observed data about quasi-periodic variations of period derivative of pulsars is considered. Characteristic radii of superfluid regions of pulsars are derived under the assumption that these variations are collective elastic oscillations of the superfluid vortex lattice (Tkachenko oscillations). The found values of radii are compared with values derived from X-ray data NICER and XMM-Newton X-ray satellites. These values are also compared with the values, obtained from equation of state. Simple model of Tkachenko oscillations requires further clarification. This method can be used for the approximate evaluation of radii of some pulsars.

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