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Crust breaking and the limiting rotational frequency of neutron stars

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Some neutron stars are known to rotate rapidly. Initially slowly rotating neutron stars in accreting binary systems may increase their rotational frequency as materials falling from their binary companion transfer their angular momentum. However, most of the observed rapidly rotating neutron stars spin only at about half of the Keplerian break-up frequency. In this work, we argue that this limit on the spin frequency of neutron stars could be set by the strength of the neutron star crust.

Primary author: Dr FATTOYEV, Farrukh (Indiana University)

Co-authors: HOROWITZ, Charles (Indiana University); Mr LU, Hao (Indiana University)

Presenter: Dr FATTOYEV, Farrukh (Indiana University)

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