

Abstract Submitted
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Mutual Friction in Neutron Star Cores CHRISTOPHER JOHNSTON, Texas AM Commerce — Neutron stars are the super-dense remnants of stars which had masses of 8-25 solar masses. A typical neutron star has a mass of 1.4 solar masses compressed into a ball having a radius of about 10km. The neutron star core, about 1km below the crust of a NS, is a fluid of protons and neutrons. Due to the motion of this fluid, certain observable effects, such as glitches, can be seen in the behavior of NSs. These effects are believed to occur due to effects such as the mutual friction, the interaction between the neutron and proton fluids arising due to nuclear forces. The coupling time constant is related to the mutual friction and is a measure of how tightly the fluid is coupled to the behavior of the crust, and models can be verified by observing effects arising due to this coupling. This project looked at current models for the mutual friction and coupling time and looked at avenues for improving these models.

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