

Dark Matter Capture in Neutron Stars

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The capture of dark matter (DM) in neutron stars provides a cosmic laboratory in which to study the nature of dark matter particles and their interactions under extreme conditions. We outline an improved treatment of the dark matter capture process that incorporates a number of important, yet previously overlooked, physical effects, including momentum dependent form factors and baryon interactions. We compare projected sensitivities for dark matter capture in neutron stars with limits from direct detection experiments. For both DM-nucleon and DM-lepton scattering, dark matter capture in neutron stars provides a means to probe interactions that would be difficult or impossible to observe on Earth.

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Dark matter

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