

XVth Quark Confinement and the Hadron Spectrum



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Capture, Thermalization and Annihilation of Dark Matter in Neutron Stars

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We consider the capture of dark matter in neutron stars, and the heating caused by the subsequent thermalization and annihilation of that dark matter. We find that most of the dark matter's kinetic energy is rapidly deposited in the star. Furthermore, we find that capture-annihilation equilibrium, and hence maximal annihilation heating, can be achieved without complete thermalization of the captured dark matter. Comparing projected neutron star sensitivities with limits from direct detection experiments, we find that neutron stars provide a possible means to probe dark matter interactions that would be difficult or impossible to observe in experiments on Earth.

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