

Abstract Submitted
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Hot Dilute Neutron Matter and Neutrino Interactions GAUTAM RUPAK, North Carolina State University — The equation of state for hot dilute neutron matter is model-independently calculated to the third order in a virial expansion, at densities and temperatures that are relevant for neutrino-neutron interactions in protoneutron stars. A general formalism for neutron matter with spin polarization is derived using a low-energy effective field theory. The long-wavelength neutrino response is calculated from the virial expansion, and can serve as a benchmark for model calculations that are in current use. The results are also of interest in atomic systems near the Feshbach resonance where universal behavior is expected.

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