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Probing cold dense nuclear matter
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Abstract
The protons and neutrons in a nucleus can form strongly correlated nucleon pairs. Scattering experiments, in which a proton is knocked out of the nucleus with high-momentum transfer and high missing momentum, show that in carbon-12 the neutron-proton pairs are nearly 20 times as prevalent as proton-proton pairs and, by inference, neutron-neutron pairs. This difference between the types of pairs is due to the nature of the strong force and has implications for understanding cold dense nuclear systems such as neutron stars.

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