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Preliminary Results of ^{12}C Neutron Elastic Scattering using CoGNAC at the LANSCE White Neutron Source

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Cross section data and associated uncertainty quantification regarding neutron scattering can be lacking or missing especially for stable nuclei found in common materials. This lack of information negatively impacts nuclear studies. Elastic scattering knowledge is particularly limited for many stable isotopes, especially in the MeV incident neutron energy where scattering is the most probable interaction, but experimental measurements become increasingly challenging. A nucleus with sparse elastic scattering data is ^{12}C despite its prevalence in a multitude of materials that are used in structural, shielding, and detector materials. The Correlated Gamma Neutron Array for sCattering (CoGNAC) experimental program at Los Alamos National Laboratory aims to provide neutron scattering cross section measurements along with detailed uncertainty and covariance quantification across a range of incident neutron energies. An introduction to CoGNAC and preliminary ^{12}C elastic scattering results from the Los Alamos Neutron Science Center will be discussed and presented.

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