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Time-Reversal Invariance Violation in Neutron Interactions with Nuclei

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Time Reversal Invariance Violating (TRIV) effects in neutron transmission through nuclear targets are discussed. The absence of final state interactions for the set of specific observables makes these experiments complementary to neutron and atomic electric dipole moment (EDM) measurements. We explore important advantages of the search for TRI violation in neutron nuclei interactions and show that neutron scattering experiments at new high flux Spallation Neutron Sources can essentially improve the current limits on the TRIV interactions obtained from neutron and atomic EDMs.

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