Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Time-Reversal Invariance Violation in Neutron Scattering at Spallation Neutron Sources[1] VLADIMIR GUDKOV, University of South Carolina — The Time Reversal Invariant Violating (TRIV) effects in neutron transmission through a nuclei target are discussed. We explore the possibility to search TRIV at new high flux Spallation Neutron Sources using two important advantages of neutron nuclei interactions: the possibility of an enhancement of T-violating observables by many orders of magnitude, and the relatively large number of the nuclear targets, which provides the assurance of avoiding possible "accidental" cancelations of TRI-violating effects due to unknown structural factors related to the strong interactions. This include the absence of final state interactions for a set of specific observables, the possibility to avoid of false asymmetries arising from combinations of time-reversal-invariant interactions and asymmetries in real experiment, and the comparison of expected results with existing limits on neutron, nuclear and atomic electric dipole moments (EDMs). It is shown that TRIV observables are complementary to the EDM experiments and have potential for essential improving of the current limits on the TRIV interactions.

[1]This work was supported by the DOE grants no. DE-FG02-09ER41621.

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Date submitted: 23 Jun 2014 Electronic form version 1.4