

Search for Time Reversal Invariance Violation in Resonances of Compound Nuclei Accessible Using Epithermal Neutrons

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One of the main puzzles in contemporary physics is the asymmetry between matter and antimatter observed in the Universe. In our current understanding, one of the necessary ingredients to explain such asymmetry is the violation of CP (or equivalently the TRIV), however it has only been observed in the weak interaction and with a very small amplitude. Searches of new mechanisms of CP violation in the strong interaction are of scientific importance. In this context, the transmission of polarized epithermal neutrons in resonances of compound nuclei that exhibit large parity-violating effects offers a possibility to search for T-odd effects that constitute a null test for TRIV and that are complementary to other searches, like the neutron EDM.

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