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Absolute Proton Detection Efficiency Determination in "Beam" Experiments[1] GRANT RILEY, University of Tennessee — This talk introduces a new proposed method to measure proton detector efficiency for use in "beam" determinations of the free neutron lifetime. There is currently a 4-sigma disagreement between the "beam" and "storage" methods of measuring the lifetime of the neutron. A possible reason for this is a systematic uncertainty that is not properly accounted for in one or both types of experiments. Absolute proton counting is an essential to the "beam" experimental approach. The absolute detector efficiency is not currently known for existing experiments and could be a source of a hidden systematic error. This proposed calibration technique can also be extended to new, large area particle detectors designed for future experiments.

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