

Abstract Submitted
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Designing and Testing a Database for the Qweak Experiment

REBECCA LEONARD, DAMON SPAYDE, Hendrix College — The Qweak experiment at Jefferson Laboratory in Newport News, Virginia aims to make the first precision measurement of the proton's weak charge by measuring the parity-violating asymmetry in electron-proton scattering. The weak charge of the proton is directly related to the value of the Weinberg angle, which characterizes mixing between the electromagnetic and weak interactions. The Standard Model makes a prediction for the value of the Weinberg angle, which varies depending on the momentum of the exchanged Z boson. The Qweak experiment will provide a 0.3% measurement of the Weinberg angle which could indicate new physics if any significant deviation from the prediction is uncovered. A database will be used to store results necessary to make a precise determination of the proton's weak charge such as detector and beam monitor yield, asymmetry, and error as well as control parameters such as the temperature of the liquid hydrogen target. This talk will discuss the design and testing of this database.

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