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Updating the Qweak Database: Maintenance and Accessibility¹ MATTHEW GAMMILL, DAMON T. SPAYDE, Hendrix College — The Qweak experiment at Thomas Jefferson National Accelerator Facility is being conducted by a collaboration representing over 25 universities and research institutions, and is an attempt to measure with very low total uncertainty, 4%, the weak nuclear charge of a proton through parity-violating elastic electron-proton scattering. The weak charge can be used to calculate the running Weinberg mixing angle. The Standard Model makes a confident prediction for the mixing angle at low energies, so divergence could point to physics beyond the Standard Model, while agreement will constrain new and existing models. The expected asymmetries are on the order of a few hundred parts per billion, so an exceptional quantity of data (2200 beamhours) must be gathered. Storing and organizing this data presents a considerable challenge, which the Qweak database aims to satisfy. Tools to improve accessibility for researchers, efforts to improve efficiency, statistical and data quality checks, and ongoing expansion of the database will be discussed.

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