

PRISMA+ Colloquium

April 25, 2018 at 1 p.m.
Lorentz-Raum 05-127, Staudingerweg 7

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The Proton's Weak Charge

The QWeak collaboration has used parity-violating elastic electron-proton scattering at very low momentum transfer to precisely measure the Proton's weak charge. The weak charge is cleanly predicted within the Standard Model, with minimal theoretical uncertainty, however it has never before been measured. Thus, this measurement provides the opportunity for a sensitive search for beyond-the-Standard Model (BSM) physics. The final results for the weak charge will be presented, as well as the extracted values of the vector weak couplings of the up and down quarks, and the weak mixing angle. We will also discuss implications for BSM physics at the multi-TeV energy scale, and the plans for an even more precise measurement at the MESA accelerator.