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Helicity-Correlated Systematics in the Q_{weak} Experiment JOSHUA HOSKINS, College of William and Mary, Q-WEAK COLLABORATION — The Q_{weak} experiment at Jefferson Laboratory will provide a 4% measurement of the proton's weak charge Q_w^p, using parity-violating electron scattering from Hydrogen at low momentum transfer. The experiment will measure a tiny parity-violating asymmetry $\sim$256 parts per billion, which means control and precise measurement of systematic errors is a must. While great care is being taken to suppress or eliminate helicity-correlated changes in electron beam properties at the source, broken symmetries in the experimental apparatus can produce false asymmetries in the detected signal. For Q_{weak} we measure the detector sensitivities $\partial A/\partial x_i$ (i = 1..5) for first order offline correction of beam-related false asymmetries, using both regression against natural beam motion and a driven modulation system. I will discuss the methodology and status of the helicity-correlated detector sensitivities and how they relate to a precision measurement Q_{weak}.

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