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## NMR Measurements for JLab's Solid Polarized Targets

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Solid polarized targets rely on continuous-wave Nuclear Magnetic Resonance techniques to provide measurements of the enhanced polarization provided under Dynamic Nuclear Polarization. Upcoming polarized target experiments in Jefferson Lab's Hall B present challenging conditions which would benefit from improvements to traditional NMR techniques. For decades, JLab has relied upon Liverpool Q-meters for NMR measurements, but these are aging and no longer produced. The polarized target group at Bochum has successfully produced replacement Q-meters with modern components, and we are following their example, exploring new designs for Q-meter systems. We are currently testing a prototype of our own Q-meter system, which hews closely to the designs of the Liverpool and Bochum systems with a few incremental improvements. At the same time, we are pursuing the possibility of an all-digital Q-meter system, eschewing an analog mixer for fast digitization and FPGA analysis. We will discuss the challenges presented by the new Hall B target, lay out our changes to the traditional Q-meter, and show results of initial tests of our designs.

### Summary

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**Session Classification:** Solid Polarized Targets

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