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Measurement and simulation of demagnetization in a prototype Halbach array quadrupole

We present the design, construction, measurement and troubleshooting of a prototype hybrid Halbach quadrupole magnet. This magnet was significantly under-strength due to local demagnetization in the permanent magnet material. We discuss how this effect was uncovered, measured and reconstructed in simulations, as a guide to any reader considering similar magnets in future.

Full Abstract in attachment.

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