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Analysis of Design Parameters for DM Radio 50 L Magnet ALEXANDER LEDER, University of California, Berkeley, DM RADIO COLLABORATION — Axions are a well-motivated dark matter candidate, which currently have a wide open and accessible parameter space, with few constraints on their mass and coupling strength to photons. The DM Radio experiment seeks to explore a large portion of the axion parameter space (between 100Hz-300MHz), taking advantage of lumped element high-Q resonators with optimal out-of-band sensitivity. In this talk, we will analyze the constraints for a practical magnet design including: cryo-engineering, geometric factors, magnetic pressures/stresses and fringe field considerations. These constraints will then inform the design of the DM Radio 50 L magnet as well as an upgraded DM Radio $m^3 magnet with sensitivity to the QCD axion$.

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