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Axion Dark Matter in Multiple Detectors in the Quasistatic Regime RACHEL NGUYEN, University of Illinois at Urbana-Champaign, JOSHUA W. FOSTER, University of Michigan, YONATAN KAHN, University of Illinois at Urbana-Champaign, NICHOLAS L. RODD, Berkeley Center for Theoretical Physics, University of California, Berkeley, BENJAMIN R. SAFDI, University of Michigan, ABRACADABRA COLLABORATION — Axions are a well-motivated class of dark matter models that can couple weakly to the standard model. If an axion couples to an electomagnetic field, it produces an effective current when the axion comes in contact with a constant magnetic field. Axion detectors operating in the quasistatic regime, like ABRACADABRA or DM-Radio, can exploit the macroscopic coherence length of the axion field to perform directional axion detection: two spatially-separated detectors can use interference effects to infer the shape of the dark matter velocity distribution. In this talk, we present simulated data for an axion detection in two detectors at various spatial separations, and demonstrate how we can use this data to extract parameters of some sample three-dimensional velocity distributions.

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