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**Dark Matter Interferometry** 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, BENJAMIN R. SAFDI, University of California, Berkeley — Axions are a well-motivated class of dark matter models that also solve the strong CP problem in quantum chromodynamics. Currently there are many axion direct detection experiments probing different regions in parameter space, but the next generation of these experiments will feature multiple detectors operating at various terrestrial locations. Because of the wave-like nature of axion dark matter, the spatial separation of these experiments will allow measurements of the relative phase that is inaccessible to a single detector. In this talk, I will discuss the formalism to extract the signal from these experiments and illustrate how we can use these experiments to estimate parameters in the dark matter velocity distribution invisible to a single detector.

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