Abstract Submitted
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The Axion Resonant InterAction Detection Experiment (ARIADNE) ANDREW GERACI, University of Nevada, Reno, ARIADNE COLLABORATION — Axions are particles predicted to exist in order to explain the apparent smallness of the neutron electric dipole moment. While also being promising candidates for dark matter, in tabletop experiments axions can mediate short-range spin-dependent forces between objects. I will describe a new experiment for detecting short-range forces from axion-like particles based on nuclear magnetic resonance in hyperpolarized Helium-3. The method can potentially improve previous experimental bounds by several orders of magnitude and can probe deep into the theoretically interesting regime for the QCD axion, over a range that is complementary to existing axion search experiments.[1] A. Arvanitaki and A. Geraci, Phys. Rev. Lett. 113, 161801 (2014).

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