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Nuclear Spin-Dependent Parity Violation in Light Polyatomic Molecules ERIC NORRGARD, DANIEL BARKER, National Institute of Standards and Technology, University of Maryland-College Park, ANASTASIA BORSCHEVSKY, Van Swinderen Institute for Particle Physics and Gravity, University of Groningen, STEPHEN ECKEL, JAMES FEDCHAK, National Institute of Standards and Technology, YONGLIANG HAO, Van Swinderen Institute for Particle Physics and Gravity, University of Groningen, NIKOLAI KLIMOV, JULIA SCHERSCHLIGT, National Institute of Standards and Technology — Linear polyatomic molecules are highly sensitive probes of nuclear spin-dependent parity violation (NSDPV). Measurements in these systems will enable experimental determination of poorly known electroweak coupling parameters. To date, measurements have focused on heavy nuclei where the NSDPV effect is enhanced by relativistic and collective nuclear effects. However, cold trapped polyatomic molecules should allow for the NSDPV effect to be measured to 10% uncertainty in nuclei as light as Be. We focus on four light species: Be and Mg cyanide and isocyanide. Importantly, molecular and nuclear calculations are highly accurate for these light systems, allowing experiment to directly test Standard Model predictions.

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