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Hyperfine Zeeman structure of the PbF molecule and implications for an e-EDM measurement PRIYANKA RUPASINGHE, CHRISTOPHER MCRAVEN, TAO ZHENG YANG, NEIL SHAFER-RAY, Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, JENS GRABOW, University of Hannover, RICHARD MAWHORTER, Department of Physics and Astronomy, Pomona College — The Zeeman Effect on the ground state energy levels of the PbF molecule has been measured using kHz-resolution microwave spectroscopy at the University of Hannover. The data obtained has been used to to determine the magnetic G factors of the ground state. These G factors are important to our current efforts to measure the electron dipole moment of the electron (e-EDM.) Firstly, they provide a test of our theoretical understanding of the electronic structure of PbF as well as its sensitivity to CP violating physics. Secondly, quantitative understanding of the Zeeman Effect is critical for the detailed design of our experiment. In this talk we will present the results of our analysis, including an assessment of current theory and implications for future measurements.

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