

Abstract Submitted  
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**A Test for Tensor Lorentz Violating Fields Using a Rotating Comagnetometer**<sup>1</sup> MARC SMICIKLAS, JUSTIN BROWN, MICHAEL ROMALIS, Princeton University — The effective low-energy model of Lorentz violation described by the Standard Model Extension (SME) includes a number of tensor spin interactions that violate Lorentz symmetry but not CPT. Such interactions could be induced in popular Lorentz-violating theories, such as Horava theory of gravity and doubly-special relativity. We are performing a search for Lorentz-violating tensor spin interactions using a K-Rb-<sup>21</sup>Ne comagnetometer. Compared to our previous work with a K-<sup>3</sup>He comagnetometer, we expect to achieve significant improvements in energy sensitivity due to the smaller magnetic moment of <sup>21</sup>Ne and use of hybrid optical pumping. Preliminary results searching for semisidereal modulations of the comagnetometer signal indicate that limits on tensor Lorentz violation can be improved by more than an order of magnitude.

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