

Abstract Submitted
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Driving Forbidden Vibrational Transitions in Molecular Oxygen¹

ANNIKA LUNSTAD, Amherst College — Some new physics models, such as for dark matter and quantum gravity, predict changes to fundamental constants. Thus, precise measurements of change in these constants can aid in our understanding of physics outside the Standard Model. The molecule O_2^+ has vibrational transitions that are sensitive to changes in the proton-to-electron mass ratio, μ . These vibrational transitions have narrow linewidths which allows for precise measurements of potential changes in μ . I will give a brief overview of our experiment with some discussion of our most recent progress in probing the vibrational transition.

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