

Abstract Submitted
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Towards spectroscopy of heavy molecular ions, including TaO⁺ and RaOH⁺ CRAIG A. HOLLIMAN, JARED PAGETT, MINGYU FAN, University of California, Santa Barbara, PAUL HESS, Middlebury College, ANDREW M. JAYICH, University of California, Santa Barbara — Heavy molecular ions are promising candidates for probing new physics beyond the standard model, but the spectroscopic information for designing experiments is extremely limited. We are pursuing cavity enhanced velocity modulated spectroscopy (CEVMS) of heavy molecular ions to enable precision measurement experiments with molecular ions containing deformed nuclei. Collective effects in such nuclei promise to enhance sensitivity to charge-parity violation arising in the nucleus. We report on progress towards spectroscopy of TaO⁺ and plans to perform spectroscopy on radium-based molecular ions, such as RaOH⁺ and RaOCH₃⁺.

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