

Abstract Submitted
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Buffer-gas Cooling of Methyltrioxorhenium, a Parity Violation Candidate Precursor KENNETH WANG, GARRETT DRAYNA, CHRISTIAN HALLAS, SANDRA EIBENBERGER, DAVID PATTERSON, Harvard University — Chiral compounds containing heavy-metal centers have been suggested as promising candidates for studying parity violation in molecular spectra, due to the strong dependence of the parity violating energy difference with atomic number. Buffer gas cooled molecular samples exhibit low internal temperature and low velocity in the laboratory frame, making them an attractive source for high precision molecular spectroscopy. We demonstrate here the first buffer gas cooling of an organo-metallic compound, CH_3ReO_3 (MTO). Although MTO is not chiral, it is a precursor to chiral rhenium compounds which are proposed as attractive candidates, due to their stability and low sublimation points, in the search for parity violation in molecular spectra. We propose methods to extend this source into a slow, high flux beam for ultra-high precision spectroscopy experiments.

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