

Abstract Submitted
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Polarizability measurements of alkali atoms using an atom interferometer IVAN HROMADA, WILLIAM HOLMGREN, RAISA TRUBKO, ALEXANDER CRONIN, University of Arizona — We present our latest static polarizability measurements of the alkali atoms Li through Cs. Our measurements rely on a gradient electric field region in our atom interferometer. We have demonstrated 0.1% precision in polarizability and 0.05% precision in atom beam velocity measurements. Because we use the same apparatus to measure the polarizabilities of different atomic species, we are able to report polarizability ratios (e.g., α_{Cs}/α_{Li}) with similar precision. We discuss the systematic errors that limit the precision of our absolute and ratio measurements. These measurements provide benchmark tests of complex atomic structure calculations needed for atomic clocks and parity non-conservation experiments.

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