

Abstract Submitted
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Investigation of hyperfine clock resonances in alkali-vapor cells with novel antirelaxation surface coating¹ ERIC CORSINI, TODOR KARULANOV, UC Berkeley, MIKHAIL BALABAS, S. I. Vavilov State Optical Institute, St. Petersburg, Russia — A recently identified alkene based antirelaxation coating for alkali-metal vapor cells has enabled demonstration of ground-state polarization times in excess of a minute, which is two orders of magnitude longer than with conventional paraffin coatings.² This narrow resonance combined with vapor cells short term stability and compact size, spurs a renewed interest in application of coated cells to secondary frequency standards, and raises new questions as to the mechanisms underlying wall-collision induced relaxation. We will present a systematic study of hyperfine transition widths and shifts and compare them to those in cells coated with paraffin.

¹NSF and by LBNL - Nuc. Sc. Div.

²M.V. Balabas, T Karaulanov, M.P. Ledbetter, and D. Budker, Phys. Rev. Lett. **105**, 070801 (2010)

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