

Abstract Submitted  
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**Spinor dynamics in a partially Bose-condensed sodium gas** DONALD FAHEY, ZACHARY GLASSMAN, Joint Quantum Institute, National Institute of Standards and Technology and the University of Maryland, ARNE SCHWETTMANN, University of Oklahoma, GIL SUMMY, Oklahoma State University, RYAN WILSON, United States Naval Academy, EITE TIESINGA, PAUL LETT, Joint Quantum Institute, National Institute of Standards and Technology and the University of Maryland — Spin-exchange collisions have been shown to drive coherent population oscillations of the  $F=1$  ground state magnetic sublevels in both a sodium Bose-Einstein condensate and in a non-condensed Bose gas. We investigate the spin dynamics of a partially Bose-condensed gas where the normal and condensed fractions are nearly equal. Our experiments show population oscillations in both the thermal and condensed components, accompanied by an oscillation in the momentum distribution of the thermal gas. We present evidence of spin-oscillation-dependent cooling of the thermal component due to the transfer of atoms from the condensate and discuss the dynamics of spin-1 BEC/thermal mixtures.

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