

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Spin-orbit coupled lattice-band pseudospins¹ M.A. KHAMEHCHI, M.E. MOSSMAN, P. ENGELS, Washington State University — The experimental realization of spin-orbit coupling in quantum gases is currently met with much interest. It has opened up new possibilities to investigate condensed-matter phenomena using quantum gases as well-controlled model systems. While most experiments have exploited atomic hyperfine states as pseudospins, other properties can also serve as pseudospins and may lead to novel experimental approaches. In our experiment, we demonstrate that the s- and p-band of an optical lattice can be exploited as pseudospin orientations and show that spin-orbit coupling between these states can be generated. The current status and future directions of this experiment will be discussed.

¹Supported by NSF

M.A. Khomehchi
Washington State University

Date submitted: 29 Jan 2016

Electronic form version 1.4