

Abstract Submitted
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A spin Hall effect in a quantum gas MATTHEW BEELER, ROSS WILLIAMS, KARINA JIMENEZ-GARCIA, LINDSAY LEBLANC, ABIGAIL PERRY, IAN SPIELMAN, Joint Quantum Institute, National Institute of Standards and Technology and University of Maryland — The spin Hall effect is a phenomenon that couples spin current to particle current via spin-orbit coupling. The effect may be used to develop useful devices for spintronics, which may have advantages over corresponding conventional electronic devices. In addition, the spin-Hall effect is intimately related to certain types of topological insulators. Spin-orbit coupling in an ultracold bosonic sample of ^{87}Rb has been demonstrated. We now use this spin-orbit coupling to produce a spin Hall effect in a bosonic sample, the first demonstration of the effect in an ultracold atom system.

Matthew Beeler
Joint Quantum Institute, National Institute of Standards and
Technology and University of Maryland

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