

Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Interaction of cold atoms with short laser pulses. KAREN CHAMBERLIN, DEREK LILLA, KYLE TAYLOR, KEVIN ZICK, GREG TAFT, HAI NGUYEN, UNIVERSITY OF WISCONSIN STEVENS POINT TEAM — We present a powerful diagnostic system to observe the interaction of ultrafast laser pulses with trapped ^{87}Rb atoms. The ionization of cold atoms and the formation of cold molecules in an intense laser field in the μK temperature range open new branches of research in chemistry, metrology, and quantum physics. However, the interaction of cold atoms with short laser pulses and the subsequent ionization or molecule formation are processes which are not well understood and can be easily misinterpreted. In our proposed experimental setup, an existing ultrafast laser system at the University of Wisconsin-Stevens Point will be used in conjunction with Magneto Optical Trap Recoil Ion Momentum Spectroscopy (MOTRIMS) to directly measure the products formed by the interaction of ultrafast laser pulses with the cold trapped ^{87}Rb atoms.

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Date submitted: 01 Feb 2006

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