

Abstract Submitted
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Molecular formation and alignment of photo-associated cold atoms using ultrafast laser pulses. KYLE TAYLOR, MICHELL STEPHENS, KAREN CHAMBERLIN, STEVE LYNAM, CHRISTOPHER VERZANI, HAI NGUYEN, University of Wisconsin Stevens Point — We present a new experimental research program that focuses on photo-association of cold trapped atoms by ultrafast laser interaction. Molecular formation at μK temperatures offers opportunities to study new phenomena in chemistry, metrology, and even quantum physics. In this work, an ultrafast laser system in conjunction with magneto optical trap recoil ion momentum spectroscopy (MOTRIMS) will be employed to investigate the products formed in the interaction of ultrafast laser pulses with cold trapped ^{87}Rb atoms. We investigate various processes of molecular photo-association which include formation, distribution of populations, and alignment. The diagnostic system and the specific photo-association process will be described in detail.

Hai Nguyen
University of Wisconsin Stevens Point

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