Abstract Submitted
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Cold Chemical Reactions of CaH and Li[1] KYLE HARDMAN, University of Nevada, Reno, MEI-JU LU, VIJAY SINGH, MUIR MORRISON, JONATHAN WEINSTEIN — We are interested in measuring chemical reactions between ^2S atoms and $^2\Sigma$ molecules due to the prospect of controlling the reaction rate using spin polarization. We use laser ablation and helium buffer gas cooling to simultaneously create ground state lithium atoms and CaH molecules at cryogenic temperatures with densities of 10^{12} and 10^8 cm^{-3}, respectively. Preliminary data suggests we are able to observe chemical reactions between ^2S state Li and $^2\Sigma$ state CaH at 3.7 K. This data gives a preliminary reaction rate of 10^{-11} cm^3 s^{-1}. Progress towards controlling reaction rates with polarization will be discussed.

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