

Abstract Submitted  
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**Triplet ground state NaLi molecules**<sup>1</sup> ARIEL SOMMER, TIMUR M. RVACHOV, Massachusetts Institute of Technology, HYUNGMOK SON, Harvard University and Massachusetts Institute of Technology, JULIANA PARK, Massachusetts Institute of Technology, SEPEHR EBADI, University of Toronto and Massachusetts Institute of Technology, MARTIN W. ZWIERLEIN, WOLFGANG KETTERLE, ALAN O. JAMISON, Massachusetts Institute of Technology — The ability to produce ultracold gases of heteronuclear molecules in well-defined internal states has opened a wide range of opportunities in the study of chemical reactions, many-body physics, and quantum information science. The lightest alkali, NaLi, offers unique advantages in the study of ultracold chemistry due to its predicted long collisional lifetime in the triplet ground state, allowing magnetic trapping and the possibility of resolved scattering resonances. We have observed the triplet ground state through two-photon spectroscopy. We report on progress toward larger molecular samples via STIRAP from loosely bound molecules, for which we are investigating approaches based on Feshbach association and multi-stage photoassociation.

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Ariel Sommer  
Massachusetts Institute of Technology

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