

Abstract Submitted
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Molecular spectroscopy for producing ultracold ground-state NaRb molecules¹ DAJUN WANG, MINGYANG GUO, BING ZHU, BO LU, XIN YE, FUDONG WANG, Department of Physics, The Chinese University of Hong Kong, ROMAIN VEXIAU, NADIA BOULOUDA-MAAFA, GOULVEN QUÉMÈNER, OLIVIER DULIEU, Laboratoire Aimé Cotton, CNRS, Université Paris-Sud, ENS Cachan, Université Paris-Saclay, 91405 Orsay Cedex, France — Recently, we have successfully created an ultracold sample of absolute ground-state NaRb molecules by two-photon Raman transfer of weakly bound Feshbach molecules. Here we will present the detailed spectroscopic investigations on both the excited and the rovibrational ground states for finding the two-photon path. For the excited state, we focus on the $A^1\Sigma^+/b^3\Pi$ singlet and triplet admixture. We discovered an anomalously strong coupling between the $\Omega = 0^+$ and 0^- components which renders efficient population transfer possible. In the ground state, the pure nuclear hyperfine levels have been clearly resolved, which allows us to create molecules in the absolute ground state directly with Raman transfer.

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Dajun Wang
Department of Physics, The Chinese University of Hong Kong

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