

Abstract Submitted
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Internal state control of a dense sample of ultracold $^{23}\text{Na}^{87}\text{Rb}$ molecules¹ XIN YE, MINGYANG GUO, JUNYU HE, DAJUN WANG, Chinese Univ of Hong Kong, GOULVEN QUEMENER, MAYKEL GONZALEZ-MARTINEZ, OLIVER DULIEU, Laboratoire Aime Cotton, CNRS — We report the optimized production of ultracold $^{23}\text{Na}^{87}\text{Rb}$ molecules with completely controlled population distribution among internal states. Starting from a sample of 10^4 weakly bound Feshbach molecules, we achieved a hyperfine-structure-resolved STIRAP transfer to the ground state with an efficiency up to 95%. By tuning the frequency difference between the Raman lasers and applying an additional microwave signal, we realized the preparation of NaRb samples in different vibrational, rotational, and hyperfine levels. Based on this achievement, some results on molecular collisions with a range of possible loss channels will also be reported.

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