

Photoassociative formation of ultracold polar KRb molecules

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We propose a quantitative theoretical model for producing ultracold ground electronic-state KRb molecules by a two-photon Raman process. The model takes into account the most important chemical and relativistic interactions, makes use of accurate ground and excited KRb potentials, and theoretically derived dipole moments as functions of internuclear separation. The effect of the black-body radiation on the lifetime of polar ground state KRb is analyzed.