Abstract Submitted
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Achieving Ground Polar Molecular Condensates by a Chainwise Atom-Molecule Adiabatic Passage[1] JING QIAN, Rowan University; East China Normal University, WEIPING ZHANG, East China Normal University, HONG Y. LING, Rowan University, ROWAN UNIVERSITY COLLABORATION, EAST CHINA NORMAL UNIVERSITY COLLABORATION — A chainwise stimulated Raman adiabatic passage (STIRAP), characterized with a single STIRAP between the initial and final lasers, is generalized from a pure multistate molecular to a coupled multi-level heteronuclear atom-molecule system where the role of the initial transition is played by photoassociation. Special attention is given to the relative strength between different intermediate lasers, a control knob inaccessible to the usual three-level systems. Discussions have been focused on how this control, when combined with the stability inherent of the atom-molecule STIRAP, may serve as a new tool in fighting against the weakness of photoassociation, making the proposed scheme attractive to experimental endeavors for creating ground polar molecule condensates.

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