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Ultracold Mixture: Molecule Production in K-40 and Rb-87 JOSHUA ZIRBEL, JILA, KANG-KUEN NI, JILA, DEBORAH JIN, JILA, CARL WIEMAN, JILA — We report on a new apparatus for making ultracold heteronuclear molecules. Large numbers of fermionic ⁴⁰K (1*10⁸ atoms) and bosonic ⁸⁷Rb (5*10⁸ atoms) have been collected simultaneously. The mixed sample can then be loaded into a magnetic trap and physically moved to a lower pressure, science region. A novel feature of this transfer is the navigation around an obstruction made of pyrex. The purpose of this obstruction is to block line-of-sight atoms from migrating to the low pressure section but still allow for optical probing along the transfer direction. A QUIC Ioffe-Pritchard style magnetic trap is used to hold the mixture during (sympathetic) cooling. Progress towards quantum degeneracy in the mixed samples and recent work will also be reported.

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