Assembly of Ultracold Molecules with Optical Tweezers

The large electric dipole moment of ultracold molecules make them exciting candidates for both simulating many-body physics, and as a qubit for quantum computation. I will present results of the deterministic assembly of a single molecule from two ultracold atoms using optical tweezers. A single Na and Cs atom are individually trapped and cooled in reconfigurable optical tweezers, and then merged together and photoassociated into an ultracold molecule.