

Photoassociative Spectroscopy of Trapped Ultracold Atoms

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Photoassociative spectroscopy, the probing of free-bound transitions with high resolution, has proven to be a powerful tool in the ultracold regime. At ultracold temperatures, the low translational energy and narrow thermal distribution of the colliding atoms allow vibrational and rotational structure of molecular spectra to be clearly resolved, even close to the dissociation limit. In this talk, we will discuss recent results of photoassociative spectroscopy performed on colliding ultracold metastable-state argon atoms confined in a magneto-optical trap and present measurements of the collisional trap loss resulting when ultracold rubidium atoms are simultaneously confined with the argon. We will also discuss our findings of an investigation to spatially confine ultracold rubidium atoms in a pulsed optical dipole force trap. We will conclude with a brief discussion of future directions of the research, including spectroscopy of purely-long range molecular states of the krypton dimer.

Host: Andy Sieradzan

Cookies and coffee @ 3:30pm in Dow 201.