NOVEL APPROACHES TO DOPPLER-FREE ION IMAGING

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We have recently developed novel approaches to Doppler-free imaging, named "Two-color reduced Doppler ion imaging (TCRD)"[a]. and "Doppler-free/Doppler-sliced ion imaging"[b]. These approaches offer advantages for application in a variety of situations. The TCRD approach is suitable for application in any system in which one would like to exploit a high power fixed frequency laser, or move a probe transition away from a region of background interference. It may be very useful in PHOFEX spectroscopy to encompass the entire Doppler profile of the detected species. The Doppler-free/ Doppler slicing approach is most suited for imaging studies and H or D atom detection. Each method improves the probe sensitivity and signal-to-noise ratio.

[a]C. Huang, W. Li, M. H. Kim, and A. G. Suits, J. Chem. Phys. 125, 121101 (2006).
[b]C. Huang, S. A. Lahankar, M. H. Kim, B. Zhang, and A. G. Suits, Phys. Chem. Chem. Phys. 8, 4652 (2006).