LOW UNCERTAINTY MEASUREMENTS OF LINE PARAMETERS USING FREQUENCY-STABILIZED CAVITY RING-DOWN SPECTROSCOPY

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We discuss how the frequency-stabilized cavity ring-down spectroscopy (FS-CRDS) method enables high-precision and high-sensitivity measurements of shapes, intensities, as well as broadening and shifting parameters of absorption lines[a]. We illustrate the method's high spectral resolution by observation of sub-MHz wide Doppler-free saturation features in blended near-ir H_2O spectra, and we present measurements and models of H_2O and O_2 spectra that yield line parameters with sub%-level relative uncertainties.

[a] D. Lisak, J. T. Hodges and R. Ciurylo *Phys. Rev. A.* 73, 012507 2006.