CW FIBER LASER CAVITY RING DOWN SPECTROSCOPY

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Application of a tunable near-infrared Erbium doped fiber laser to continuous-wave (cw) cavity ring down spectroscopy (CRDS) is reported. The laser is widely tunable in the spectral region of 1542-1600 nm by temperature tuning with a laser linewidth of $\sim$ kHz. This ultranarrow linewidth is highly desirable for efficient cw laser coupling to a high-finesse ring down cavity[a]. Cavity ring down spectra of N_2O and C_2H_2 have been recorded near 1.544 μm. Measurements of N_2O concentration have been performed as well with high dynamic range varying from 100 % purity to some tens ppb with a minimum measurable absorption coefficient of about 10^{-10} cm^{-1}. Preliminary results will be presented.

[a] J. Morville, D. Romanini, M. Chenevier, A. Kachanov, *Appl. Opt.* **41**, 6980 (2002).