ULTRA SENSITIVE CAVITY RING DOWN SPECTROSCOPY OF MAJOR ATMOSPHERIC SPECIES BETWEEN 1.20 AND 1.71 μm

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During recent years, we have developed a fibered DFB laser CW-CRDS spectrometer providing routine noise equivalent absorption of $\alpha_{min} \approx 5 \times 10^{-11}$cm^{-1}, over the 5850-8350 cm^{-1} range. A detection limit of $\alpha_{min} \approx 5 \times 10^{-13}$cm^{-1} has been recently achieved by averaging spectra over a small spectral interval.
The performances of this set up have allowed extending significantly the knowledge of the absorption spectra of molecules of major importance: methane, oxygen, water, ozone, carbon dioxide, hydrogen, nitrogen. The most striking results will be presented.