CAVITY-ENHANCED ABSORPTION SPECTROSCOPY WITH A MODE-LOCKED FEMTOSECOND LASER

TITUS GHERMAN, S. KASSI, A. CAMPARGUE and D. ROMANINI, *Laboratoire de Spectrométrie Physique – CNRS UMR 5588,*
Université J. Fourier–Grenoble I,
B.P. 87 – 38402 Saint Martin d'Hères Cedex, FRANCE.

The wide spectral coverage and high sensitivity of Mode-Locked Cavity Enhanced Absorption Spectroscopy (ML-CEAS) are illustrated by the observation of a very high overtone transition of C_2H_2 in the blue spectral region (420 nm, 8 quanta of CH stretch excitation), which was easily accessed by frequency-doubling a modelocked femtosecond Ti:Sapphire laser. The detection limit is about $10^{-8}/cm$. The rotational analysis of this $\sum_u^+ - \sum_g^+$ parallel band, centred at 23813.244 cm-1, is presented and the vibrational assignment is discussed.

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