INTRACAVITY SATURATED ABSORPTION SPECTROSCOPY OF THE 1.6-MICRON MOLECULAR OVERTONE BAND

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Saturation spectroscopy of the $2\nu_3$ band of methane was carried out using an optical cavity absorption cell and a 1.6-μm-grating feedback external-cavity semiconductor laser. An experimental setup was similar with the pioneering work [a] in the 1.5-μm region. Since the linewidth of the observed saturation dips was just 0.5 MHz, a high potential exists for the use of this technique for high resolution spectroscopy and double-resonance spectroscopy.

[a] M. de Labachelerie, K. Nakagawa, and M. Ohtsu, Opt. Lett. 20, 410 (1994).