ANALYSIS OF THE HDO ABSORPTION SPECTRUM BETWEEN 6000 AND 7000 CM^{-1}

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Reanalysis of the absorption spectrum of HDO is performed in the 6059 -6975 cm^{-1} spectral region. This region has been previously investigated in refs. [1-3], however, many weak HDO lines remained unassigned. In this study we present complete identification and modeling of HDO spectrum relying both on our calculations within the effective Hamiltonian approach and accurate *ab initio* calculations of the HDO line positions and intensities [4].

As a result, about 150 new experimental energy levels were derived for the (101), (021), (210), (050), (130) vibrational states of HDO. The lines of the $5\nu_2$ band of HDO appear in the spectrum due to resonance between the (210) and (050) vibrational states. Due to this intensity borrowing the $5\nu_2$ band finally could be observed through tens of strong transitions. At the same time, the conventional Fermi-type resonance between the (210) and (130) states seemed to be rather weak and only 29 energy levels of the (130) state could be determined from transitions borrowing their intensities from the stronger lines of the (210)-(000) band.

Number of the experimental energy levels derived for each considered state is presented in Table as well as comparison with the corresponding data of Ref. [3].

	Ulenikov at al. [3]			Our study		
$V_1V_2V_3$	N. lev.	J_{max}	K_{amax}	N. lev.	J_{max}	K_{amax}
(101)	137	16	8	178	15	9
(210)	105	13	7	163	14	7
(021)	113	15	7	145	16	9
(050)	26	9	2	60	13	2
(130)	13	10	4	29	10	4

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[2]. Toth R.A. J. Mol. Spectrosc. 1997. V. 186. P. 66-89.
[3]. Ulenikov O.N., et al. // J. Mol. Spectrosc. 2001. V.208. P. 224-235.
[4]. H. Partridge and D. Schwenke. // J. Chem. Phys. V.106. №. 11. pp. 4618–4639. 1997.