EXPERIMENTAL ENERGY LEVELS OF $HD^{18}O$ AND $D_2{}^{18}O$

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Extended sets of experimental energy levels of $HD^{18}O$ and $D_2{}^{18}O$ have been obtained as the result of the analysis of recent high-resolution spectra [a, b] and previously reported data [c,d,e,f,g,h,i,j] Spectra of the enriched by deuterium and oxygen-18 water samples were recorded with a Bruker IFS 120HR spectrometer at room temperature in the 1000 - 9200 cm^{-1} range [a,b] for this purpose. The RITZ code [h] was used for analysis of the rotation-vibration transitions and the energy levels determination.

New energy levels as well as comparison with previous experimental and theoretical studies will be presented.

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[a] A.-W. Liu et al., J. Mol. Spectrosc. 237, 149-162 (2006).
[b] H.-Y. Ni et al., Mol. Phys. 106, 1793-1801 (2008).
[c] J. Bellet et al., J. Mol. Spectrosc. 47, 388-402 (1973).
[d] J.W.C. Johns, J. Opt. Soc. Am. B2, 1340-1354 (1985).
[e] R.A. Toth, J. Mol. Spectrosc. 162, 41-54 (1993).
[f] W.F. Wang et al., J. Mol. Spectrosc. 176, 226-228 (1996).
[g] R.A. Toth, J. Mol. Structure, 742, 49-68 (2005).
[h] S.N. Mikhailenko et al., JQSRT, 110, 597-608 (2009).
[i] A. Liu et al., JQSRT, 110, 1781-1800 (2009).
[j] O.V. Naumenko et al., JQSRT, 111, 36-44 (2010).