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LIF

HOY

Yttrium monohydroxide

 $C_{\infty v}$
Y–O–H

State	$\tilde{X}^1\Sigma^+$	$\tilde{B}^1\Pi$	$\tilde{C}^1\Sigma^+$
Energy [eV]	0.00	2.039	2.295 ^{a)}
r_0 (Y–O) [Å]	1.9486		
r_0 (O–H) [Å]	0.9206		

YOH and YOD molecules were produced by the reaction of laser-ablated yttrium atoms with H₂O and D₂O under supersonic jet-cooled conditions. Laser-excited fluorescence spectra were recorded in the region 500...625 nm. Rotational analysis indicates that the ground state is an $\tilde{X}^1\Sigma^+$ state. Two excited electronic states have been identified; they are assigned as $\tilde{B}^1\Pi$ and $\tilde{C}^1\Sigma^+$. Unusually strong vibronic coupling through the bending vibration prevents a detailed analysis of these two excited states.

^{a)} Estimated from the band center.

Adam, A.G., Athanassenas, K., Gillett, D.A., Kingston, C.T., Merer, A.J., Peers, J.R.D., Rixon, S.J.: J. Mol. Spectrosc. **196** (1999) 45.