

## Structure Data of Free Polyatomic Molecules

<b>223</b> LIF	<b>HNY</b>	<b>Yttrium imide</b>		<b>C<sub>∞v</sub></b>
				Y=N-H
	State	$\tilde{X}^2\Sigma^+$	$\tilde{B}^2\Sigma^+$	
	Energy [eV]	0.00	2.1068	
	$r_0(\text{Y=N})$ [Å]	1.87757(13)	1.8839(43)	
	$r_0(\text{N-H})$ [Å]	1.0067(10)	1.242(30)	

YNH molecules were produced in a molecular beam apparatus by laser vaporizing yttrium metal in a beam of helium carrier gas doped with 1...2% ammonia. Various isotopomers were obtained using  $^{14}\text{NH}_3$ ,  $^{15}\text{NH}_3$  and  $^{14}\text{ND}_3$ . Fluorescence was excited at right angles to the supersonic beam by CW dye laser and was monitored as the laser was scanned. Rotational analyses of the resulting spectra yielded rotational constants from which geometrical parameters were deduced.

Simard, B., Jacubek, Z., Niki, H., Balfour, W.J.: J. Chem. Phys. **111** (1999) 1483.