

LASER SPECTROSCOPY OF NICKEL MONOBROMIDE

JIANJUN YE, J. W-H. LEUNG and A. S-C. CHEUNG, *Department of Chemistry, The University of Hong Kong, Pokfulam Road, Hong Kong.*

Laser induced fluorescence spectrum of nickel monobromide (NiBr) in the visible region 604-666 nm has been recorded and analyzed. Eight transition bands belonging to two electronic systems have been observed: the (0,0), (1,0), (2,0) and (5,0) bands of $^2\Delta_{5/2} - X^2\Pi_{3/2}$ system; and the (0,0), (1,0), (2,0) and (5,0) bands of $^2\Pi_{3/2} - X^2\Pi_{3/2}$ system. Spectra of all four isotopic molecules: $^{58}\text{Ni}^{79}\text{Br}$, $^{58}\text{Ni}^{81}\text{Br}$, $^{60}\text{Ni}^{79}\text{Br}$ and $^{60}\text{Ni}^{81}\text{Br}$ were recorded. Analysis of spectra obtained for the isotopes confirmed the vibrational quantum number assignment of the recorded bands. Least squares fit of the observed rotational lines yielded accurate molecular constants for the newly observed $^2\Delta_{5/2}$ and $^2\Pi_{3/2}$ states of NiBr.