ELECTRONIC SPECTRA OF NICKEL MONOXIDE

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Nickel monoxide remains one of the spectroscopically least well characterized of first row transition metal monoxides. Spectra of NiO have been recorded in the 425 - 480nm region following the reaction of a laser-ablated nickel metal plasma with traces of O_2 doped in helium. Eighteen bands have been observed in laser-induced fluorescence (LIF), the majority of which belong to systems classified by Pearse and Gaydon[a] as VI and VII. The isotopomers ^{58}NiO and ^{60}NiO are seen in natural abundance and isotope shifts and rotational constants help to establish assignments. Dispersed fluorescence measurements have been made using excitation corresponding to strong LIF features. No low-lying excited electronic states have been detected but the ground state vibrational manifold can be mapped up to v = 9.

[a] R. W. B. Pearse and A. G. Gaydon, *The Identification of Molecular Spectra*, Chapman and Hall, London (1965).