LASER SPECTROSCOPY OF NICKEL MONOBROMIDE

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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: $^{58}Ni^{79}Br$, $^{58}Ni^{81}Br$, $^{60}Ni^{79}Br$ and $^{60}Ni^{81}Br$ were recorded. Analysis of spectra obtained for the isotopes confirmed the vibratiotonal 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.