HIGH RESOLUTION INTRACAVITY LASER SPECTRA OF NICKEL HYDRIDE

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The visible electronic spectrum of the nickel hydride (NiH) is recorded with rotational resolution by intracavity laser absorption spectroscopy (ILS). A dye laser based ILS system is used to record the spectra. The gas phase NiH molecules were produced in an electric discharge using a nickel hollow cathode in a pure hydrogen atmosphere at 2-3 torr total pressure. Transitions are observed from the v=0 X $^2\Delta_{5/2}$ state to various vibrational levels of several excited states, including the A $^2\Delta_{5/2}$, B $^2\Delta_{5/2}$,$^2\Delta_{3/2}$, and $^2\Phi_{7/2}$ states. Peak positions for the NiH isotopomers will be presented for transitions involving these levels.