NEW BANDS OF NICKEL FLUORIDE IN THE NEAR INFRARED BY INTRACAVITY LASER ABSORPTION SPECTROSCOPY

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Several new electronic transitions of NiF with red-degraded bandheads near 12896 and 13497 cm^{-1}were recorded and analyzed. All bands have a common lower level: namely, v=0 of the A $^2\Delta_{5/2}$ state. The observed ^{58}NiF and ^{60}NiF isotopologue splitting in each band suggests tentative assignments as the (3,0) and (2,0) vibrational bands of the [12.6]Ω=5/2 - A $^2\Delta_{5/2}$ transition and the (2,0) band of a new [13.1]Ω=5/2 - A $^2\Delta_{5/2}$ transition of NiF. Results of the analysis will be presented. The gas phase NiF molecules were produced using a nickel-lined hollow cathode in an argon-based electric discharge with a small amount of SF_6.