MORE MOLECULES IN HIGH SPIN STATES: THE PURE ROTATIONAL SPECTRUM OF MnF ($X^7\Sigma^+$)

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The pure rotational spectrum of the MnF radical in its ($X^7\Sigma^+$) state has been observed using direct absorption millimeter/sub-millimeter wave spectroscopy. The molecule was synthesized by the reaction of manganese vapor, produced by a Broida-type oven, with F_2. Ten rotational transitions of MnF have been observed over the frequency range 370 - 640 GHz. Both fine structure interactions and hyperfine splittings, due to the ^{55}Mn (I = 5/2) and ^{19}F (I=1/2) nuclei, are present in each transition. These data are being currently analyzed and rotational, fine structure, and hyperfine constants (for both nuclei) will be determined. These results will be compared with other manganese containing radicals.