ANALYSIS OF THE $A\ ^4\Pi_r - X\ ^4\Sigma^-$ ELECTRONIC TRANSITION OF MOLYBDENUM NITRIDE (MoN)

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Transition metal nitrides are of growing interest due to their catalytic, energy storage, sensing, superconducting, and mechanical properties. The (0,0) band of the $A\ ^4\Pi_r - X\ ^4\Sigma^-$ transition of MoN was recorded at Doppler-limited resolution using intracavity laser spectroscopy (ILS) integrated with a Fourier-transform spectrometer used for detection (ILS-FTS). The target MoN molecules were produced in the plasma discharge of a molybdenum-lined copper hollow cathode, using a gas mixture of Ar with about 1% N_2 in a reaction chamber with about 1 Torr total pressure. Isotopologue structure in the spectrum is clearly visible and analysis is underway for the five abundant isotopologues with no nuclear spin (I_{Mo}=0): ^{92}MoN (14.6%), ^{94}MoN (9.2%), ^{96}MoN (16.7%), ^{98}MoN (24.3%), and ^{100}MoN (9.7%). The progress, preliminary results of this analysis, and comparison to a recent high-level computational study will be provided.