THE PURE ROTATIONAL SPECTRUM OF AlNC IN ITS $\tilde{X}^1\Sigma^+(\nu_2 = 0, 1 \text{ and } 2)$ STATES: A STRUCTURAL ANALYSIS

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The pure rotational spectrum of aluminum isocyanide, AlNC, has been recorded at high resolution using millimeter-wave spectroscopy. The radical was produced in a flowing reactor/free space absorption cell by reacting aluminum vapor with a mixture of argon and cyanogen. The J = 10 through J = 31 rotational transitions in the fundamental mode and numerous features in the degenerate vibrationally excited bending mode (ν_2) were observed in the range 131-382 GHz. Spectroscopic parameters were derived from a least squares analysis of the transition frequencies. The derived constants are compared to theoretical calculations[a,b,c].

[a] Buyong Ma, Yukio Yamaguchi and Henry F. Schaefer III, Molec. Phys., 1995, 86(6), 1331.
[b] Simon Petrie, J. Phys. Chem., 1996, 100(28), 11581.
[c] Colin Thomson, Int. J. Quantum Chem. Symp. 1976, 10, 85.