

THE (1,0) BAND OF THE [13.10] $\Omega=1 - X^3\Sigma^-(0^+)$ TRANSITION OF TUNGSTEN SULFIDE, WS, OBSERVED BY ILS-FTS

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The (1,0) vibrational band of the [13.10] $\Omega=1 - X^3\Sigma^-(0^+)$ transition of tungsten sulfide (WS) has been measured in absorption using Intracavity Laser Spectroscopy with Fourier transform detection (ILS-FTS). WS was synthesized in a 0.05-0.15 A DC current plasma discharge within a tungsten lined hollow cathode at 625 mTorr with 65% Ar, 17.5% He, 17.5% H₂, and a trace amount of CS₂. The spectrum was calibrated using literature values for argon lines and PGOPHER's calibration feature [C.M. Western, J. Quant. Spectrosc. Radiat. Transfer 2016 (186), 221-242]. Three rotational branches (P, Q-, and R-branch) with four WS isotopologues (¹⁸²WS, ¹⁸³WS, ¹⁸⁴WS, and ¹⁸⁶WS) were observed in the spectrum. Molecular constants for these isotopologues were determined for both electronic states. The line positions of the (0,0) band of this transition [L.F. Tsang et al., J. Mol. Spectrosc. 2019 (359), 31-36] were included in the fit. The results of the analysis will be presented, and compared with calculations [L.F. Tsang et al., 2019].