

LINE LISTS FOR $X^3\Sigma^-$ AND $a^1\Delta$ VIBRATION-ROTATION BANDS OF SO

PETER F. BERNATH, *Department of Chemistry and Biochemistry, Old Dominion University, Norfolk, VA, USA*; RYAN JOHNSON, *Physics Department, Old Dominion University, Norfolk, VA, USA*; JACQUES LIÉVIN, *Service de Chimie Quantique et Photophysique, Université Libre de Bruxelles, Brussels, Belgium*.

Sulfur monoxide (SO) is found in several astronomical sources including the atmospheres of Io and Venus. Continuing our previous work^a to make a more complete line list for SO, we used our previous fits of rotational constants for $v=0-6$ for the $X^3\Sigma^-$ state and $v=0-5$ for the $a^1\Delta$ state along with high-level *ab initio* calculations to produce line strengths and positions for the all of the vibration-rotation transitions. All possible vibrational bands were calculated and line strengths included the Herman-Wallis effect caused by vibration-rotation interaction.

^aP.F. Bernath, R.M. Johnson, J. Liévin. Line Lists for the $b^1\Sigma^+ - X^3\Sigma^-$ and $a^1\Delta - X^3\Sigma^-$ Transitions of SO. JQSRT 272,107772(2021)