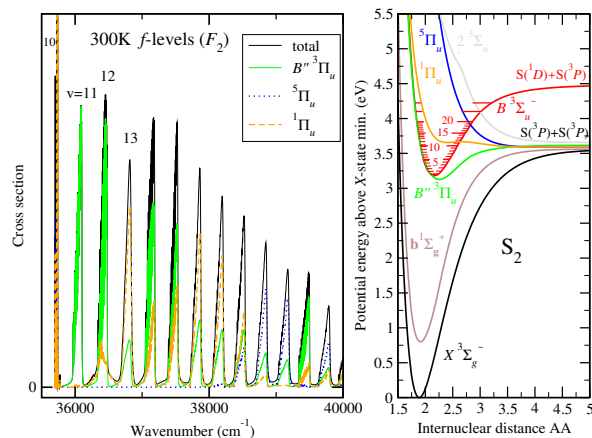


## A COUPLED-CHANNEL CALCULATION OF THE $B^3\Sigma_u^- - X^3\Sigma_g^-$ SPECTRUM OF $S_2$

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Diatomic sulfur ( $S_2$ ) has been observed in absorption, via the strong ultraviolet  $B^3\Sigma_u^- - X^3\Sigma_g^-$  system, in the atmospheres of Jupiter and Io. However, the spectrum is not well understood. We apply a coupled-channel Schrödinger equation (CSE) model developed for the VUV  $B^3\Sigma_u^- - X^3\Sigma_g^-$  transition of  $O_2^a$  to the analogous  $S_2$  spectrum, employing the potential curves and coupling scheme of Wheeler *et al.*,<sup>b</sup> as a starting point. The CSE calculations provide valuable insight into the photodissociation spectrum, defining the roles of the key predissociating electronic states and demonstrating complex interference effects that are more pronounced than for  $O_2$ .



<sup>a</sup>B. R. Lewis, S. T. Gibson, F. T. Hawes, and L. W. Torop, *Phys. Chem. Earth C* 26, 519 (2001).

<sup>b</sup>M. D. Wheeler, S. M. Newman, and A. J. Orr-Ewing, *J. Chem. Phys.* 108, 6594 (1998).