

A NEW LINE LIST FOR THE O₂ SCHUMANN-RUNGE SYSTEM

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In this work, a spectrally accurate linelist has been generated for the O₂ Schumann-Runge band system, $X^3\Sigma_g^- - B^3\Sigma_u^-$, including both the bound-bound and bound-unbound transitions. *Ab initio* potential energy curves (PECs) for both states and the transition dipole moment (TDM) have been computed using the multi-reference configuration interaction (MRCI) method. Empirical refinement of the potential energy curves along with spin coupling constants have been performed using the DUO software utilizing the O₂ MARVEL database from Furtenbacher et al (J. Phys. Chem. Ref. Data 48, 023101 (2019)). Comparison with room and high temperature cross-sections have also been performed.

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