

Low-Lying Electronic States for CO

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My research focuses on studying the spectroscopy of carbon monoxide (CO) molecules in exoplanets. The motivation for investigating the molecular spectroscopy lies in its crucial role in deciphering the compositions of exoplanet atmospheres. In my study, my focus is specifically on the lower-energy states of CO, with the aim of compiling a comprehensive list detailing the transitions between various electronic states for CO. This compilation will serve to enhance the existing ExoMol database. The generated list will be valuable for spectral characterization, simulation, and will act as input for atmospheric models applied to exoplanets. In essence, my research has implications for remote sensing of planetary atmospheres and contributes to climate monitoring efforts. The methodology for constructing the CO line list heavily relies on the DUO program and a well-established spectroscopic model, which I will personally develop using relevant programs and laboratory data acquired beforehand.