

## SMALL MOLECULES ESSENTIAL TO ASTROPHYSICS: COLLISIONAL AND RADIATIVE PROCESSES

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Atomic/molecular collisions and radiation are crucial for understanding the different environments within our universe. These processes control molecular energy transfer, excitation, and de-excitation, which affects the spectra of many astrophysical sources, including planetary atmospheres, interstellar clouds, and circumstellar envelopes (see e.g. Sreckovic et al. 2022). Data and databases related to atomic and molecular processes have become increasingly important for developing models and simulations of complex physical/chemical processes, as well as for interpreting observations and results of measurements in various fields (Vujcic et al. 2023). The data can be used for a variety of other applications, such as modeling non-local thermal equilibrium of the early universe's chemistry, modeling of the solar atmosphere, modeling of white dwarf atmospheres etc. A new generation of methods and models needs to be developed along with improvements to the existing ones in order to include as many processes as possible and to use more accurate data which can be used in modern codes. For conditions that exist in laboratory plasmas, planetary atmospheres, the ionosphere and other areas of science, it is primarily aimed at obtaining cross sections and rates coefficients for certain collisional and radiative processes (Albert et al. 2020). In this contribution we present that kind of data.

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### References

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