

ELECTRON-IMPACT PROCESSES AND MOLECULAR IONS OF ASTROPHYSICAL IMPORTANCE

Sanja Tošić¹, Vladimir A. Srećković¹ and Veljko Vujčić²

¹*Institute of Physics Belgrade, Pregrevica 118,
11080, Belgrade, Serbia*

²*Astronomical Observatory, Volgina 7, 11060 Belgrade 38, Serbia*

E-mail: seka@ipb.ac.rs, vlada@ipb.ac.rs

Electron-impact processes involving molecular ions provides valuable insights into the chemical complexity and dynamics of astrophysical environments. These processes are particularly important in understanding the chemistry and dynamics of astrophysical environments such as interstellar clouds and planetary atmospheres (Dimitrijević et al. 2021, Srećković et al. 2020). Understanding electron-impact processes in astrophysics requires a combination of theoretical modeling, laboratory experiments, and observational data (Albert et al. 2020). Here we report the new data for electron-impact processes involving some small molecular ions (potassium, sodium, lithium and hydrogen molecular cations). Data includes rate coefficients for electron-impact processes in domains of higher principal quantum numbers and temperatures up to 10 000 K.

Acknowledgments

This research was supported by the Science Fund of the Republic Serbia [Grant no. 3108/2021, NOVA2LIBS4fusion and Grant No. 7749560, EGWIn]

References

Albert D. et al. (2020). A decade with VAMDC: Results and ambitions, *Atoms* 8.4, 76.

Dimitrijević, M. S., Srećković, V. A., Ignjatović, L. M., & Marinković, B. P. (2021). The role of some collisional processes in AGNs: Rate coefficients needed for modeling. *New Astronomy*, 84, 101529.

Srećković, Ignjatović, L. M., & Dimitrijević, M. S. (2020). Photodestruction of diatomic molecular ions: Laboratory and astrophysical application. *Molecules*, 26(1), 151.