

Abstract Submitted
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Updating the IST-LISBON electron cross sections for nitrogen¹

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In this work we update the complete and consistent set of nitrogen (N_2) electron-impact cross-section with the IST-LISBON database, available on the LXCat website [1]. The update has extended, in energy scale up to 1keV, the cross sections for effective momentum-transfer, excitation to electronic states and ionization. The set further accounts for excitation to rotational and vibrational excited states. Calculations using BOLSIG+ [2] with the new cross sections give swarm parameters in very good agreement with available experimental data for the reduced mobility, the characteristic energy and the reduced ionization coefficient, for a very extended E/N range up to 1000 Td. The influence of rotational excitations/de-excitations at low E/N and different rotational temperatures is discussed. A critical evaluation of similarities and differences with sets of N_2 cross sections from other databases is carried out. Moreover, the procedure to de-convolute global cross sections into state-to-state vibrational level dependent cross sections is outlined and discussed.

[1] <http://www.lxcat.laplace.univ-tlse.fr/>

[2] G.J.M. Hagelaar and L.C. Pitchford, Plasma Sources Sci. Technol. **14**, 722 (2005)

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