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The LisbOn Kinetics Boltzmann solver[1] ANTONIO TEJERO-DEL-CAZ, LUIS ALVES, VASCO GUERRA, DUARTE GONCALVES, MARIO LINO DA SILVA, NUNO PINHAO, Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, Portugal, LUIS MARQUES, Centro de Física da Universidade do Minho, Portugal, CARLOS DANIEL PINTASSILGO, Faculdade de Engenharia da Universidade do Porto, Portugal — This work presents the LisbOn KInetics Boltzmann solver (LoKI-B), a simulation tool to model non-equilibrium low-temperature plasmas produced from different gas mixtures for a wide range of working conditions, discussing its current status of development, evidencing functionalities and introducing test cases along with first results of benchmarking. LoKI-B (to become open-source) provides the solution to the homogeneous and stationary two-term electron Boltzmann equation including: first and second-kind collisions, electron-electron collisions and spatial or temporal electron density growth models to account for the production of secondary electrons born in ionisation events. On output, it yields the electron energy distribution function and different electron macroscopic parameters. The simulations can be made for any gas mixture, accounting for the electronic, vibrational and rotational internal degrees of freedom of the atomic / molecular excited states present in the plasma, and it will be publicly released by the end of 2018.

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