

Abstract Submitted
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The LisbOn Kinetics tool suit¹ 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 (LoKI) tool suit, a set of simulation tools to model non-equilibrium low-temperature plasmas, produced from different gas mixtures for a wide range of working conditions. LoKI comprises two modules: a Boltzmann solver, LoKI-B (to become open-source; see companion abstract), and a chemistry solver, LoKI-C. Both modules can run as standalone tools or coupled in a self-consistent manner. LoKI-B provides the solution to the homogeneous and stationary two-term electron Boltzmann equation, while LoKI-C gives the solution to the system of zero-dimensional (volume average) rate balance equations for the heavy species, charged and neutral, present in the plasma. For stationary discharges, when both modules are activated, the reduced maintenance electric field (or an equivalent parameter, such as the electron temperature) is self-consistently calculated as an eigenvalue solution to the problem, under the assumption of quasi-neutrality.

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Antonio Tejero-del-Caz
Instituto de Plasmas e Fusão Nuclear, IST, Portugal

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