

Abstract Submitted
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A new user-friendly Monte-Carlo based Boltzmann equation solver for weakly ionized gases GERJAN HAGELAAR, LAPLACE, CNRS and University of Toulouse, France — We present MCIG, a new computer code for the solution of the Boltzmann equation for electrons or ions in weakly ionized gases, based on an efficient Monte-Carlo algorithm. MCIG will be released as freeware with a user-friendly interface similar to that of BOLSIG+, with very similar inputs and outputs. The purpose of MCIG is to obtain distribution functions, transport coefficients and reaction rate coefficients from cross section data, without invoking the two-term approximation used by BOLSIG+ and many other electron Boltzmann equation solvers. These outputs can then be used to check the validity of two-term Boltzmann results, or directly as input data for fluid models. MCIG can handle electrons as well as ions, and includes options for DC and AC electric and magnetic fields, gas temperature, superelastic collisions, anisotropic scattering and many more. We show various examples to illustrate its use and interest.

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