Abstract Submitted
for the GEC20 Meeting of
The American Physical Society

Relevant timescales for time-dependent electron kinetics[1] UWE KORTSHAGEN, University of Minnesota — Plasmas at low pressures and atmospheric pressures are often produced with time-varying or pulsed electric fields. The temporal dependence of the electron energy distribution function in these time-varying fields is determined by different mechanisms: 1) electron energy gain that can be described by an energy diffusion time and 2) electron energy loss that is described by one (or more) electron energy relaxation times. This presentation compares simple analytical expressions for the relevant timescales to the solution of the time-dependent Boltzmann equation.

[1]This work was supported by the Army Research Office under MURI grant W911NF-18-1-0240.

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Date submitted: 16 Jun 2020 Electronic form version 1.4