## Abstract Submitted for the GEC18 Meeting of The American Physical Society

Benchmarks for Two Dimensional Particle-in-Cell Simulations MILES TURNER, Dublin City University, Ireland, DENIS EREMIN, Ruhr University, Germany, PETER HARTMANN, ARANKA DERSZI, ZOLTAN DONKO, Hungarian Academy of Sciences, Budapest, ROMAIN LUCKEN, PASCAL CHABERT, Ecole Polytechnique, France, THOMAS MUSSENBROCK, Brandenburg University of Technology, Germany, PETER STOLZ, Tech-X Corporation, U. S. A. — Code correctness is a matter of concern in any computational investigation. The strongest assurances of correctness are obtained by comparison of code calculations with exact solutions, but this approach is not yet feasible for all categories of code. An alternative in this case is benchmarking, in the sense of comparison of a number of codes solving the same problem. In this presentation, we will describe a suite of benchmarks aimed at two dimensional particle-in-cell simulations of lowtemperature plasmas, in which collisional phenomena are necessarily included. The initial benchmarks address Cartesian geometries with a variety of different combinations of boundary conditions. We will describe the benchmark cases, and report on progress towards consistent solutions obtained with several independent codes.

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