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Particle in Cell Simulation of CCPs using Graphics Processing Units PHILIPP MERTMANN, Ruhr-University Bochum, AEPT, DENIS EREMIN, THOMAS MUSSENBROCK, Ruhr-University Bochum, TET, PETER AWAKOWICZ, Ruhr-University Bochum, AEPT — Particle-In-Cell (PIC) codes are a well established tool for simulations of plasmas. Main drawback is the computational power needed by such programs and thereby the time required for convergence. Currently GPU-computing becomes an important topic in a wide range of scientific applications. Using highly parallel graphics processing units (GPUs) can enhance the speed of the whole simulation by more than one order of magnitude. In this contribution we show the implementation and speedup of PIC codes using Nvidia's CUDA environment in C for a one-dimensional plasma.

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