

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

A Distributed Memory Grid Enabled GPU Implementation of the Boris Particle Pusher Algorithm¹ PAULO ABREU, LUIS SILVA, GoLP/Centro de Física dos Plasmas, Instituto Superior Tecnico, Lisbon, Portugal, JOAO PEREIRA, IST/INESC-ID, Lisbon, Portugal — The Boris pusher is a numerical algorithm to advance charged particles in an electromagnetic field. It is widely used in numerical simulations in Plasma Physics. This poster explains the implementation of the Boris pusher algorithm on stream processors, in particular on a modern Graphics Processor Unit (GPU) with programmable shading capabilities, and explores the parallelization of the code on several GPUs. A GPU Grid node was developed and the code was deployed there, as first step for the use of PIC code in a Grid environment.

¹Partially supported by FCT, Portugal, SFRH/BD/17870/2004.

Luis Silva
GoLP/Centro de Física dos Plasmas,
Instituto Superior Tecnico, Lisbon, Portugal

Date submitted: 22 Jul 2006

Electronic form version 1.4