Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Accelerating black hole simulations with GPUs ADAM LEWIS, ABDUL MROUÉ, HARALD PFEIFFER, Canadian Institute for Theoretical Astrophysics — Progress in numerical relativity remains constrained by the high time cost of integrating the Einstein equations. Since this cost is set mostly by floating point performance and by limits to parallelism, computation with graphical processing units (GPUs) offers great promise. We discuss our efforts to port the Spectral Einstein Code to NVIDIA GPUs, yielding a factor-7 speedup. We further discuss the challenges we encountered during the port and the new simulations it will make possible.

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Date submitted: 09 Jan 2015   Electronic form version 1.4