

Abstract Submitted
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Scalable relativistic fluid dynamics for heterogeneous computing¹

FORREST GLINES, Brigham Young University, MATTHEW ANDERSON, Indiana University, Bloomington, DAVID NEILSEN, Brigham Young University — A shift is underway in high performance computing towards new computer architectures that combine traditional CPUs with floating point accelerators, such as GPUs. We have developed a new relativistic fluid code that runs on NVIDIA GPUs using the piecewise-parabolic method, a standard method for compressible fluids found in astrophysics and engineering applications. We present a test study with relativistic magnetohydrodynamics showing that our code scales well in scaling tests with hundreds of nodes.

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