Dyablo : A new hardware-agnostic AMR code for the Ramses community

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Abstract

The Ramses community and the astro community at large are facing new challenges concerning large scale simulations and new computer architectures emerging in HPC clusers such as GPUs. Dyablo is a new Adaptive Mesh Refinement simulation code aimed at the Ramses community to perform hydro simulations with particles and self-gravity on multiple hardware achitectures. The code takes a more modern approach by using C++ and the Kokkos library to allow support for various current and future hardware architectures, such as GPUs, ARM processors or more conventionnal CPUs. In this talk i will present the current state of developpement of Dyablo and will explain the challenges that have already been overcome for AMR on GPU. Dyablo is still in a prototye phase, but promising performance benchmarks demonstrate that efficent AMR on GPU is possible.

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