

Chombo



Scalable adaptive mesh refinement framework. Enables implementing scalable AMR applications with support for complex geometries.

■ Adaptive Mesh Refinement (AMR)

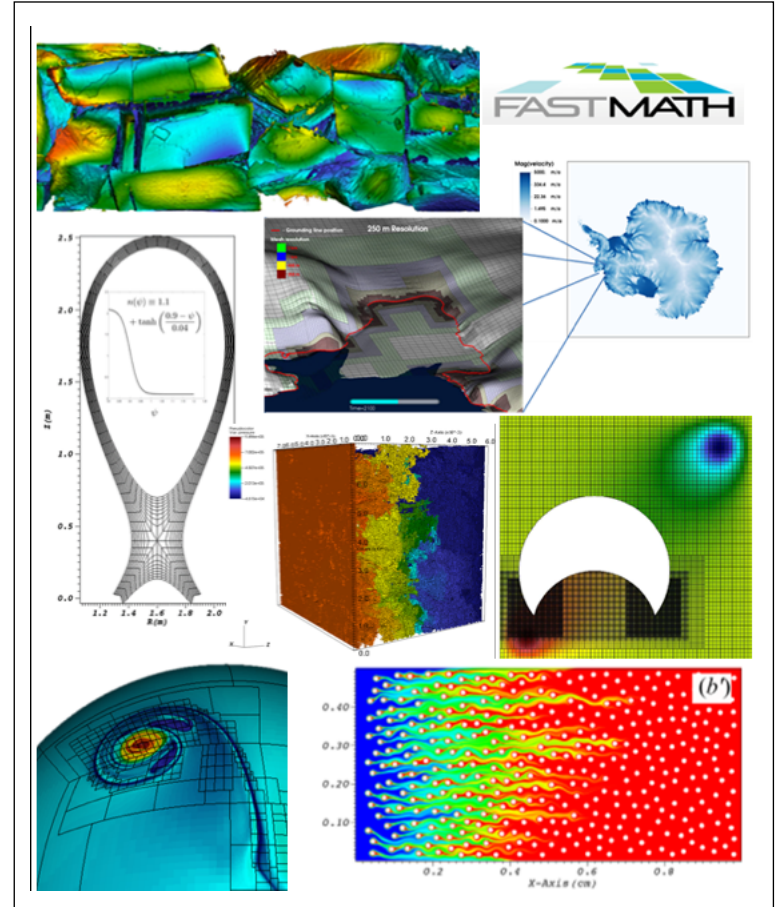
- Block structured AMR dynamically focuses computational effort where needed to improve solution accuracy
- Designed as a developers' toolbox for implementing scalable AMR applications
- Implemented in C++/Fortran
- Solvers for hyperbolic, parabolic, and elliptic systems of PDEs

■ Complex Geometries

- Embedded-boundary (EB) methods use a cut-cell approach to embed complex geometries in a regular Cartesian mesh
- EB mesh generation is extremely efficient
- Structured EB meshes make high performance easier to attain

■ Higher-order finite-volume

- Higher (4th)-order schemes reduce memory footprint & improve arithmetic intensity
- Good fit for emerging architectures
- Both EB and mapped-multiblock approaches to complex geometry



<http://Chombo.lbl.gov>