The Adaptively-Refined MHD Solver (ARMS)

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ARMS is a robust code for solving the single-fluid, fully compressible equations of magnetohydrodynamics. In this presentation I will describe how to access and run ARMS and how to use HelioSpace to analyze the results. The main features of the code are the following:

1. Equations are solved in either Cartesian or Spherical coordinates. For the latter, either a linear or a Log(r) coordinate can be used.

2. The latest flux-corrected-transport schemes developed at NRL are used to advance the convective equations. All waves and shocks are accurately captured.

3. A fully adaptive grid can be used. The code incorporates the PARAMESH technology for block-adaptation. Arbitrary adaptation criteria can be specified.

4. The code maintains a divergence-free magnetic field to machine accuracy throughout all refinement and de-refinement.

5. A uniform resistivity and thermal conduction can be included. Solution is either explicit or implicit.

6. Arbitrary boundary and initial conditions can be used in either Cartesian or spherical coordinates.

7. An accompanying visualization package, HelioSpace, is available for viewing and analyzing the native ARMS output, (without need for interpolating onto a structured grid).

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