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MHD Development in FLAG JAMES REYNOLDS, KONSTANTIN LIPNIKOV, CHRISTOPHER ROUSCULP, ANN KAUL, JEFF PETERSON, ERIC NELSON, THOMAS GIANAKON, Los Alamos National Laboratory — FLAG is a arbitrary polyhedral, rad-hydro, multi-fluid ALE code for modeling HEDP. A 1D/2D resistive MHD capability is implemented within FLAG to provide a predictive tool for modeling the driver and loads of pulsed power experiments that measure material properties in intense conditions. An overview of the FLAG MHD model is presented with verification results. Mimetic differencing schemes are methods that create discrete versions of PDE operators while preserving physical and geometric properties of the continuous operators [1]. Results are demonstrated for a Mimetic differencing approach to magnetic field diffusion and Joule heating.

[1] Brezzi, Lipnikov, Simoncini, M3AS: Math Mod and Methds in Ap Sci 15, 10

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