

Week 4 Report

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Monday

- Able to SSH into 'research-computer-1'
 - Ran a simulation out to 5 seconds in the computational domain remotely.
 - Computation time \sim 1 hour 30 minutes.
 - These data are the longest duration simulation I've done thus far.
 - Analyzing these data, we see that starting around $t = 0.9$ s, a region close to the origin starts to lose density/pressure. This drop stabilizes from 1 s to 5 s, although the source of this droop remains unclear.

Tuesday

- Prepared for adding B-field component into simulation
 - Defined unit normalization for gauss [G] = $\text{cm}^{1/2} \cdot \text{g}^{1/2} \cdot \text{s}^{-1}$
 - $\rho_0^{1/2} v_0$
 - This is the value we will divide our B-field values by to normalize numerical values to dimensionless units.
 - Reparameterized Haskell et al. (2008) B-field equations for use in code
 - They define $y = \pi r / R$, however, we've seen before that r / R in our code is the computational radius, and thus we will parameterize as $y = \pi r_{\text{computational}}$
 - Read through Haskell et al. 2008 (source for B-field which Kuhn implements).