- Contract
- Investigated difference between pure poloidal and combined fields as things currently stand with my code. From what I can tell, there didn't appear to be a considerable difference in the evolution of the field with time, which I find a bit odd.
    - Not sure if this is due to using an **incorrect field configuration (see bullet point about mixed field config.)** or if the evolution is constrained by the limitations of the simulation.
    - Ideally, I'd like to figure out what the deal is with boundary conditions near the poles, see: https://groups.google.com/forum/#!topic/pluto_users/iRk9iZIqM1M
        - Not sure if that's really possible with PLUTO..
        - Perhaps test out excluding poles and set upper and lower BCs to be reflective ("…not good if you have a lot of activity near the poles…"), although we'll try.
- Wrote out mixed B-field equations in Mathematica via Haskell et al. 2008 pp. 540. The component fields require computing the radial derivative of the "Stream Function", *A*.
    - Next step is to replace the current B-field equations in my init.c with these field component equations.
    - I'm curious about the field evolution for this configuration relative to the "Pure Poloidal" and "Pure Toroidal" configurations. I would expect to see different dynamics as the fields appear mathematically coupled, especially given the lambda parameter describing the relative strength of the toroidal part appears in all three field components.
- Discovered a potentially useful source for numerically calculating initial configurations for state variables such as density and pressure via a more involved EOS. The numerous EOSs, named BSK 19, 20, and 21, are considered an improvement upon SLy4 EOS (Douchin & Haensel 2001) and FPS EOS. See: http://www.ioffe.ru/astro/NSG/BSk/index.html
    - Downloadable Fortran file, required learning how to link and compile Fortran scripts. The user inputs density values and the program returns pressure values computed for the chosen EOS.
        - What I *really* need is a way to determine density values at a given radius, i.e. an equation for density as a function of radius.
    - The next step is to link this to my current work such that I can replace the analytic EOS for an n = 1 polytrope.