Minilab #1: Test the WD mass-radius relation

- In this lab, we'll specify a mass and composition, turn off nuclear burning, and let the resulting star cool down until it becomes a C/O white dwarf. Then, we'll see how our **MESA** models do vs. the simplistic mass-radius relation.

- For various reasons, we can't immediately change the composition of the starting star to C/O. The model star has to be fairly degenerate before we can do that.
  - So, we have to first let it cool down until it reaches some degeneracy criterion and save the model. When we restart it, we can change the composition.

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- The first step is to read through **`inlist_makepurewd`**. In its current state, it will start with a solar composition main sequence model of a mass you specify between 0.5 and 1.1 Msol, and cool with nuclear burning turned off until the center reaches $\eta = 5$, where η is the normalized electron chemical potential. This is accomplished by the **`eta_center_limit`** flag.

- So, choose a random mass, compile, and let it run! When the run ends, it will save a degenerate solar composition star as **`intermediate.mod`**.

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- Now that we have a solar composition degenerate model, we can change its composition by turning on the **`relax_initial_to_xaccrete`** flag. This relaxes to the composition given in the **`controls`** part of the inlist.

- We no longer want to stop at an η limit, so turn off that flag. But we do want to stop when the central temperature reaches 2 x 10^7 K, so turn on that flag.

- Once the relevant flags are turned on and off, including the **`load_saved_model`** flag, restart with **`./rn`**. (The composition flag doesn't work on a **`./re`** from a photostep, which is why we have to **`./rn`** from the intermediate saved model.)

- Once the WD cools down and the run terminates, report your mass in Msol units and ending radius in Rsol units on the Google spreadsheet (available at http://cococubed.asu.edu/mesa_summer_school_2015/agenda.html), and we'll generate a real-time white dwarf mass-radius relation. (You can just read the radius off of the terminal or pgstar output, remembering that the reported quantity is $\log_{10}$(R/Rsol), not R/Rsol.)