This week we have the post-main sequence to ponder, considering processes relevant to low-mass and high-mass stars.

1. **Schönberg-Chandrasekhar Core Mass**

   In class I asserted a simple expression for the maximum mass of a degenerate core:
   
   $$M_{\text{core}}/M_* < 0.37(\mu_{\text{envelope}}/\mu_{\text{core}})^2.$$ 

   Guidry problem 13.1 will walk you through the derivation of this condition. For an added part [e.], go ahead and continue to find the expression for $M_{\text{core}}$.

2. **MESA Movies**

   Go to [http://user.astro.wisc.edu/~townsend/static.php?ref=mesa-movies](http://user.astro.wisc.edu/~townsend/static.php?ref=mesa-movies) and watch all of the movies for the 1 $M_\odot$ case. I suggest starting with the EOS set, across the evolutionary phases. Then check the other Energy and Composition sets to fill in your understanding of what is happening.

   a. What is the duration in years of each of the five stages represented?

   b. How much mass is lost from the initial ZAMS mass, and in which stages? What do you think the bulk effect is of the mass loss on the subsequent stellar evolution?

   c. Check out a single box of movies (i.e. just one of the evolutionary stages) for another stellar mass, and compare to the fiducial 1 $M_\odot$ case.

   d. Thinking back to the hand-waving that I did in class regarding stellar evolution patterns, what have you learned or more fully appreciated from watching these movies?

3. **Term Project.** Continue the Ay101 Term Project, where you should be on the “Weeks 7-8-9” portion. This is due at the end of the term, but please try to make progress each week.

   [for all assignments, please write near your name how many hours you spent on the set.]