**P354 Project 5: Creating a cluster HR diagram**

Due: Jan. 26

Use the Salpeter IMF as a probability function and a random number generator to create a star cluster with 400 stars in the mass range from 0.5 solar masses to 30 solar masses. Create the ZAMS HR diagram for this cluster after creating binary pairs of stars by again using a random number generator to randomly assign 1/3 of the stars to partners. When a star is paired, remove it from list so that we create only binary, and not triple, systems. Discuss the result and any interesting features. Save your work to use this cluster in evolutionary models later.