

HIGH MASS

This test is to show a $110 M_{\odot}$ pre-main sequence star evolved to the middle of the main sequence. Therefore, this test should be cut off when the mass fraction for center hydrogen drops below 0.5 (`xa_central_lower_limit_species(1) = 'h1' ; xa_central_lower_limit(1) = 0.5`).

The inlist sets an initial mass of $100 M_{\odot}$ and solar metallicity, and then relaxes the mass (`new_mass = 110`) and the metallicity (`new_Z = 1d-5`).

To the left is the HR-diagram from the run (figure 1), starting on the lower branch. To the right is a plot of the evolution of the center temperature and density (figure 2).

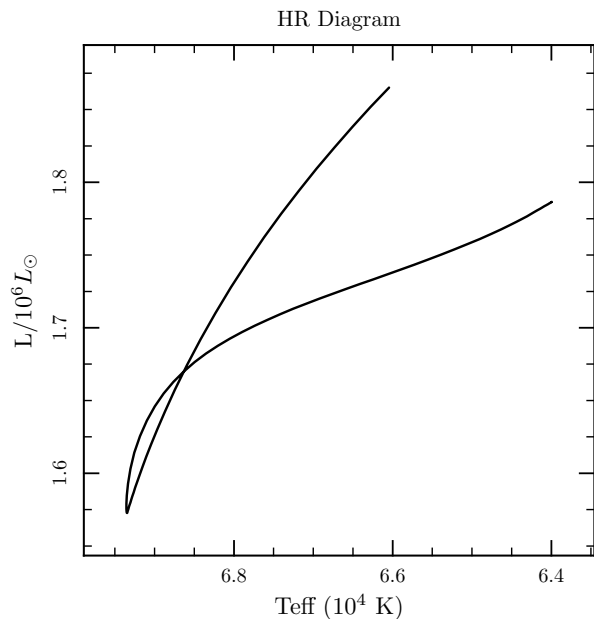


Figure 1

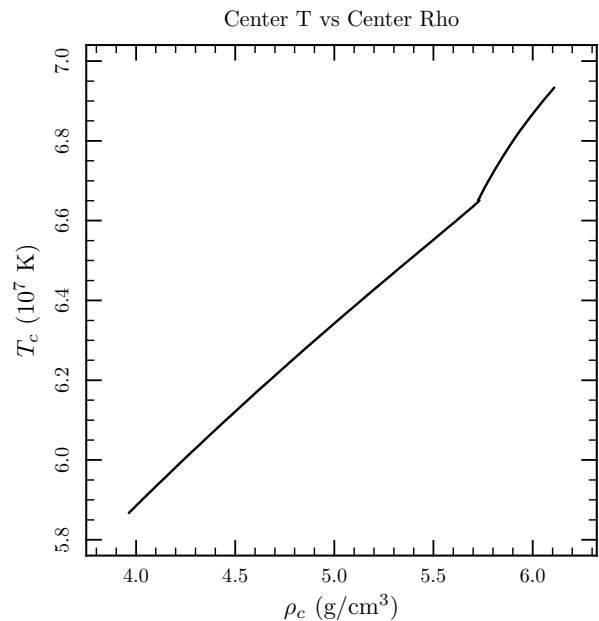


Figure 2

Below are an abundance profile (figure 3) and a burning rate profile (figure 4) from the end of the run.

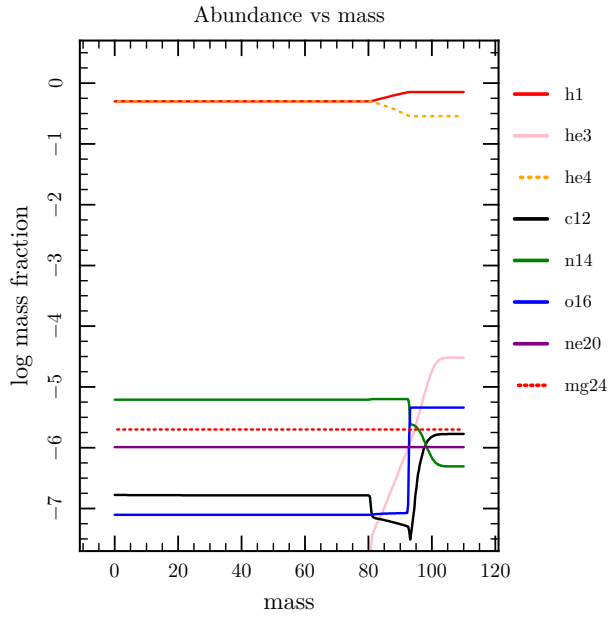


Figure 3

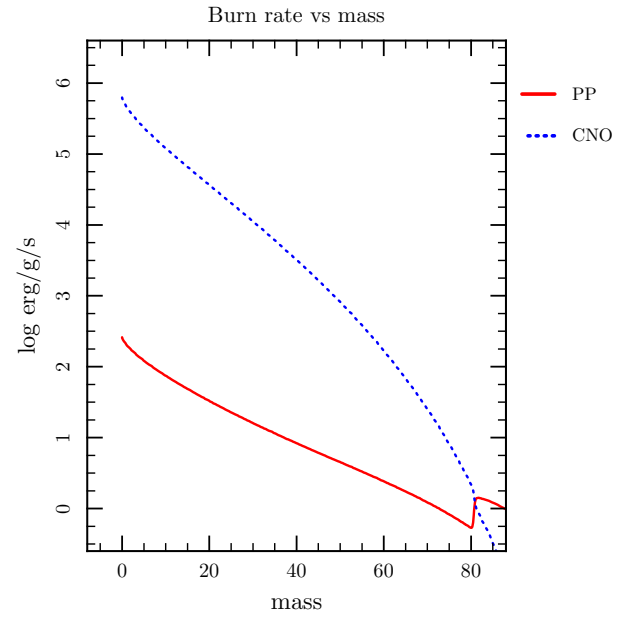


Figure 4

This final plot (figure 5) shows a few internal MESA variables, such as the size of the time-step, the number of zones, and the number of retries against the model number in order to give some understanding of how hard MESA is working throughout the run and where some areas of problems/interest might be.

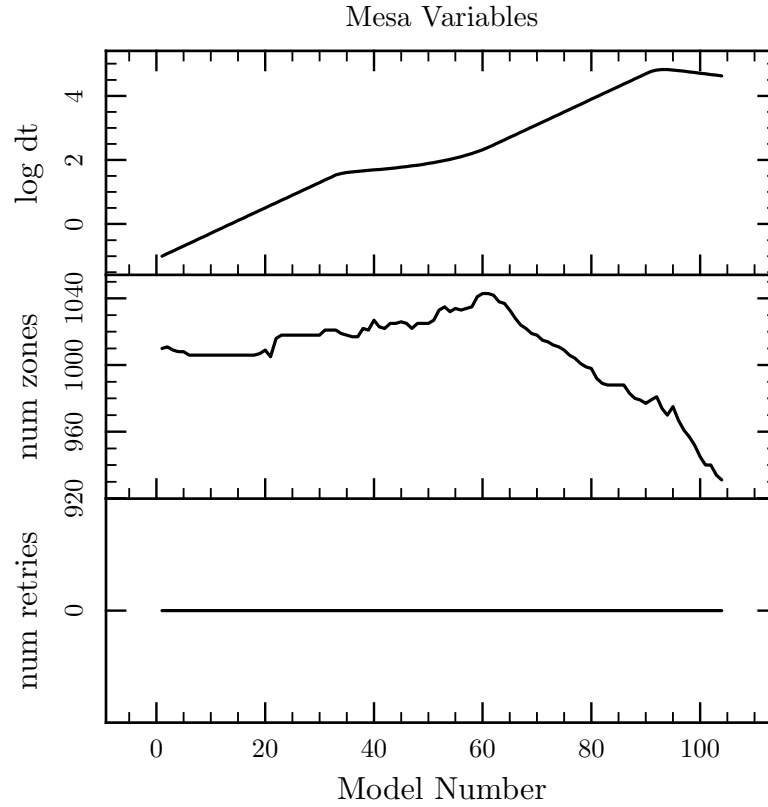


Figure 5: MESA variables plotted against model number show how hard MESA is working