A close up of a map

Description automatically generated

This figure shows convection time-scale profiles for different high mass primary stars at their maximum radius. MESA simulations provided the maximum radius and corresponding interior profile of each star. We used Equation 2 and Python to find the convective time-scale for each profile. As the distance from the center of the star increases along the horizontal axis, the convection time-scale goes to zero. The different shells of the star are shown in the step-like appearance of the time-scale profile.

A close up of a map

Description automatically generated

This figure shows binding energy profiles for high mass primary stars at their maximum radius. Binding energy refers to the amount of energy that would be needed to strip the common envelope of the star to a given radius. We used MESA simulations to determine the maximum radius and the interior profile of each star and Equation 4 to calculate the binding energy. As the distance from the center of the star increases along the horizontal axis and approaches the surface of the star, the binding energy approaches zero.