CONSTRAINTS ON THE STRUCTURE, EVOLUTION, AND APPROACH TO THERMONUCLEAR RUNAWAY IN INTERMEDIATE MASS AND MASSIVE STARS

Abstract

by

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This thesis provides an assessment of stellar evolution models for intermediate-mass and massive stars in advanced stages of evolution through a detailed cooperation between simulations and observations of nearby stars and eclipsing binary stars. We also make a detailed study of the approach to unstable helium burning the core flash and thermally pulsing phases. We formed the first detailed analysis of how such burning evolves from quasi-statics to explosive helium burning as a function of progenitor mass.