

# IAU General Assembly 2006, Joint Discussion 05: "Calibrating the Top of the Stellar Mass-Luminosity Relation"

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The goal of this Joint Discussion is to bring together theorists and observers from the stellar and extragalactic communities to discuss the properties of the most massive stars and the implications for cosmological studies. The meeting will focus on a set of themes that follow from fundamental stellar astronomy, such as mass determinations in binary stars, to recent modeling of atmospheres and evolution, to the significance of massive stars for the ecology of the host galaxy, and finally to a critical assessment of the properties of the first generation of stars in the universe.

Major topics:

- \* empirical mass determinations of the most massive single stars
- \* models for massive stars on and off the main sequence
- \* stability near the Eddington limit with and without rotation
- \* comparisons of atmospheric and evolutionary masses
- \* observational efforts to detect, monitor, and analyze massive binaries
- \* mass and energy return to the interstellar medium from massive stars
- \* extrapolations to the first generation of stars with ultra-high masses
- \* the role of hot massive stars during the epoch of reionization in the early universe

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