

Very Massive Stars in the Local Universe

August 2012

IAU GA in Beijing

While Very Massive Stars (VMS) with over 100 solar masses have been claimed to exist in the early Universe, recent studies discussing the existence and deaths of stars up to 300 solar masses in the local Universe came as a surprise to many workers both inside and outside the field. Before the full implications of these findings can be explored, it is imperative to discuss the various lines of evidence for VMS.

We hold a 1.5-day Joint Discussion -- spread over 3 days -- at the next IAU GA to discuss the determination of both the current and final masses of VMS. The aim is to reach broad consensus between observers and theorists on how to identify and quantify the importance of the dominant physical processes.

Topics to be presented during the JD:

- Weighing the most massive stars from their binary motions
- Stellar spectra of O and Wolf-Rayet stars
- Mass determinations from stellar spectroscopy and model atmosphere analysis
- Formation of the most massive stars
- Mass loss mechanisms, incl. eruptions of Luminous Blue Variables
- Stellar structure and evolution modelling
- The fate of the most massive stars (over cosmological time)
- Mass and energy return to the interstellar medium (ISM)

Note there will also be a special session on 'The infrared view of massive stars' during the same GA.

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