Infrared observations of young massive stars

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Abstract. Infrared observations of young massive stars yield crucial insights on the birth of high-mass stars and their interaction with the parent molecular cloud. Results for IRAS23140+6121, G254.681+0.219, and NGC6334F obtained by near- and mid-infrared imaging are presented for a brief illustration.

Discussion

The formation of high-mass stars \((M \geq 8 M_\odot)\) is still a matter of debate. The validity of the accretion scenario has been questioned since radiation pressure on dust grains might hinder the infall of matter. The coalescence of medium-mass stars was suggested to be an alternative mechanism (Bonnell et al. 1998). Due to the large average distances of high-mass stars, ultimate angular resolution, e.g., by adaptive optics (AO), is required for a detailed study of their formation. Their rapid evolution implies that they burn hydrogen while still being deeply embedded in the parent molecular cloud, giving rise to ultracompact HII regions.
regions (UCHIIIs). The large visual extinction towards such objects precludes their detection at optical wavelengths. We performed high-resolution infrared measurements of UCHIIIs and hot molecular cores. Our findings on G 45.45+0.06 were published recently (Feldt et al. 1998). Here we briefly present results on three more sources (Figs. 1 & 2). Together with molecular line and radio continuum observations, these will be used to build consistent source models, which, eventually, might lead to a better understanding of their formation.

References
Kurtz, S. 1995, RevMexAA-SC 3, 39

1Based on observations collected at the European Southern Observatory, La Silla, Chile, and the German Spanish Astronomical Centre, Calar Alto, Spain.