

The Formation of Massive Stars via Accretion

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The collapse of massive molecular clumps can produce high mass stars, but the evolution is not simply a scaled-up version of low mass star formation. Radiative effects strongly influence the evolution. A necessary condition for accretion growth of a hydrostatic object up to masses in excess $20 M_{\odot}$ (rather than coalescence of optically thick objects) is the formation of and accretion through a circumstellar disk. The massive central hydrostatic objects themselves do not follow pre-main sequence tracks but rather quickly evolve to hydrogen-burning central densities and temperatures even as they accrete material. The circumstellar disks will be photoevaporated on a timescale of $\sim 10^5$ yr and be observed as highly obscured UCHIIIs. This scenario places strong constraints on the accretion rate necessary to produce high mass stars and offers an opportunity to test the accretion hypothesis.