

\*\*\*\*\*

## THE FORMATION OF MASSIVE STARS VIA ACCRETION

Harold w. W Yorke

Jet Propulsion Laboratory / Caltech

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 and in excess of 20 solar masses (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  $\sim 100,000$  yr and be observed as highly obscured Ultra Compact HII regions. This places strong constraints on the accretion rate necessary to produce high mass stars and offers an opportunity to test the accretion hypothesis.

\*\*\*\*\*