Radiation Feedback in the Formation of Massive Stars and Star Clusters

Mark R. Krumholz[1]

[1]*Astronomy Department, Interdisciplinary Sciences Building, University of California, Santa Cruz, 95064, krumholz@ucolick.org*

The intense radiation produced by newborn massive stars plays a decisive role in the dynamics of star-forming interstellar gas clouds. Individual massive stars drive radiation pressure-dominated bubbles into their circumstellar material, and continuing accretion and growth of stars is possible only if gas is able to break through them [1]. As star clusters assemble, the collective luminosity of their stellar populations rises, eventually reaching a point where radiation pressure is strong enough to drive out any remaining interstellar gas [2]. This process terminates cluster formation and limits the efficiency with which gas can be converted to stars [3]. In this talk I review our current understanding of the role of radiation feedback in regulating the formation of massive stars and star clusters, using a mix of analytic models and three-dimensional radiation-hydrodynamic simulations. I also briefly discuss the numerical techniques that are used to simulate radiation-hydrodynamics in the star-forming interstellar medium.

References

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