

High mass star formation

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Massive stars are important actors in the life of a normal Galaxy because they chemically enrich the ISM and shape the morphology and the dynamics of diffuse material to eventually produce new generations of stars. I will review the recent progress that the Herschel surveys allowed in the field of massive star formation, and outline the issues that they leave unanswered as well as the new challenges that they raise. I will illustrate the importance of, among other things, the full spectral coverage in the infrared and submillimeter continuum to collect observables that are needed as evolutionary probes from massive pre stellar clumps to HII regions; while this is now accessible for nearby star forming regions, massive stars are relatively rare and more distant, therefore requiring an order-of-magnitude increase in the accessible spatial resolution with respect to Herschel. The discovery of the intricate filamentary nature of star formation requires that these structures are spectroscopically studied Galaxy-wide with at least arc second resolution to characterise the dynamical regimes leading to their formation and subsequent evolution and fragmentation. ALMA will be an important actor in this field, but there is robust rationale to pursue at least arcsecond resolution in the FIR associated with excellent mapping capabilities and speed to collect statistical significance.