

## **Star Formation at High Resolution**

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The ALMA will revolutionize the study of star formation by providing a combination of angular resolution and sensitivity that far exceeds that of present instruments. I will focus on studies of relatively isolated cores that are forming low-mass stars. There is a general paradigm for the formation of such stars, and there are detailed theoretical predictions for the evolution of the density and velocity fields for different assumptions about the initial conditions. Because the theory is well developed, observational tests are particularly revealing.

The two primary probes of the conditions in dense cores are continuum emission from dust and spectral lines from molecules. These are complementary in many ways. The dust emission traces dust column density very effectively, and it is not affected by molecular depletion to first order. Substantial grain growth may affect the emission, but this can also be studied. In addition, dust and gas distributions may differ because of ambipolar diffusion. In principle, the molecular spectroscopy probes the gas column density, but it is more sensitive to variations in chemical abundances. Molecular lines can probe the local density and velocity fields, but it is important to constrain the analysis with information on column density. Together these two probes can be very powerful.

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