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High Resolution Studies of Star Formation in the Milky Way

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Stars are formed through the interactions of gravity, turbulent gas motions, magnetic fields, and feedback from previous generations of stars. Observations of nearby star forming molecular clouds in the Milky Way allow us to study these physical processes at scales that cannot be resolved in other galaxies. In this talk I will discuss recent advances in our understanding of local star formation through large area detailed mapping of thermal dust emission from the BLAST balloon-borne telescope and the Herschel Space Observatory. These observations have shown that the morphology of star forming regions is dominated by filamentary structures, and that the densest filaments seem to be preferential sites of star formation. I will also show how measurements of the polarization of thermal dust emission from a new generation of submillimeter polarimeters have been used to create highly detailed maps of magnetic fields in molecular clouds. The resulting maps provide insight into the role played by magnetic fields in the star formation process.