Invited: A review on molecular cloud properties and their link to the formation of massive stars

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The initial conditions of star formation are set by the properties of interstellar molecular gas. Even though the first detection of interstellar CO was made nearly 50 years ago, we are still a long way before a unified picture of what these initials conditions are emerges. However, in the past decade, the wealth of high-sensitivity high-angular resolution observational datasets combined with the ever increasing complexity of numerical simulations have contributed to a more complete understanding of the link between molecular cloud properties and massive star formation. In this talk I will review recent observational and numerical results on the structure and evolution of molecular clouds, focussing on what specific set of conditions are required for the formation of massive stars, and how, in turn, feedback from newborn stars might affect these conditions.

Molecular Clouds