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ALMAGAL: Evolutionary study of high-mass protocluster formation in the Galaxy

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Stars form preferentially in clusters deeply embedded inside massive molecular clouds. Some of these clusters contain high-mass stars that influence their immediate environment through gravitational, mechanical and radiative interactions, and eventually through supernova explosions. Therefore, a comprehensive understanding of star formation requires characterizing the formation and early evolution of (high-mass) stellar clusters. The ALMA Large Program ALMAGAL has observed over 1000 high-mass star forming regions distributed throughout the Galaxy, sampling different evolutionary stages and environmental conditions. For the first time, a large sample has been observed at high spatial resolutions (1000 au) and mass sensitivities (0.1 Msun), enabling statistically relevant studies. In this talk, we will present the ALMAGAL project. This includes the observation strategy and main challenges during the data reduction process, as well as a glimpse to the first scientific results and the potential and legacy value of the project. Overall, ALMAGAL aims at providing answers to key questions of the star formation process such as: What are the processes that govern fragmentation and allow the formation of star clusters? How do the different cluster members gain mass, and how feedback may influence the process? How does chemistry evolve in time during the star formation process?

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