

## **ABSTRACT**

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### **LBVs in the Magellanic Clouds and Milky Way: exploiting their possible role as dust producers**

Late stages of stellar evolution are often characterized by massive mass-loss. Signpost of these events is the formation of circumstellar envelopes (CSEs), whose physical properties make ideal sites for molecules and dust formation. Despite the importance of AGB stars and RGS as primordial dust producers, when the low mass stars did not have time to evolve off the main sequence (Dwek 2005), very few studies on dust and molecules formation and processing in CSE near hot, massive stars have been conducted. Recently Smith and Owocki (2006, ApJ 645, L45) have suggested that LBV extreme mass-loss occur only via eruptive episodes, driven by metallicity independent mechanisms other than the usually adopted line driven stellar wind. If this is the case, LBVs stars would have a paramount importance in the evolution of early universe massive stars. In this contest it is therefore of great interest to study LBVs in different environments, in particular at different metallicities, to assess if the LBV phase depends on the metallicity and if the observational characteristics of LBV at low metallicity are the same as those at higher metallicity. LBVs are quite rare in our Galaxy but few members have been identified also in the Magellanic Clouds (MCs). Because of its lower metallicity, the LMC appears as an ideal laboratory to test the metallicity independence of these phenomena. Moreover, very recently Matsura et al. (2009, MNRAS, 396, 918), on the basis of mid-IR observations, estimated the global gas and dust input from AGB stars and SNe in the LMC. They pointed out a "missing dust-mass problem" as observed in high-z galaxies, implying the necessity to have an extra dust source. Among possible alternatives they considered a contribution from LBVs despite the total lack of information on the LMC LBV's mass-loss. One way to exploit this possibility is to combine results from HERSCHEL surveys of the Galactic Plane (HI-GAL) and on the MCs (HERITAGE) to plan focused ALMA observations aimed to detailed mapping of the dust component. Well known Galactic LBVs will be used as a template to demonstrate the feasibility of such observations.