Star-Burst Regions in the LMC

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Abstract. Filamentary structures of early type stars are found to be a common feature of the MCs formed $\sim 0.9 - 2 \times 10^8 \, yr$ ago. As we go to younger ages these large structures appear fragmented and sooner or later form young clusters and associations. In the optical domain we have detected 56 such large structures of young objects, known as stellar complexes in the LMC (Maragoudaki, Kontizas, Kontizas, *et al.* (1998)) and investigate their properties. IRAS data of the LMC stellar complexes were compared with observations of starburst galaxies (Helou (1986); Lehnert & Heckman (1996)). It has been found that nearly 1/4 of the stellar complexes are extremely active resembling the IR behaviour of starburst galaxies and HII regions. These stellar complexes are called here "starburst regions". They host an increased number of HII regions, SNRs, stellar associations and nebulae. The main starburst tracers are their IR luminosity F_{60} and the 8.6-GHz radio emission (8.6-GHz data: Dickel, McIntire, Gruendl, *et al.* (2005)). In Table 1 the characteristics of the various types of complexes are given. Finally the evolution of all stellar complexes is discussed based on the CO emission (CO data: Fukui, Mizuno, Yamagushi, *et al.* (1999)). More than 50% of the starburst and starburst candidate regions show enhanced CO emission, indicating ongoing and future evolution.

Keywords. galaxies: structure, Magellanic Clouds, stars: formation.

Table 1. Complexes characterisation

Complex Type	F_{60} (Jy)	8.6(GHz)	No. of Complexes
starburst	F_{60} well above 5.4	yes	13
starburst candidate	$F_{60} <$ but close to 5.4	yes	5
active complex candidate	$F_{60} >$ but close to 5.4	no	2
active complex	F_{60} well bellow 5.4	no	36

References

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