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STEP@VST and YMCA@VST, a fresh look into Magellanic System stellar populations

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The Magellanic Clouds (MCs) represent an ideal laboratory to study the three body interaction between a massive spiral, the Milky Way, a disk galaxy, the Large Magellanic Cloud, and a massive dwarf, the Small Magellanic Cloud.

In spite of several efforts in the recent years, an overall picture of the spatial distribution of the stellar populations in the Small Magellanic Cloud and of the details of the interaction between the Clouds and the Milky Way is still lacking. We fill this gap with the two surveys described in this contribution.

STEP@VST (The SMC in Time: Evolution of a Prototype interacting late-type dwarf galaxy) is a GTO survey devoted to the study of the stellar populations in the Small Magellanic Cloud and in the Bridge. We observed 53 sq. deg. in g,i bands down to $g \sim 24.5$ with $S/N \sim 5$ (1-2 mag below the turn-off of the oldest population) and about 56 sq. deg. in r,Halpha down to $r \sim 23$ with $S/N \sim 5$. Among other results, the study of the western region of the SMC and particularly of the Bridge shows the presence of a diffuse population as young as 100-200 Myr, an age often reported in the literature as the epoch of the last interaction between the Clouds.

With the YMCA@VST (Yes, Magellanic Clouds Again: probing the outer regions of the Magellanic system with VST.) survey, we aim at imaging an area of 110 deg sq. in g, and i filters down to $g' \sim 24-24.5$ mag with $S/N \sim 5$ (AB). These data are deep enough to reach 1-2 magnitudes below the main sequence turn-off of the oldest stellar populations. YMCA will allow us to fill the gap left by other ongoing or planned surveys in the surroundings of the MCs, permitting to study in detail the star formation history and the extended structure of MCs outskirts. Moreover, our images will serve

to search for new star clusters and faint satellites possibly associated to the MCs.

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