

Contributed Talk

Splinter Populations

MORPHOLOGY AND SPATIAL DISTRIBUTION OF STELLAR  
POPULATIONS IN THE MAGELLANIC CLOUDS FROM THE VMC  
SURVEY

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The Magellanic Clouds are nearby dwarf irregular galaxies whose morphologies, dynamics and evolution are highly complex and must have been heavily influenced by their interaction with each other as well as with the Milky Way. Tidal forces caused structural changes in the galaxies and so the study of their morphology and structure is important to understand the effect of these interactions.

Traced by different stellar populations, the morphology of the Magellanic Clouds show different properties. While young stars in the Large Magellanic Cloud (LMC) exhibit a rather irregular structure characterized by spiral arms and tidal features, older stars dominating the mass of the galaxy tend to be more smoothly and regularly distributed. Both theoretical and observational studies in the Small Magellanic Cloud (SMC) indicate that old and intermediate-age stars are distributed in a spheroidal or slightly ellipsoidal component while young stars and gas are rather distributed in a disc. Despite the regularity of the older stars, different tracers and methods yield centres that are not mutually consistent.

We are using the VMC Survey to investigate the spatial distribution of different stellar populations across the Magellanic Clouds. We will present a comprehensive and detailed study of the morphology of the central regions of the galaxies by obtaining their surface density maps and using isopleth contours of the stellar surface density to determine the centroids of each stellar population. Furthermore, we will construct projected radial density profiles through star counts and fit different models (Exponential Disk, Sersic profile, King and Plummer sphere models) to them which will allow us to derive structural parameters that best describe each stellar population.