

A SYNOPTIC VIEW OF THE MAGELLANIC CLOUDS:  
VMC, GAIA AND BEYOND

ESO-HQ, GARCHING BEI MÜNCHEN, GERMANY  
September 9-13, 2019

---

## Mapping the extreme stellar periphery of the Magellanic Clouds

**Mackey Dougal, Australian National University**

I will describe our DECam survey to create a panoramic map of the Magellanic stellar periphery to extremely low surface brightness. Our results starkly illustrate the closely interacting nature of the LMC-SMC pair. The outer LMC disk is strongly distorted, exhibiting an irregular shape, evidence for warping, and significant truncation on the side facing the SMC. Large diffuse stellar substructures are present both to the north and south of the LMC, and in the inter-Cloud region. The SMC is highly disturbed, exhibiting tidal tails as well as a large line-of-sight depth on the side closest to the LMC. Young, intermediate-age, and ancient stellar populations in the SMC exhibit strikingly different spatial distributions. Stars with ages  $< 100$  Myr follow the "outer wing" feature and extend into a narrow chain of clusters closely tracing the peak of the HI in the Magellanic Bridge. In contrast, those with ages 1.5-4 Gyr exhibit a spheroidal distribution with a centroid offset from that of the oldest stars by several degrees towards the LMC. We speculate that the gravitational influence of the LMC may already have been perturbing the SMC several Gyr ago.