

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

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

**The formation and evolution of
Wolf-Rayet stars in the Magellanic
Clouds**

Shenar Tomer, KU Leuven

Wolf-Rayet (WR) are massive stars that exhibit strong mass-loss and dominate the stellar feedback on their environments, probing the upper-mass end of the initial mass function and critical evolved phases of massive stars. It is generally not known whether the majority of WR stars at different metallicities form primarily via mass-transfer in binaries or via intrinsic stripping due to mass-loss. Using the Potsdam Wolf-Rayet (PoWR) model atmosphere code, along with spectral disentanglement techniques, we performed a complete spectral analysis of all known WR binaries in the Small and Large Magellanic Clouds (SMC, LMC), as well as additional orbital analyses, and constrained the evolutionary histories of these stars. Surprisingly, we do not find clear empirical indications that binary interaction dominates the evolution of massive stars. We conclude that either mass-loss/mixing during pre-WR evolutionary phases are largely underestimated, or that virtually all apparently-single WR stars in the magellanic clouds are binary products. In my talk, I will summarize our study's findings regarding the origin of WR stars in the Magellanic Clouds and its implications.