shapeLF

EDIT AUTHOR LIST

1.
Star Cluster Formation Efficiency and the Clustered Fraction of Young Stars

We make spatially resolved measurements of star cluster formation efficiency, the fraction of young stars formed as members of long-lived star clusters (Γ), across the PHAT survey footprint in M31. We derive robust constraints for Andromeda's cluster and field populations over the last $\sim$ 300 Myr through color-magnitude diagram analysis of individually resolved stars. We find that 3-6% of young stars (10-100 Myr old) are star cluster members. This fraction varies across the galaxy disk and tends to increase in correlation with total gas and star formation rate surface densities (and). These Γ measurements expand the range of well-studied galactic environments, providing high quality constraints in an -dominated, low intensity star forming environment. The observed trends with are broadly consistent with previous evidence for environmentally-dependent cluster formation efficiency derived at galaxy-integrated spatial scales. However, we find better agreement between observations and theoretical models if we