## Annual Scientific Meeting & Harley Wood School



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## MAUVE: Tracking the influence of the environment on the gas-star formation cycle of cluster galaxies during infall.

Wednesday 9 July 2025 10:15 (15 minutes)

I will present recent results from the MAUVE (Multiphase Astrophysics to Unveil the Virgo Environment) survey—a multi-wavelength campaign combining VLT/MUSE, ALMA, and HI data for 40 Virgo Cluster galaxies, including an Australian-led MUSE Large Program. MAUVE is designed to investigate how the cluster environment impacts the gas-star formation cycle during galaxy infall.

These observations trace the distribution and kinematics of stars, ionized, and molecular gas down to a few hundred parsecs, enabling detailed studies of how environmental processes affect star formation. Among our key findings are signatures of star formation-driven outflows even in HI-deficient, ram-pressure stripped galaxies, suggesting feedback may play a critical role in quenching. We also find that the warm ionized medium is often ionized by mechanisms other than star formation—unlike in field galaxies—and uncover early evidence for ISM disc reformation and a surprising prevalence of nuclear stellar discs with varied evolutionary paths.

Finally, MAUVE's rich, high-dimensional dataset offers a valuable platform for developing new methods to integrate panchromatic data. I will highlight both the scientific insights and technical challenges arising from this approach. Though still in its early stages, MAUVE is already providing transformative insights into the gas cycle of cluster galaxies and offering key constraints for theoretical models.

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