

## Supergiant Stars as Probes of Cosmic Abundances and the Evolution of Star Forming Galaxies

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The determination of spatially resolved chemical composition is crucial for investigating the formation and evolution of star forming galaxies and provides a powerful tool to constrain the effects of galactic winds and accretion from the cosmic web. However, the standard technique using the strong emission lines of HII regions to determine metallicity and metallicity gradients, nearby and at high redshift, is subject to large systematic uncertainties that are poorly understood. Multi-object spectroscopy of blue and red supergiant stars - the brightest stars in the universe at visual and NIR wavelengths - provides an attractive alternative. I will present results accumulated over recent years for galaxies in the Local Group and beyond out to a distance of 20 Mpc and will discuss the potential of future work with TMT and E-ELT. Combining the photon collecting power of these next generation telescopes with Adaptive Optics we will be able to study individual supergiant stars in galaxies as distant as the Coma cluster. With spectroscopy of the integrated light of young very massive Super Star Clusters and simple population synthesis techniques we can reach out ten times further.