

Observing the mass-loss of nearby red supergiants

Peter Scicluna¹

¹*Institute of Astronomy and Astrophysics, Academia Sinica*

Mass loss from evolved stars plays a number of key roles in stellar and galactic evolution. As well as being the main source of dust and chemically-enriched material for the ISM, mass-loss is crucial to understanding the final fates of stars. At the high-mass end, mass-loss is the key parameter that determines when a given star will explode as a supernova, and what kind of supernova it will become. However, this key aspect remains poorly understood, with asymmetries, discrete ejections and outbursts seen for some stars with no apparent pattern. I will present initial results from an optical-IR high-contrast imaging survey of galactic red supergiants (RSGs). These include the detection of large (500nm) dust grains in the ejecta of VY CMa (the first detection of this kind for an RSG) and the first detection of a candidate disc-like outflow in VX Sgr, aligned with a ring of maser emission. I will then explore synergies with sub-mm observations to constrain the processes driving the outflows in these supernova progenitors. I will briefly speculate on the consequences for our understanding of mass loss in these extreme stars.