

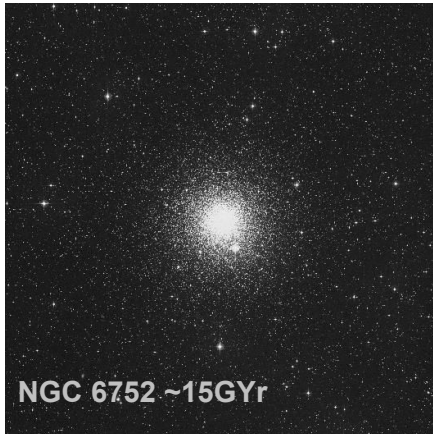


Trinity College Dublin School of Physics

Research project in **Astrophysics**

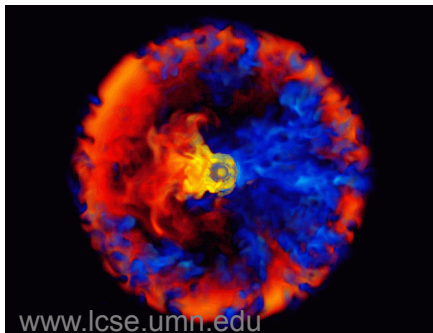
Mass Loss from Ancient, and not so Ancient, Stars

Research supervisor: Dr. Graham Harper, Astrophysics Group



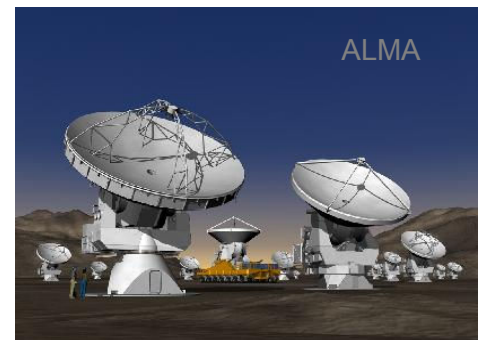
Scientific Background / Current Research

One of the unsolved problems in stellar astrophysics is how red giants drive mass outflows. While there is no working theory, it is often assumed that magnetic fields are responsible. How then do ancient red giants as old as the Milky Way, e.g., in NGC 6752, maintain their magnetic fields to drive these winds? Progress is being led by semi-empirical multi-wavelength studies with ground and space based instruments. Hubble spectra are being used to map out the wind acceleration and new research is needed to map out the thermodynamic structure.



Project Details

Using sophisticated radiative transfer and semi-empirical modeling techniques the thermal structure of isolated red giant accelerating winds will be studied for the first time. This analysis will be used to quantify the energy and momentum balance and help establish which theoretical models are viable. The results will lead to precise predictions that can (and will) be tested with the new generation of interferometric radio observatories: the Expanded Very Large Array (EVLA), and the Atacama Large Millimeter Array (ALMA).



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