

Workshop

Stellar End Products: The Low Mass - High Mass Connection

ESO Garching, 6-10 July, 2015

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Title:

Radio/sub-mm clues to the origins of asymmetries and clumps

Abstract:

The bulk properties (such as mass and elemental composition) of the material entering the ISM from cool, evolved stars, seem to be well-understood. This is not the case for smaller scale behaviour, such as the survival of dust grains or the origins of aspherical nebulae around even apparently solitary stars. High-resolution observations show that the winds are clumpy and usually have a preferred axis. The winds can also be multi-phase with different distributions of tracers of different densities/other properties. But, what causes these inhomogeneities and asymmetries? Do they originate from localised mass loss events from the star, and a stellar-centred magnetic field? Or from instabilities further out in the wind? I will report on ALMA, MERLIN and VLBI au-scale imaging of AGB and RSG winds using masers and other lines, related to stellar properties, complementing other talks on larger-scale structure, radio continuum and magnetic fields. I will look forward to the use of ALMA alongside com-wave interferometers to observe multiple maser transitions, revealing not only kinematics but physical conditions with unprecedented precision.