Workshop

Stellar End Products: The Low Mass - High Mass Connection

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Title:
Radio/mm/sub-mm Observations of AGB and RSG stars

Abstract:
Considerable progress in the study of AGB stars and red supergiants (RSGs) through line and continuum observations at radio/mm/sub-mm wavelengths have been made over the last years, not the least due to data from the Herschel Space Observatory. I will here review some aspects of this research, with a view towards which areas are particularly suitable for the use of ALMA in the future. I will focus on the results obtained for AGB stars, but will also make outlooks towards the RSGs whenever relevant. I will look at what have been learnt from detailed studies of individual sources on such diverse topics as the central stars, chemistry, isotope ratios, physics of the inner circumstellar envelopes (CSEs), and the time variability of some molecular line emission. This will be followed by an overview of studies of larger samples with relevance for chemistry and nucleosynthesis. Also the large-scale structures of CSEs, which carries information on the mass-loss geometry, but also possible effects due to binarity, will be covered. Finally, I will discuss the present situation when it comes to determining accurate mass-loss rates of AGB stars and RSGs through CO radio line emission, and what are the prospects for getting a better understanding of how this parameter depends on the stellar characteristics.