

*Workshop*

## **Stellar End Products: The Low Mass - High Mass Connection**

*ESO Garching, 6-10 July, 2015*

**Wouter Vlemmings** (*invited*)

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**Title:**

Magnetic Fields in Evolved Stars: Theory & Radio/Submm Line Observations

**Abstract:**

While significant progress has been made in the study of AGB mass-loss, the effect of magnetic field is yet poorly studied. The mass lost in the last phases of stellar evolution will, for select sources, become visible as a spectacular planetary nebula (PN). These are however often not spherically symmetric, and the shaping process, linked with the mass loss in the late AGB, post-AGB and pre-PNe phases, remains elusive. Both binaries and magnetic fields have been suggested to be possible agents although a combination of both might also be a natural explanation.

In this talk I will review the current evidence for magnetic fields around AGB and post-AGB stars pre-Planetary Nebulae and PNe themselves. Magnetic fields appear to be ubiquitous in the envelopes of apparently single stars, challenging current ideas on its origin, although we have found that binary companion could easily be hidden from view. There are now also indications of magnetic stellar activity, potentially in an active chromosphere. This talk will mainly focus on centimeter and (sub)millimeter wavelength observations in the context of current theoretical understanding. I will also highlight how ALMA will provide a huge leap in our ability to study the magnetic fields around late-type stars.