
Magnetic fields around AGB stars and Planetary Nebulae

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Abstract

Stars with a mass up to a few solar masses are one of the main contributors to the enrichment of the interstellar medium in dust and heavy elements. However, while significant progress has been made, the process of the mass-loss responsible for this enrichment is still not exactly known and forces beyond radiation pressure might be required. Often, the mass lost in the last phases of the stars life will become a spectacular planetary nebula. The shaping process of often strongly a-spherical PNe is equally 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 also strong indications of magnetically collimated outflows from post-AGB/pre-PNe objects supporting a significant role in shaping the circumstellar envelope. This talk will mainly focus on centimeter and (sub)millimeter wavelength observations and will also highlight how ALMA will provide a huge leap in our ability to study the magnetic fields around late-type stars.

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