Jet launching revealed in post-AGB binaries

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Abstract

Binary interaction processes are believed to be the main shaping agent of asymmetric Planetary Nebulae (PNe). The binary interactions induce jet formation, which is at the origin of the nonspherical structures we observe in PNe. Our current observations show that these jets are also common in the PN-progenitors, namely post-AGB binaries.
In this talk, we provide the results of our quantitative study on the origin and properties of high-velocity outflows in post-AGB binaries. We present the analyses of line-profile variability, based on our long-term monitoring of post-AGB binaries with the high-resolution spectrograph HERMES mounted on the 1.2m Mercator telescope. We deduced the jet geometry by comparing orbital phased data and our jet model. We show that the systems are the result of a binary interaction channel, in which the gaseous circumcompanion disk is the origin of the fast outflow. These quantitative analyses provide us with the necessary data in order to model binary PNe. We show that the mechanism of jet production is very commonly observed among post-AGB binaries. Our ultimate goal is to study the impact of these jets onto the evolution of these systems.

Keywords: post AGB, binaries, jets, accretion, binary interactions, spectroscopy

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