Modeling Planetary Nebulae with Barrel/H-Shape

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Abstract

In this work we have modeled planetary nebulae (pne) that have the shape of barrel or H-shape. We assume a binary star in which the companion accretes mass from the wind that was blown from the primary star. An accretion disk is formed around the secondary star and two opposite jets are lunched from it. Indeed, we assume a dense spherical shell was previously formed. The jets interact with dense shell and at later time a barrel-shape/H-shape is obtained. We have conducted the FLASH code to simulate this interaction and got results that can be compared to observations. The simulations were performed with different parameters, in some cases the radiative cooling is on, and in others it is off.

Keywords: Planetary nebulae, jets, outflows, binaries

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