

THE OPTICALLY RESOLVED PLANETARY NEBULA/OH MASER Vy 2-2\*

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**ABSTRACT.** Vy 2-2 is, to our knowledge, the only planetary nebula exhibiting OH emission, indicating that it is a very young PN still enveloped by the neutral shell of the progenitor AGB star.

Low and mean resolution spectroscopy of Vy 2-2 was obtained at the European Southern Observatory (Chile) to study physical and evolutionary characteristics of this peculiar object, considered as the missing link between Mira variables-OH/IR sources and planetary nebulae.

Vy 2-2 appears as an extended object (apparent diameter about 20 arcsec) in a CCD spectrum obtained with the B&C spectrograph attached to the 2.2-m telescope. This optical size is much larger than that derived with the Very Large Array: at 15 GHz the ionized nebula appears as a thin shell about 0.5 arcsec in outer diameter and about 0.2 arcsec in inner diameter. For an assumed distance of 1.5 kpc, the optical radius of the nebula is 0.073 pc; for an expansion velocity of 10 to 15 km s<sup>-1</sup> its dynamical age is 4500-7000 years.

All these facts indicate that Vy 2-2 is a compact PN, similar to NGC 6572, BD+30°3639, I 418, II 5117 and some other well studied objects. The exceptionality of Vy 2-2 consists in the presence of the OH maser emission.

\* Based on observations obtained at the European Southern Observatory, La Silla, Chile.