

A YOUNG PLANETARY NEBULA WITH OH MOLECULES: NGC 6302

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ABSTRACT. We report the results of a sensitive survey of planetary nebulae in all four ground state OH lines. Our results confirm that evolved planetary nebulae are not OH sources in general. However, we did detect one interesting object: an OH 1612 MHz maser in the young planetary nebula NGC 6302. This nebula may be in a brief evolutionary stage, similar to the young and compact planetary nebula Vy 2-2 where OH has already been detected.

We also report the results of further observations of NGC 6302, including VLA observations of the 1612 MHz line and continuum emission and detections of rotationally excited OH lines at λ 5 cm in absorption.

CO IN THE BIPOLAR NEBULA NGC 2346

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ABSTRACT. We report on observations of the $J = 2-1$ line of CO to study the distribution and kinematics of the molecular gas in the bipolar planetary nebula NGC 2346. The data were obtained with the National Radio Astronomy Observatory 12-m telescope whose beamsize (FWHM = 30") partially resolves the CO emitting region. A map of the velocity integrated emission shows a roughly rectangular distribution, approximately $53'' \times 34''$, oriented along the minor axis of the optical nebula. The CO spectrum towards the central star system is strongly double peaked. The mapping data show that this results from two distinct regions which are offset south-east and north-west of the center with radial velocities which are, respectively, larger and smaller than that of the star system. Overall the CO data are consistent with an expanding and partially disrupted distribution of molecular gas around the waist of the optical nebula. Mass estimates confirm that a substantial amount of the matter ejected by the star system is still in molecular form.

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