

CCD IMAGES OF SOUTHERN HEMISPHERE PLANETARY NEBULAE

Julie Lutz and Nancy Jo Lame
Washington State University
Bruce Balick
University of Washington

ABSTRACT. A large, long-term survey of southern hemisphere planetary nebulae is being undertaken with several narrow-band filters (primarily [N II], H-alpha, [O III] and He II) on the 0.9-m telescope at CTIO using a TI CCD chip. The purposes of this survey are to get sizes and morphological classifications for nebulae that are little-known (indeed, some do not have size measurements at all) and to search for multiple shells and other structures that are of interest for studies of nebular formation and evolution.

CCD images have been obtained in at least two filters for approximately 70 nebulae. Some general results of the survey are:

1) Many of the nebulae have multiple structures, some of which are simple enough to characterize as multiple shells.

2) Many of the nebulae exhibit one or more types of bipolar structures. There appear to be several types of bipolar structures and it is not uncommon for different types of symmetries to show up strongly in images obtained with different filters.

3) The sizes of the nebulae can be measured by using contour maps, but specifying a single cutoff number for measuring nebular size does not appear to be appropriate. Instead, each nebula must be considered individually.