

## NEW OH/IR STARS: PROTO-PLANETARY NEBULAE?

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**ABSTRACT:** The IRAS infrared colors,  $(60 - 25)\mu\text{m}$  and  $(25 - 12)\mu\text{m}$ , allow efficient identification of Type II OH/IR stars. We present Arecibo<sup>1</sup> OH (1612 MHz) observations of 474 IRAS point sources chosen to define the exact regions of the two-color diagram occupied by OH/IR stars. Our observations are complete within the boundary regions of the two-color locus and within the region,  $16^{\text{h}} < \text{right ascension} < 22^{\text{h}}$ ,  $0^\circ < \text{declination} < 37^\circ$ . The sensitivity of the Arecibo telescope allows the identification of many weak sources that would not have been detected by previous surveys and the weak end of the masing phenomenon has been studied for the first time.

Within the OH/IR star color region defined by the 184 detections, 171 IRAS sources were not detected in OH, providing a detection rate of 52%. The spectra of most of the detections show the characteristic double-peaked profiles associated with circumstellar shells. The velocity widths, central velocities, and integrated fluxes derived from these profiles are listed along with their infrared colors. Detections with  $(60 - 25)\mu\text{m} > -0.8$  are confined to the galactic plane and are predominantly strong sources; but, those with  $(60 - 25)\mu\text{m} \leq -0.8$  can be found at a large range of galactic latitude and integrated flux strength. A correlation was found between the infrared flux and the 1612 MHz flux. Despite a low OH threshold, we fail to detect any sources with a  $25\mu\text{m}$  flux less than 1 Jy. Detailed analysis of the data is deferred to the completion of our survey of all appropriate, color-selected sources accessible from Arecibo.

1. The Arecibo Observatory is part of the National Astronomy and Ionosphere Center, which is operated by Cornell University under a management contract with the National Science Foundation.