

DETECTION OF THE FIRST EXTRA-GALACTIC OH/IR STAR

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ABSTRACT. A search has been made for 1612 MHz OH maser emission from OH/IR stars in the Magellanic Clouds. Candidate objects were selected mainly on the basis of their 25 μ m flux densities and the 25 to 12 μ m flux ratio as given in the IRAS point source catalog; two known long-period variables and two HII regions (30 Doradus and N159) were also examined. One OH source (IRAS 04553-6825) was detected, this being the first OH/IR star found in the Magellanic Clouds. Upper limits were placed on the flux for 17 other sources. The expansion velocity of the circumstellar material surrounding IRAS 04553-6825, as indicated by the OH peak separation of 11 km s⁻¹, is surprisingly small compared to Galactic sources of similar bolometric and OH luminosity. The OH intensity of IRAS 04553-6825, and the upper flux limits placed on many of the other objects examined, indicate that Magellanic Cloud OH/IR stars do not emit OH as strongly as their Galactic counterparts of similar 25 μ m/12 μ m flux ratio. Both the low expansion velocity of IRAS 04553-6825 and the low OH intensity of the Magellanic Cloud infrared sources may be explained by the low metal abundance in the Clouds.