

## THE PRESENCE OF WATER MASERS IN COLOR-SELECTED IRAS SOURCES

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ABSTRACT. Eder, Lewis, and Terzian (1987) examined  $\sim 400$  sources from the IRAS Point Source Catalogue with colors appropriate to OH/IR stars, for the presence of 1612 MHz emission. We examined a proportion of these objects at Effelsberg for the presence of water-maser emission. In sources with  $|b^{II}| > 10^\circ$  which are therefore relatively local, we find a 68% detection rate for water-masers among objects associated with 1612 MHz masers, as opposed to a 17% detection rate among sources with similar colors but without 1612 MHz emission. Those conditions in a circumstellar shell that favor the presence of water-masers also favor the presence of a 1612 MHz maser. These results are consistent with most Type II masers being associated with water-masers. Since Cooke and Elitzur (1985) show that water-masers are collisionally excited, this result excludes stirring of the envelope by a companion star with an associated loss of velocity coherence, as the primary cause for the existence of the color-analogue sources without 1612 MHz masers. We discuss an alternative scenario.

Six sources have water emission without any OH masers. These are explicable either as objects in which the 1612 MHz maser is suppressed by a companion, or as objects in which the circumstellar shell has yet to develop sufficient depth for OH masers to operate.