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VLA OBSERVATIONS OF H_2O AND OH (1612 MHZ) MASER EMISSION TOWARD OH 231.8+4.2

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We present Very Large Array (VLA) observations of H_2O and OH (1612 MHz) maser emission toward the protoplanetary nebula OH 231.8+4.2. The H_2O maser features are coincident in position within error with the SiO (v=1; J=2-1) maser position from Sánchez Contreras et al. (2000) and the QX Pup Mira star near the center of OH 231.8+4.2 from Kastner et al. (1998). This position is, however, clearly offset by $\sim 1''$ from the axis of the bipolar outflow traced by the OH maser emission. These results suggest the presence of a binary system: one invisible star powering the bipolar outflow and the other, the Mira star QX Pup, associated with the H_2O and SiO masers.

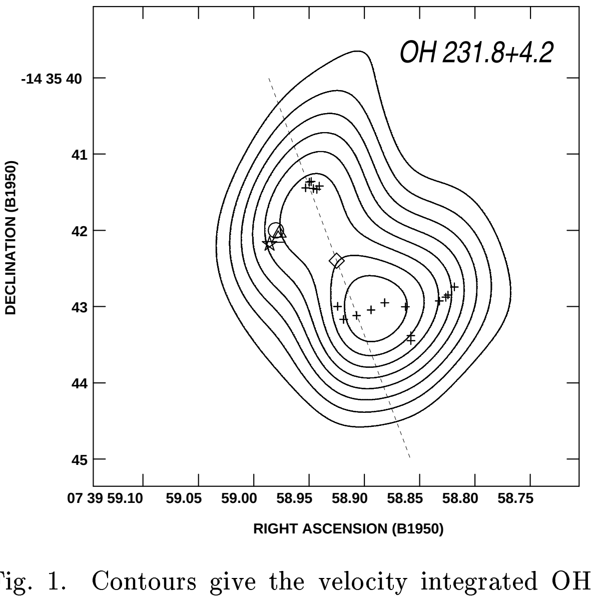

Fig. 1. Contours give the velocity integrated OH 1612 MHz maser emission. The diamond marks the centroid of the OH 1667 MHz emission (Zijlstra 2001). The H_2O masers are marked with triangles, the SiO maser position is plotted with a circle and the estimated position for the Mira star is marked with a star.

OH 231.8+4.2 is a well studied protoplanetary nebula. It is one of the first systems where a binary system consisting of an AGB and a post-AGB stars has been found (Gómez & Rodríguez 2001). In this system both stars are evolving with very similar timescales (implying similar masses). There is at least a related case in the literature, KjPn8, where López et al. (2000) have argued for the presence of a binary with components of very similar mass. We estimate that the minimal distance between the Mira and the axis of the bipolar outflow is about $0\overset{''}{.}7$ which at the distance of 1500 pc give us a separation of $\sim$1000 AU (Fig. 1).

REFERENCES

Gómez, Y. & Rodríguez, L.F. 2001, ApJ, 557, L109
Kastner, J.H. et al. 1998, AJ, 116, 1412
López, J.A. et al. 2000, ApJ, 538, 233
Sánchez Contreras, C. et al. 2000, A&A, 355, 1103
Zijlstra, A., et al. 2001, MNRAS, 322, 280

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