MAPPING OBSERVATIONS OF AN UNUSUAL SIO MASER SOURCE, IRAS 19312+1950

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IRAS 19312+1950 is an SiO maser source that exhibits a prominent nebulosity and rich-molecular species. Though SiO maser sources are mostly identified as a late-type star with active mass-loss, the kind of this object is unclear. To reveal the true character of IRAS 19312+1950, mapping observations of this object were made in the CO $J = 1 - 0$, ^{13}CO $J = 1 - 0$, C^{18}O $J = 1 - 0$, CS $J = 2 - 1$, and HCN $J = 1 - 0$ lines and in the 150 GHz continuum band using the Nobeyama 45m telescope. The line profiles of the ^{12}CO and HCN spectra consists of a weak component with the width of 50 km s^{-1} and a strong component of the width of 3 km s^{-1}. The profile of the ^{13}CO, C^{18}O, and CS lines have only the narrow component. Both of the components have an intensity peak at the IRAS position. The narrow component was clearly resolved with a 15" telescope beam. The spectral energy distribution of this object exhibits a doubly peaked profile between 1 and 25 μm. The 150 GHz continuum flux density was found to be 0.07 Jy, which is consistent with the flux density predicted by the expanding envelope model with a mass loss rate of $\sim 10^{-4}$ M$_\odot$ yr^{-1} at a distance of 2.5 kpc. Though the present observations do not preclude the possibility of a young stellar object, we suggest that IRAS 19312+1950 is an AGB/post-AGB star. In addition to the results of single dish observations, we report a preliminary result of recent mapping observations in the HCO$^+$ $J = 1 - 0$ line with the Berkeley-Illinois-Maryland-Association (BIMA) Millimeter Array. In the HCO$^+$ spectrum, both of the strong-narrow and weak-broad components were confirmed. And then, in the integrated intensity map of HCO$^+$, we clearly found a bipolar flow, which corresponds the red- and blue-shift wings of the broad component.