[구IM-01] Nature of Forbidden-Velocity Wings

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In large-scale (l,v) diagrams of HI 21-cm line emission in the Galactic plane, there are faint wing-like features that are smoothly extended from the disk emission to high velocities that are not allowed by the Galactic rotation. These "" Forbidden-Velocity Wings""could be the sites where violent events have injected kinetic energy into the interstellar medium. There wasa suggestion that these FVWs are very old SNRs that are too faint to be seen in radio continuum and not discovered yet. We carried out high-resolution HI line observations towards 22 FVWs, which is about 30% of total FVWs of unknown origin. About 65% of the observed FVWs seem to be parts of expanding or stationary shells. A significant fraction of them do not contain early type stars, making FVWs good candidates for being very old Galactic SNRs. The other 35% of observed FVWs look like clouds or cloud complexes that have not been resolved in previous low-resolution survey data.

[구IM-02] Time Monitoring Observations of SiO J=2-1 and J=3-2 Lines toward Orion KL

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We have carried out time monitoring observations of the ^{28}SiO v=0, 1, 2, J=2-1, ^{28}SiO v=0, 1, 2, J=3-2 and ^{29}SiO v=0, J=3-2 transitions with the 14 m radio telescope at Taeduk Radio Astronomy Observatory toward Orion KL. The pair of J=2-1 and J=3-2 transitions were simultaneously observed from 1999 January to 2001 March. Each transition line shows a different characteristics. The ^{28}SiO v=2, J=3-2 maser presents the most active intensity variation including a disappearance on 2000 February 1 and 2001 February 16. The ^{28}SiO v=0, J=3-2 lines showed a large variation of peak intensity compared with ^{28}SiO v=0, J=2-1 due to partial masing. The different observational results of ^{28}SiO v=0, 1, J=2-1, ^{28}SiO v=0, 1, 2, J=3-2 and ^{29}SiO v=0, J=3-2 transitions seem to be originated from the different traced regions. The v=2, J=3-2 maser may trace the closest region to the central YSO and result in the most active variation of intensity and peak velocity range. The model for the accretion disk and outflow from radio source I (Greenhill et al. 2005, Matthews et al. 2007) could be adopted for explaining our different observational results among different transitions of SiO.