[S10-2] First Detection of $^{28}Si^{18}O$ Maser and Thermal Emission from Orion KL

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We present the first astronomical detection of $^{28}Si^{18}O$ maser and thermal emission toward Orion KL by using the laboratory-measured line frequencies of $^{28}Si^{18}O$(Cho & Saito 1998). The simple model of a $^{28}Si^{18}O$ maser condition adopting a line overlap mechanism leads us to confirm a maser action in spite of its lowest relative abundance, i. e., $^{28}Si^{16}O/^{28}Si^{18}O \sim 500$. Now the $^{28}Si^{18}O$ lines can be used to investigate interstellar physics and chemistry, especially when the optical depths of the spectral lines of the main species are high.

[S10-3] The Internal Structure and Dynamical State of the Isolated Dark Globule B130

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If isolated globules are originated from nearby molecular cloud complexes, a study about physical properties of isolated globules may help to understand their origin, dynamical state, or evolutionary stage.
For this study, we selected a globule B130 and full mapping observations were made in the $^{13}CO(J=1-0)$ transition, while in the $^{12}CO(J=1-0)$ cross scan observations were only made by utilizing the 14m dish of TRAO. We made an integrated intensity map in the $^{13}CO(J=1-0)$ transition, and from this map, we identified the existence of six clumps in the globule. Assuming spherical symmetry for each clump, we derived various physical properties such as LTE mass, clump size, turbulent velocity, virial mass, etc. for all the clumps and studied various correlation among properties.
In this talk, we present the internal density distribution and the dynamical nature of the globule B130 using obtained results.