

Q02a

VLT/ISAAC infrared spectroscopy of embedded high-mass YSOs in the Large Magellanic Cloud: Methanol and the 3.47 μm band

下西隆 (東北大学)、E. Dartois (IAS/Paris-Sud University)、尾中敬 (東京大学)、F. Boulanger (IAS/Paris-Sud University)

We report the results of 3–4 μm spectroscopic observations towards eleven embedded high-mass young stellar objects (YSOs) in the Large Magellanic Cloud (LMC) with the ISAAC at the Very Large Telescope. Absorption bands due to solid H_2O and CH_3OH as well as the 3.47 μm band are detected, and the properties of these bands are investigated based on comparisons with Galactic embedded sources. We found that the 3.53 μm CH_3OH ice absorption band for the LMC high-mass YSOs is absent or very weak compared to those seen toward Galactic counterparts. We propose that grain surface reactions at relatively high dust temperature (warm ice chemistry) are responsible for the low abundance of solid CH_3OH in the LMC. The 3.47 μm absorption band, which is generally seen in Galactic embedded sources, is detected toward six out of eleven LMC YSOs. In contrast to the CH_3OH ice band, strength ratios of the 3.47 μm band and water ice band are found to be similar between the LMC and Galactic samples. Although the carrier of the band is still under debate, our result suggests that the lower metallicity and different interstellar environment of the LMC have little effect on the abundance ratio of the 3.47 μm band carrier and water ice. In this presentation, we are going to discuss the characteristics of the infrared C–H stretching region spectrum in low metallicity environments.