H$_2$CO Observations Towards CH$_3$OH Maser Sources

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Abstract. Formaldehyde (H$_2$CO) is an accurate probe of physical conditions in dense and low-temperature molecular clouds towards massive star formation regions, while 6.7 GHz methanol (CH$_3$OH) masers provide ideal sites to probe the earliest stages of massive stellar formation. We present preliminary results of our investigation into the possible relationship between formaldehyde and methanol astrophysical masers with the view to expanding knowledge on massive star formation processes. Observations are done using the Nanshan 25m radio telescope of the Xinjiang Astronomical Observatories, Urumqi, China. 127 Methanol sources (from the work of Green *et al.* 2010, Xu *et al.* 2003, Pestalozzi *et al.* 2005, and Xu *et al.* 2009) have been observed so far for 4.8 GHz formaldehyde absorption lines, and H$_2$CO signals have been detected in 86 of them, 31 of which are newly discovered. We obtained good correlation (0.85 correlation coefficient) between the velocities of the sources, and a poor correlation (-0.03 correlation coefficient) between their intensities, an indication that signals from the two lines originate from about the same region, but that the excitation mechanisms that drive them are likely different.

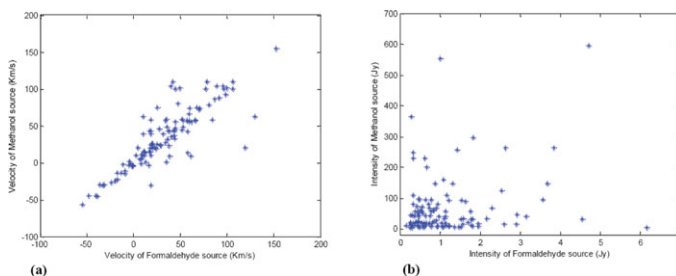**Keywords.** radio lines: ISM — ISM: molecules — stars: formation

Figure 1. Formaldehyde versus Methanol representations for (a) velocity of the sources, and (b) intensity of the sources.

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