

CO observations toward debris disk candidates with ALMA/ASTE

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From the recent survey of gaseous debris disks, 10 debris disks with gas have been discovered. Our aim is to understand the origin of the gas in debris disk; (1) primordial: the remnant gas of protoplanetary disks[1], and (2) secondary: sublimation of dust grains[2].

We present the results of CO(2–1) and CO(3–2) observations toward debris disk candidates made with ALMA and ASTE. We search for CO gas in debris disk candidates identified by AKARI[3]. In addition, we analyzed ALMA archival data of CO line emission of debris disk candidates. Comparing physical properties and velocity structures of CO emission in our sample with the famous debris disk of Beta Pic[4], we discussed the origin of origin of the gas in debris disk.

References

- [1] K{¥'o}sp{¥'a}l, {¥'A}., Mo{¥'o}r, A., Juh{¥'a}sz, A., et al. 2013, ApJ, 776, 77
- [2] Kobayashi, H., Watanabe, S.-i., Kimura, H., & Yamamoto, T. 2008, icarus, 195, 871
- [3] Ishihara, D., Takeuchi, N., Kobayashi, H., et al. 2016, arXiv:1608.04480
- [4] Dent, W.R.F., Wyatt, M.C., Roberge, A., et al. 2014, Science, 343, 1490