Astrochemistry: Recent Successes and Current Challenges
Poster Book IAU Symposium No. 231, 2005
A. J. Markwick-Kemper, ed.

DOI: 00.0000/X000000000000000X

Ice absorption toward background stars

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Abstract. We present results of ice absorption between 5-20 μm toward background stars as part of the Cores to Disks (c2d) Legacy program (Evans et al. 2003). Molecules such as H_2O, CO_2, HCOOH, NH_3, CH_3OH, and NH_4^+ have bands in this wavelength region. Absorption from H_2O bands at 6 and 13 μm is observed toward all sources. We detect strong CO_2 absorption toward CK 2, a background star with high extinction in the Serpens dark cloud. The abundance of CO_2 with respect to H_2O is 30-40%, similar to what is observed toward protostars. Also, at 6.8 μm, CK 2 shows a feature which may be due to NH_4^+. Other sources with lower extinction, such as Elias 13 and Elias 16 in the Taurus dark cloud, do not show this feature. By probing different lines of sight, we can learn how ice composition varies with extinction. The abundances found toward background stars are then compared to abundances observed toward protosatars.

Keywords. ISM: molecules, extinction, infrared

Acknowledgements

Support for this work, part of the Spitzer Legacy Science Program, was provided by NASA through contracts 1224608, 1230779, and 1256316 issued by the Jet Propulsion Laboratory, California Institute of Technology, under NASA contract 1407. Astrochemistry in Leiden is supported by a NWO Spinoza grant and a NOVA grant.

References

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