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EUV photolysis of interstellar ice analogues

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Two experimental results will be displayed in this poster. Part one is a continuation of our past work on mixed ice samples consist of H_2O, CO_2 and NH_3. Samples were condensed at 16K and were photo-irradiated by synchrotron radiation. After 10^{20} photon dose, the sample was warmed up under dynamic vacuum to room temperature. The residue left over on the substrate were analyzed by a high performance liquid chromatography. A few amino acids were found in the residue.
Part two is an exploration of EUV photolysis on more complex molecules. The starting sample was naphthalene and H_2O mixed ice. White EUV photon was provided by National Synchrotron Radiation Research Center High flux beamline. The products were analyzed using FTIR spectrometer, quadrupole mass spectrometer and again the residue was analyzed by HPLC. Evolution of species during photolysis will be presented.

Keywords: Mixed ices; photolysis; EUV; H_2O; CO_2; NH_3; Naphthalene

References

[1] P. A. Gerakines, M. H. Moore and R. L. Hudson. *A&A*. **357**, 793 (2000).
[2] M. P. Bernstein, J. P. Dworkin, S. A. Sandford, G. W. Cooper and L. J. Allamandola. *Nature*. **416**, 401 (2002).
[3] M. P. Bernstein, M. H. Moore, J. E. Elsila, S. A. Sandford, L. J. Allamandola and R. N. Zard. APJ. **582**, L25 (2003).

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