

From Interstellar Ices to PAHs

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INVITED TALK

Vacuum Ultraviolet Processing of Interstellar PAHs

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Polycyclic aromatic hydrocarbons PAHs and their nitrogen containing analogs (PANHs) have been hypothesized to be the carriers of the ubiquitous IR emission bands that are observed towards many objects in the ISM. (Allamandola 1985) In the diffuse interstellar medium, PA(N)Hs are subject to cosmic rays, shocks and strong Vacuum Ultraviolet fields, causing the smaller species to dissociate and only the largest once to survive. I will review our latest experimental and computational results that aim to gain insight into the dissociation of PA(N)Hs in the gas phase at a molecular level.

Towards cold dense clouds the IR emission is quenched and it is likely that PAHs condense onto small grains, where they are incorporated in the interstellar ices and participate in the solid-state chemical network. From pioneering measurements it was found that PAHs trapped in water ice are straightforwardly ionized and further processed. (Gudipati and Allamandola 2003) In this presentation I will review our results on the Vacuum Ultraviolet processing of PAHs trapped in a variety of interstellar ices.

REFERENCES

Allamandola, L. J., Tielens, A.G.G.M., Barker, J. R. (1985) *Astrophys. J.*, 290, L25-L28
Gudipati M.S., Allamandola, L.J. (2003) *Astrophys. J.* 596, L195-L198