

Chemistry of hot molecular cores

Serena Viti¹

¹Department of Physics and Astronomy, University College London, Gower Street, London,
WC1E 6BT, UK
email: sv@star.ucl.ac.uk

Abstract.

In this talk I will briefly review the recent advances in studies of hot molecular cores. I will then present results from hot core models based on new laboratory TPD (temperature programmed desorption) data and comparisons with recent observations of High Mass Protostellar Objects (HMPOs) and hot cores. The characteristic hot core chemistry is believed to arise from the evaporation of the icy mantles that accumulate on the dust grains during the collapse that leads to the formation of the massive star. The duration in which the grains are warmed up is determined by the time taken for a pre-stellar core to evolve to the Main Sequence. In light of the new TPD experiments on a variety of ices, we have computed new models of hot cores where the desorption of each species in the ice mixture is described as indicated by these experiments. We compare these models to recent observations of selected species in a sample of HMPOs and hot cores and show that distinct chemical events occur at specific grain temperatures and that this supports our assertion that these chemical events can be used to trace the ignition of the nearby star.

Keywords. astrochemistry, stars: formation
