ELECTRONIC SPECTROSCOPY OF COMBUSTION GENERATED SMALL PAH's BY R2PI FROM 207 to 320 nm

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The Polycyclic Aromatic Hydrocarbons (PAHs) could be responsible for the so-called UV bump near 217 nm in the interstellar extinction curve. In order to test this conjecture, the electronic spectra of gas phase relevant species have to be investigated. This paper will present the results of such measurements obtained using two-photon resonantly enhanced laser ionization.

The newly built experimental set-up called "Nanograins" has been used to generate a non-biased ensemble of PAHs from the combustion of hydrocarbons in a premixed low-pressure flame thanks to a flat burner. The combustion products are extracted from the flame by means of a sampling quartz cone, then mixed with a buffer gas to flow through a nozzle and skimmer assembly before being UV laser ionized further downstream within the acceleration zone of an orthogonal linear time-of-flight mass spectrometer.
Wavelength scanning of the UV laser allows the simultaneous recording of many species thanks to the mass resolution. The obtained spectra will be presented and commented upon, with particular attention to the region of the interstellar extinction bump.

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