JET-DISCHARGE CAVITY RINGDOWN SPECTROSCOPY OF SELECTED IONIZED POLYCYCLIC AROMATIC HYDROCARBONS

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The gas-phase spectroscopy of selected ionized polycyclic aromatic hydrocarbons (PAHs) is investigated in order to decisively test the contribution of this family of molecular ions to interstellar spectra. Following our preliminary report of the detection of the naphthalene ion in the gas phase [a] we present and discuss, here, the electronic absorption spectra of naphthalene ($C_{10}H_8^+$), phenanthrene ($C_{14}H_{10}^+$), and pyrene ($C_{16}H_{10}^+$) cations in the visible to NIR range.

This study has been carried out using an ultrasensitive and versatile technique: Cavity Ring Down Spectroscopy (CRDS). The harsh physical conditions of the interstellar medium - low temperature and strong VUV radiation - have been simulated by coupling the pulsed-CRDS spectrometer to a supersonic slit jet and to an ionizing electronic discharge.

[a] D. Romanini *et al.*, *Chem. Phys. Lett.* **303** (1999) 165