VISIBLE SPECTROSCOPY OF PAHS CATIONS STORED IN AN ION-TRAP MASS SPECTROMETER

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We report a study of the visible absorption spectroscopy of individual Polycyclic Aromatic Hydrocarbons (PAHs) cations in the gas phase. Spectra are recorded by monitoring the photofragmentation or double-ionization of the molecular ions stored in a RF Paul trap. A 3-laser experiment has been set up combining laser desorption (at 1064 nm, Nd-Yag), resonant 2-photon ionization (at 266 nm, Nd-Yag), and ion photofragmentation (at 550-850 nm, dye laser). The apparatus allows direct analysis of solid samples, providing qualitative detection of various analyte classes such as neurotransmitters, peptides, drug molecules and pollutants (PAHs and polychlorinated biphenyls (PCBs)). The tunable laser offers an additional wavelength dependent analysis tool.