IDENTIFYING FLUORESCENT HYDROCARBON RADICALS FROM A BENZENE DISCHARGE

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We have applied the tools of laser induced fluorescence and dispersed fluorescence to the products of a benzene discharge in a free jet with a view to identifying new hydrocarbon radicals. We have observed several new band systems in the visible and UV regions, including a putative origin at 4759Å(air) which fluoresces to a ground state exhibiting vibrational modes at $120\,\mathrm{cm}^{-1}$, $821\,\mathrm{cm}^{-1}$, $988\,\mathrm{cm}^{-1}$ and $1160\,\mathrm{cm}^{-1}$. This species is of particular interest due to its proximity to the centre of the (very) diffuse interstellar band at 4761.7Å (FWHM 25Å).