

## SPECTROSCOPY OF CARBON CHAINS AND THEIR IONS

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The electronic spectra of neutral carbon chains, their anions and cations are being observed in the gas-phase. Three different approaches are used. The transitions of the chain radicals,  $C_nH$   $n=6,8,10$  have been detected by cavity ring down spectroscopy in a slit jet discharge. Carbon chain anions of the type  $C_n^-$ ,  $C_nH^-$  have been studied by a two colour resonant photodetachment approach. The electronic transitions of the polyacetylene cations, like  $HC_6H^+$  and its cyanoderivative  $HC_4CN^+$ , have been measured at high resolution in cell and jet discharges using frequency modulation absorption spectroscopy.