INFRARED SPECTROSCOPY OF CH STRETCHES IN ANIONIC PAHs

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PAHs are ubiquitous in astrochemical environments and have been proposed to contribute to the emission from diffuse infrared emission bands. Most spectroscopy of PAHs has been focusing on cationic and neutral species, since anions may not survive the UV radiation in circumstellar regions. However, anionic PAHs may be present in darker, carbon rich regions in space. We present infrared spectra of anionic pyrene and anthracene measured using Argon predissociation spectroscopy, together with density functional theory calculations. The spectra reveal congested CH stretching regions, which defy assignment by harmonic calculations, but can be interpreted using vibrational perturbation theory.[a]

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