

Are Aromatic Hydrocarbons the Carriers of the
Diffuse Interstellar Bands in the Visible ?

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Large Polycyclic Aromatic Hydrocarbons (PAH) are the likely origin of the formerly called "Unidentified IR Emission Features". We show that these molecules or their ions are also attractive candidates for the carriers of the Diffuse Interstellar Bands in the Visible (DIBs) : 1) they have optically active transitions in the visible ; 2) they can survive the UV photons in the Diffuse Interstellar Medium ; 3) they are the most abundant among the detected molecular species after H_2 and CO. In particular, they are better candidates than the long carbon chains that had been proposed previously. A laboratory effort is undertaken to search for a spectroscopic support to this point.

Following our hypothesis, one can predict the absence of the DIBs in special astrophysical environments such as those where all the carbon is locked up in CO. There are some indications that this is the actual situation but further observations are suggested.