

The 2175Å Extinction Bump and the Aromatic Infrared Emission Bands

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The 2175Å extinction bump is the most pronounced spectroscopic feature on the interstellar extinction curve and has been recently detected in the early universe at redshifts $z \sim 6.7$. Its carrier remains unidentified ever since its first detection by Stecher (1965) over half a century ago. In recent years, polycyclic aromatic hydrocarbons (PAHs), as a promising candidate carrier for the 2175Å extinction bump, has received widespread attention. PAHs are an important component of the interstellar medium and emit prominently a distinct set of bands at 3.3, 6.2, 7.7, 8.6, 11.3 and 12.7 μm . If PAHs are indeed the carrier of the 2175Å extinction bump, one would expect the PAH emission bands and the 2175Å extinction bump to somewhat correlate. To this end, we have performed a systematic exploration of the relation between the PAH emission bands and the 2175Å extinction bump, by examining the ultraviolet extinction (obtained by IUE) and the infrared emission (obtained by *Spitzer*) of about 40 high latitude clouds. The ultimate goal is to help unravel the carrier of the 2175Å extinction bump, a long-standing, half-century old mystery.