

## On the relation between the carriers of diffuse interstellar bands and simple molecular species

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### Abstract

The interstellar clouds composed mostly of neutral hydrogen (H I clouds) show evident differences in the pattern of interstellar absorptions: in the shapes of the extinction curves, the strengths of the diffuse interstellar bands and the intensities of the features originating in simple molecular species. It is well known that the ratio of the two prominent diffuse bands (5780 and 5797 Å) varies strongly from cloud to cloud; our data suggest that this phenomenon is related to the intensities of the absorption features of interstellar molecules such as CH<sup>+</sup> or CH. However, the intensity ratio of the diffuse bands can change gradually, suggesting a 'smooth' variation of the carrier abundances, while the strength ratios of molecular features and the colour excesses change rather stepwise when the diffuse band ratio reaches a certain value.  
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### Keywords

Dust, extinction, ISM: general, ISM: molecules