

Unification: UV & IR Observations of Interstellar Dust Along the Same Sightlines

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While efforts have been made to study interstellar dust in various Galactic environments at wavelengths from the x-ray to the radio, a single line of sight is rarely subjected to observations over a wide wavelength range. This is particularly true for the UV and IR regimes. The typical interstellar dust sightline used for UV studies has a small column of dust. These sightlines probe the diffuse ISM and avoid all but the very outer edges of dark or molecular clouds. IR studies of dust, on the other hand, concentrate on molecular bands of many different materials from H_2 to polycyclic aromatic hydrocarbons (PAHs). In general, large optical depths of dust in dense clouds are necessary for the formation of these molecules. So to a large extent studies of interstellar dust in the UV and IR have been two “separate worlds.” The result has been models of dust grains which are strongly biased toward fitting observations in one wavelength regime or the other. The absence of sightlines for which both UV and IR data are available makes it difficult to reconcile the constraints derived separately from each wavelength regime.

We will present the results of searches for a UV signature of the IR PAH features and for IR absorption features along sightlines which have UV extinction curves.

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