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Near- and Mid-Infrared Interstellar Dust Extinction Observations

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The interstellar dust extinction in the near- and mid-infrared (IR) wavelength range (1-40 microns) is characterized by decreasing continuum extinction and four main absorption features that are diagnostic of dust grain compositions. The absorption features at 10 and 18 micron are due to silicate material, at 3.4 micron due to hydrogenated carbon material, and at 3.0 micron due to water ice. Measurements based on Spitzer spectroscopic observations from 5-40 micron provide a detailed view of the continuum extinction and silicate absorption features in sightlines with A(V) values from 1.5 to 5.5 mag. As these sightlines all have existing ultraviolet extinction measurements, this sample provides consistent measurements of extinction from 0.1 to 40 microns giving strong, consistent constraints on dust grain sizes and compositions. Plans for expanding this work with JWST to include spectroscopic measurements in the near-IR region (1-5 micron) and more sightlines are presented.

Consider for a poster?

Yes

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