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The properties of diffuse interstellar dust clouds as determined from GALEX and infrared (IRAS, Herschel) observations

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Abstract

Dust grain properties are known to vary in the interstellar medium depending on the density, the ultraviolet radiation field and the local abundances of metal elements. Though there are plenty of studies addressing the atomic and molecular gas component or the infrared radiation of dust grains, there are very few studies that address the spatial distribution of small large grains and large molecules such as the Polyaromathic Hydrocarbons (PAHs).
In this work, we make use of the GALEX survey of the Galaxy to identify the absorption produced in the GALEX far UV (write in the spectral range) and new UV (write in the spectral range) by well know infrared cirrus and compare the absorption produced in the UV by the thin cirrus with the infrared dust emissivity in various bands; (describe the IRAS bands used and whether there is any Herschel band in this study). As the spatial resolution of GALEX images is significantly larger than that of IRAS images data handling has required mosaicking and and rescaling GALEX data as well as transforming the images form equinox 1950 to equinox 2000. We describe in this work the computational procedures used to generate the ultraviolet and infrared maps. Also we present our first results that show there is an anticorrelation between UV and infrared (IR) emission, as other wise expected. The largest concentrations of dust grains radiate IR photons and absorb UV photons.