Colloquium

“Investigating the Dust Grains in Galaxies Using Quasar Absorption Systems”

Speaker:
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Abstract:

Interstellar dust grains comprise a relatively small percentage of the total galaxy mass, but they significantly impact both the appearance of the galaxy as well as many of the physical processes important for the formation of stars and evolution of the galaxy. The physical properties of these dust grains, including their composition, size, shape, and spatial distribution may vary both within a galaxy and from galaxy-to-galaxy. Absorption lines in the spectra of distant quasars whose sightlines pass through foreground galaxies provide a valuable tool to simultaneously probe the dust and gas compositions of the interstellar medium in both local and more distant galaxies.

I will discuss two ongoing collaborative research programs exploiting archival multi-wavelength data to explore the silicate and carbonaceous dust grain properties in galaxies probed by quasar absorption systems. I will present results from our work using Spitzer Space Telescope infrared spectra to study interstellar silicate dust grain properties in both local and distant quasar absorption systems and discuss our findings that silicate dust grain properties in distant galaxies can differ relative to one another and relative to those in the Milky Way.