

Our current understanding of the dust properties of nearby galaxies

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Contents

Interstellar dust is a key physical ingredient of galaxies, obscuring star formation, regulating the heating and cooling of the gas, and building-up chemical complexity. Its ubiquity makes it a privileged diagnostic tool of the physical conditions in unresolved galaxies or obscured star forming regions. Its properties are however difficult to grasp because of the inherent intricacy of the grain make-up and its non-trivial evolution through the Interstellar Medium (ISM). Nearby galaxies are important objects to unveil this component, as they harbor a wide range of physical conditions, allowing us to study dust in extreme conditions. At the same time, their proximity permits detailed, spatially-resolved studies, that are not yet possible in more distant systems.

I will give an introductory review of our contemporary knowledge of the dust properties of nearby galaxies, and put these properties in perspective by comparing them to those of the Milky Way, our current best standard. I will link our view of the microphysical processes to observations of macroscopic regions in external galaxies. I will discuss the information brought by measures of the extinction, emission and depletion. I will also discuss dust evolution and insist on the importance of low-metallicity galaxies to understand the grain properties at early stages. I will end this review by delineating a few prospective studies.