

In this review I will present several of the latest observational attempts to reveal dust properties in protoplanetary and debris disks. Dust sizes and chemical composition of dust in disks have been studied abundantly in the past via, e.g., spectral energy distributions and near- and mid-infrared spectroscopy. In this review I will place a special emphasis on recent attempts to highlight the particle shapes instead. This can be done via the measurements of scattering properties, i.e., intensity and linear polarisation phase functions, from the optical to the millimetric wavelength range. These recent advances are particularly interesting to connect the dust properties in disks to the dust evolution and growth mechanisms, a better understanding of which is needed to advance our knowledge of the first stages of planet formation.

To reveal the meaning of these observations, it is necessary to compare them with "reference" scattering properties

of complex dust particles, be them irregular, with rough surfaces, or of fractal nature.

This "reference" database can be either measured with laboratory experiments or calculated. I will therefore also present the recent efforts of a few groups to measure/calculate the scattering properties of complex dust particles relevant for young disks.