

Photometric Asymmetry and Dust Opacity of Spiral Galaxies

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Dust extinction in spiral galaxies is best seen in highly inclined systems in the form of strong asymmetry in their apparent luminosity distribution. These galaxies offer a good opportunity to study the dust opacity and its distribution in a very direct manner, because the brighter side can be used as a reference for the heavily obscured side. We present the results of our two recent studies based on asymmetry analysis. Firstly, we show how the selective nature of asymmetry helps to map the opacity distribution in individual galaxies. Several Sa and Sb galaxies are proven to be optically thin using our optical and near-infrared photometry. Secondly, we apply the asymmetry analysis to a large sample of spiral galaxies. When compared with our numerical simulations of radiative transfer, the analysis also supports rather modest opacity in spiral galaxies.