



Systematic Bias in 2MASS Galaxy Photometry

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We report the discovery of a serious bias in galaxy photometry reported in the 2MASS Extended Source Catalog (Jarrett et al. 2000). Due to an undetermined flaw in the 2MASS surface photometry routines, isophotal and total magnitudes calculated by their methods underestimate the luminosity of galaxies from 10% to 40%. This is found to be due to incorrectly determined scalelengths and isophotal radii, which are used to define the aperture sizes for Kron and total fluxes. While 2MASS metric aperture luminosities are correct (and, thus, colors based on those apertures), comparison to other filters (e.g. optical) based on total magnitudes will produce erroneous results. We use our own galaxy photometry package (ARCHANGEL) to determine correct total magnitudes and colors using the same 2MASS images, but with a more refined surface brightness reduction scheme. Our resulting colors, and color-magnitude relation, are more in line with model expectations and previous pointed observations.

Comments: 13 pages, 8 figures, comment to community

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