

Comparison of NIRS0S K_s -band and S⁴G 3.6 micron data: Fourier amplitudes, force profiles and color maps

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Abstract. Near-IR observations are considered to give an extinction-free view of the old stellar population in galaxies, thus ideal for the analysis of gravitational torques associated with bar and spiral structures. In the past, H or K_s band data have often been employed (Buta *et al.* 2010, Salo *et al.* 2010). S⁴G (Spitzer Survey of Stellar Structure in Galaxies, Sheth *et al.* 2010) provides new deep homogenous 3.6 and 4.5 micron data for over 2000 nearby galaxies, allowing to probe the bar and spiral properties over a wide range of morphological types and environments. Here we compare the Fourier-amplitude profiles derived from S⁴G data for about 50 early-type disk galaxies (SO and S0/a), with those from NIRS0S K_s data (Near-IR S0 Survey, Laurikainen *et al.* 2011). We also make detailed K_s -3.6 micron color maps. Interestingly, nuclear ring features stand up very clearly in these maps, indicating significantly different contributions of recent star formation in the K_s and 3.6 micron bands. However, the effect of these detailed differences on the overall force profiles is fairly small: this confirms that the S⁴G data can be confidently used for estimation of bar torques.
