

Spitzer IRAC Observations of Interacting Galaxies from $0 < z < 3.01$

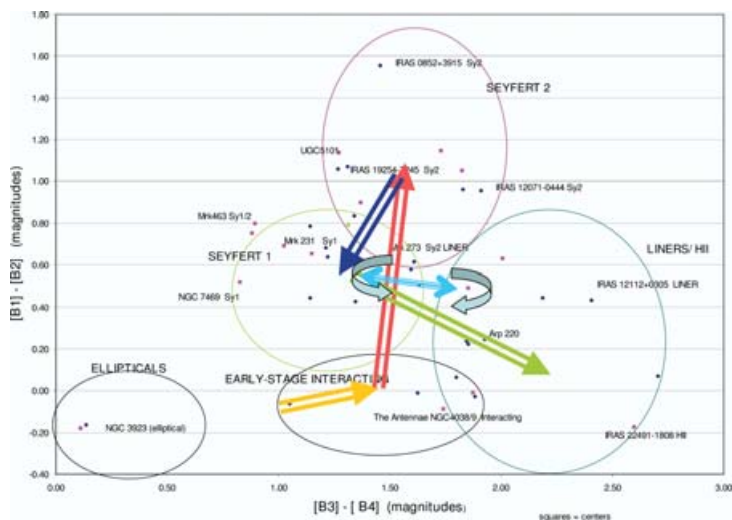
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Abstract. We have observed over 100 interacting galaxies (IGs) with Spitzer IRAC as part of a detailed study of their properties (see also Zezas, *et al.* in this volume). The majority of sources are nearby. Precise IRAC imaging photometry of these galaxies finds a wide range of colors in these systems, and correlative spectroscopic data suggests the colors are reflected by composition that is in turn reflective of age; orientation also plays a role. We have also observed a distant pair of interacting galaxies at $z=3.01$, a HyLIG, EGS20 J1418+5236 (Huagg *et al.* 2006), and find that, like the nearby systems, it has similar processes at work albeit in a hyperactive way.

To overcome limitations of some previous studies of IGs, we observed two complementary nearby samples, one selected on the basis of galaxy separation, and the other selected on a morphological basis. Figure 1 below is a summary IRAC [3.6 μ m]-[4.5 μ m] versus [5.8 μ m]-[8.0 μ m] color-color plot of these IGs. Five generic regions emerge: ellipticals near (0, -0.1), early-stage IGS around (1.5, -0.1), Seyfert 1s around (1.3, 0.5), Seyfert 2s around (1.5, 1.2), and LINERS/HII galaxies centered at (2.2, 0.2). These systems are each characterized by spectral dust features in the IRAC bands that are strong enough to influence and/or mirror the underlying stellar continuum colors. The arrows suggest possible evolutionary development.

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