

A Near-IR Imaging Survey of Interacting Galaxies

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Abstract. We describe a near-infrared imaging survey of interacting galaxies.

We have obtained JHK broadband images of ~ 200 interacting galaxy systems. The goals of the project are to determine the relationship of the IR morphology of the old stellar component to interaction type and age, and to obtain near-IR colors of spatially-resolved components to determine if significant contributions to the observed IR light are made by thermal dust emission, obscuration or early-type stars, and investigate dependence of colors on interaction type and age.

The sample was selected from the Arp Atlas of Peculiar Galaxies (Arp 1966), because these systems are well-studied at many other wavelengths, and because they are mostly nearby, strong interactions which makes easier the study of possible morphological disturbances caused by interactions. At the mean survey redshift, the ~ 2 arcsec resolution of the imaging is ~ 600 pc. The images were obtained in the JHK bands using a SBRC InSb array on the 1.3 m telescope at KPNO. The pixel size was 1.35 arcsec giving a field of ~ 80 arcsec. Flatfielding is estimated to be good to 0.3%, and sky subtraction good to 0.1% of sky. We estimate the overall typical photometric error to be 0.1 mag.

Contour plots and nuclear and global photometry for the sample are presented in Bushouse & Stanford (1992), and a more detailed analysis of one subset, the disk-disk mergers, is presented in Stanford & Bushouse (1991).

We intend to continue with this project in three ways:

1. Further analysis of the IR imaging such as ellipse-fitting, comparison with other wavelength data, determination of possible group/cluster membership.
2. Optical images are being obtained to allow for the use of optical-IR colors in answering stellar population questions, and to provide morphological information on faint tidal tails, bridges and fans usually undetected by IR imaging.
3. Near-IR imaging of a normal galaxy sample with which to compare the peculiar galaxies of our survey is planned.

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References

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