Hubble Space Telescope

Cycle 15 AR Proposal

Planetary Nebula Image Catalogue: HST data

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Abstract

We have constructed the largest image catalogue of planetary nebulae, PNe, containing images of half of the 1143 "real" PNe in the official compilation of Acker 1996. These digital multi-band images, which come from heterogeneous ground-based sources, will be used to develop morphological classification schemes, develop statistics of class memberships, and develop empirical "pathways" that may elucidate general patterns of growth and the physical precesses that account for the shapes of PNe.

We propose to add all extant images of PNe and protoPNe as a scientifically vital extension to PNIC. The images will be downloaded from the HST archives by a team of undergraduates and attached to their parent imge in the Catalog. These will be used to map critical dynamical boundaries (shocks, ionization fronts, etc.) and to study the morphologies of clumps and the tails that are often found behind them. This and the ionization structure will help to reveal the types of boundaries between zones of very different pressures and photoionization. The catalogue will be published on line.

Funds are requested for undergraduate support to process the archival data, for P-I/co-I travel to coordinate the statistical studies, to support undergraduate research activities. presentations, and publications.

Investigators:

	Investigator	Institution	Country
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Number of investigators: 2

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