A Search for Extended Stellar Galactic Halos
HST Proposal 7552

Dennis Zaritsky
University of Arizona

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Proposal Abstract

Several lines of evidence {ground based observations of NGC 5907; the apparent large fraction of Galactic dark matter accounted for by MACHOS} suggest that galactic halos consist primarily of stellar-type objects out to radii of at least several tens of kpc. Further investigation of this claim is critical in constraining the properties of dark matter and the nature of galactic halos. We propose to use HST archival images of random edge-on field spiral galaxies in the F814W filter to trace the extended stellar light around disk galaxies. HST data provides two key advantages for this study: {1} the background surface brightness at 8000Angstrom is about 2 mag fainter than for ground based images; and {2} the contamination by foreground stars is effectively eliminated because HST resolution enables one to study relatively distant galaxies, which have fewer superposed stars because of their small angular extents. Both of these advantages will enable us to map the extended light to the unprecedented level of 28 mg2 at 8000Angstrom. If the data and model of Sackett Etal {1994} are correct, we will map the extended emission, and hence the stellar halo, to a vertical distance above and below the plane that is at least twice as large as ever before.;

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