Hubble Space Telescope

Cycle 16 AR Proposal

WFPC2 CTE and Photometric Zero Points

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Scientific Category: RESOLVED STELLAR POPULATIONS

Scientific Keywords: STELLAR POPULATIONS IN EXTERNAL GALAXIES, GLOBULAR CLUSTERS, RESOLVED STELLAR POPULATIONS

Total Budget Amount: $90,000

Calibration: Yes

Abstract

With charge-transfer efficiency (CTE) losses of several tenths of a magnitude in many current exposures, the accuracy of CTE corrections is a limiting factor in the accuracy of photometry that can be obtained with WFPC2. However, the CTE corrections in common use are five years old, and thus corrections for CTE loss on current observations are made with the dangerous assumption that CTE loss has continued growing over the past five years at the rate it grew for the instruments first eight years of service. The uncertainty caused by this assumption implies that the use of these old CTE corrections is the dominant error source in many WFPC2 images, and will become even worse in Cycle 16 as the extrapolation increases.

This proposal seeks to remedy this situation by undertaking an examination of CTE using data of the Omega Cen calibration field obtained over the entire lifetime of WFPC2. The methodology has been proven to produce accurate CTE corrections (indeed, they are the recommended corrections in the WFPC2 handbook and online CTE calculator).

Investigators:

	Investigator	Institution	Country
PI	Dr. Andrew Dolphin	Raytheon Company	

Number of investigators: 1

Dataset Summary:

Instrument	No. of Datasets	Retrieval Method	Retrieval Plan
WFPC2	1412	FTP	Obtain data by FTP over several weeks.