

# Correcting effects of Charge Transfer Inefficiency in the ACS Wide Field Camera

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Calibration: Yes

## Abstract

During CCD readout, charge transfer inefficiency creates trails across an image and spuriously elongates faint sources. The effect is steadily getting worse in the ACS Wide Field Camera. In data from cycles 12-14, it is the dominant systematic in weak lensing analysis. The trails insidiously mimic a lensing signal, and primarily affect the faintest galaxies, which potentially contain the most valuable signal. We propose to develop a model for the ACS readout process, and code to correct charge trailing during data reduction. This algorithm will be motivated to increase the number density of galaxies useful for weak lensing and ultimately improve the resolution of weak lensing maps, but it will be of general interest to the wider community. Since lensing analysis is the most sensitive test of charge trailing, any correction meeting its rigorous demands will be of immediate use in other fields requiring accurate measurement of shape, astrometry or photometry. We will publicly release our code so that it can be used in other data reduction pipelines, to increase the scientific return from existing ACS data and support future observing programs.

**Investigators:**

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