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WFC3/HST photometric calibration: color terms for the ultra-violet filters

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Color term corrections for magnitudes measured on the UVIS2 relative to the UVIS1 detector of the WFC3 camera on board Hubble Space Telescope are needed for three ultra-violet filters, namely $F218W$, $F225W$, and $F275W$. The two WFC3 detectors have different quantum efficiencies in the ultra-violet regime ($\lambda < 4{,}000$ Å), resulting in different count rate ratios as a function of the spectral type of the source. In the worst case, for cool red sources measured on UVIS2, there is a magnitude offset relative to UVIS1 up to ~ 0.08 mag, while the offset is negligible for hot ($T_{eff} \gtrsim 30{,}000$ K) blue sources.

We advise WFC3 users to apply the corrections provided in the Instrument Science Report Calamida *et al.* (2018, wfc.rept.8C) to UVIS2 magnitudes when calibrating photometry of stars cooler than ∼30,000 K in the ultra-violet filters, i.e. when observing stellar fields that include stars of different spectral types, such as open and globular clusters, resolved local group galaxies, Galactic stellar populations. These transformations can also be used to correct photometry of other red sources, such as high-redshift galaxies, observed with the ultra-violet filters. For sources observed on the same detector the color term is smaller and no magnitude correction is required.

The color term transformations are provided as magnitude offsets as a function of color corresponding to different spectral types and are listed in lookup tables in Calamida *et al.* (2018).