Abstract: Currently there are two main techniques for independently determining the ages of stellar populations: main sequence evolution theory (via cluster isochrones) and white dwarf cooling theory. Open clusters provide the ideal environment for the calibration of these clocks. I will present new deep photometric observations of open clusters using the Hubble Space Telescope. By identifying white dwarf candidates, I will present an analysis of the white dwarf age of these clusters, using both the traditional method of fitting isochrones to the white dwarf cooling sequence, and by employing a new Bayesian statistical technique that has been developed by our group. This method performs an objective, simultaneous model fit of the cluster and stellar parameters (namely age, metallicity, distance, reddening, as well as individual stellar masses, mass ratios, and cluster membership) to the photometry. This work is part of our ongoing work to calibrate main sequence turn off and white dwarf ages using open clusters, and to improve the precision of ages to the $\sim 5\%$ level.

Figure 1: From Jeffery et al., (2011) ApJ 730, 35: The White Dwarf Age of NGC 2477. Objects 1-7 are confirmed to be stellar and we assume them to be the cluster White Dwarfs. The best fit is of order 1.0 Gigayear similar to that expected from the Main Sequence Turn-Off Age. The y-axis is V magnitude. The x-axis is V-I color magnitude.