A Spectro-photometric Analysis of Cool White Dwarfs in the Gaia and Pan-STARSS Footprint

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We present a spectro-photometric analysis of 2850 cool white dwarfs below $T_{\rm eff} \sim 10,000$ K and within 100 pc, with *grizy* Pan-STARRS photometry and Gaia trigonometric parallaxes available. We also supplement our data sets with near-infrared JHK photometry, when available, which is shown to be essential for interpreting the coolest white dwarfs in our sample. We perform a detailed analysis of each individual object using state-of-the-art model atmosphere grids appropriate for each spectral type including DA, DC, DQ, DZ, He-rich DA, and the so-called IR-faint white dwarfs. We discuss the temperature and mass distributions of each subsample, as well as revisit the spectral evolution of cool white dwarfs. We also offer an explanation for the low masses often reported at the end of the white dwarf cooling sequence.