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Time-series photometry of a new set of candidate faint spectrophotometric standard DA white dwarfs

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Future facilities and deep surveys such as LSST, JWST and WFIRST, will require a network of standards faint enough to avoid saturation and homogenously distributed in both hemispheres. DA white dwarfs have almost pure hydrogen atmospheres and they are the simplest stars to model. The opacities are known from first principles, and for temperatures higher than $\sim$ 20,000 K, their photospheres are purely radiative and should be photometrically stable. DA white dwarfs are then the best candidates to establish a network of faint spectrophotometric standards. In order to provide standards in the dynamic range of large aperture (d $>$ 4m) telescopes, we collected Hubble Space Telescope WFC3 images and ground-based spectroscopy for 23 DA white dwarfs fainter than $r \sim$ 16.5 mag, distributed at equatorial and northern latitudes (see Saha *et al.* in these conference proceedings).

Las Cumbres Observatory time-series were also collected to monitor the stability of the candidate standard DA white dwarfs. Observations showed that most of our candidates are stable. However, two of them, namely SDSSJ203722.169-051302.964 and WD0554-165, show clear sign of variability in their light curves. The first star also shows emission features in the Balmer lines of the spectra implying the presence of a low-mass companion. We do not know the origin of the variability for WD0554-165. Two other DAWDs, SDSSJ010322.10-002047.7 and SDSSJ102430.93-003207.0 show hints of variability, but these results need to be confirmed with further data. SDSSJ20372.169-051302.964 and WD0554-165 will be excluded by our set of candidate standard DA white dwarfs.

The other white dwarfs will be established as standards and will provide a set of faint spectrophotometric standards to calibrate data from future facilities to a precision better than 1%.