Photometry

The Dark Energy Survey collaborators are continuing an effort to characterize DA white dwarfs to use as absolute flux calibrators (lead by Douglas Tucker and William Wester at Fermilab). This effort will result in several (~100) “faint” (r~16-17) spectrophotometric stars in the southern hemisphere useful as standards and survey calibrators. These results are in preparation for publication. These stars lie in the DES footprint so we anticipate they will be useful for LSST as well.

Tim Axelrod, Abhijit Saha and collaborators are continuing their semi-parallel effort to develop faint DA standards using HST. The initial sample has been submitted for publication but is not yet on the arXiv server.

Sydney Barnes has determined rotation periods for a significant number of late-type stars in the M67 open cluster using both ground-based and space-based measurements. These extend the knowledge of
the behavior of rotation to an age of 4Gyr for K-type and M-type stars, enabling a corresponding extension of gyrochronology to ages beyond those of younger open clusters.

Photometry from Gaia DR3 is now seeing widespread use in the community, both because of its precision and uniformity of coverage. This data release in particular appears to provide significant improvements over the prior releases especially with regard to low mass stars. As a result, there appears to be significant improvement in the match between the data and models as regards low mass stars.

The commission supported develpment of a symposium on absolute flux calibration tracing back to NIST characterized photodiodes. This symposium, if accepted, will be held in conjunction with the GA in Cape Town in 2024.

Polarimetry

There was little activity in polarimetry within the commission within the past year.