V224b SuMIRe-PFS[32]: Selection of spectrophotometric and chemical abundance calibration stars for the PFS observations

Miho N. Ishigaki, Masayuki Tanaka, Masato Onodera, Wanqiu He, Yuki Moritani (NAOJ), Kiyoto Yabe, Naoyuki Tamura (Kavli IPMU), PFS obsproc working group members

In PFS observations, physical quantities of science targets including relative fluxes of galaxies as well as spectroscopic parameters (line-of-sight velocities, effective temperatures, surface gravities and chemical abundances) of individual stars, will be delivered by the PFS data reduction pipelines. To ensure the accuracy of the measured quantities, simultaneous observations of calibration stars and the validation of the physical quantities with external catalogs are necessary. We are developing a strategy to homogeneously select ideal spectrophotometric standards making use of Pan-STARRS1 photometry and Gaia astrometry. Logistic regression trained on the sample with known stellar parameters from Sloan Extension for Galactic Understanding and Exploration (SEGUE) survey, is applied to extinction-corrected colors to calculate the probability of being an F-type star, which is the most suitable for the flux calibration including telluric correction. We find that, with a limiting magnitude of $g \sim 20$, we expect > 100 high-probability candidates of F-type stars per PFS field-of-view for the majority of the visible sky, except for low Galactic latitudes. A separate list of stars with available high-quality spectroscopic and astrometric measurements is being prepared for calibrating stellar physical parameters from the PFS pipeline. We present our plan to improve the classification algorithm for the standard stars as well as to validate their physical quantities from external catalogs.