

Discussions

- Instrument design
- Filter convergence process
- Filter evaluation
- Ground tests
- Data analysis
- Classification

(1) Instrument Design

- Convergence of instrument design:
 - samples and patches: EH clarification
 - bright stars: sampling strategy
 - realistic filter transmission curves
 - imaging performance: see data reduction
 - optics: WFE+PSF examples for Astro & Spectro
 - calibration: with proper CCD experience
 - detection: in ASM and SSM
- BBP:
 - optimise for chromaticity **only** (see effect on quasars)

(2) Filter Convergence Process

- Recommend filters:
 - based on **single** stars across HR diagram - **agreed?**
 - aim for convergence within 6-12 months (focus resources on detailed investigations) - **agreed?**
- Then:
 - evaluate (how?) results for binaries
 - assess asteroids, planets, galaxies, quasars, etc
 - study transformation to other systems?
 - provide shape and tolerances ($\lambda_0, \Delta\lambda$) on filters
 - optimise $n_{\text{filters}} + t_{\text{obs}}$ per band (cf. aberrations)

(3) Filter Evaluation

- Must adopt:
 - common instrument and transmission curves
 - unique/agreed spectral data base for testing:
 - how many are needed/who is compiling/when?
 - establish any future requirements to fill data base
- Agreed framework for scientific evaluation:
 - include representative 90% F/G stars (as presently)
 - **also** earlier and later types
 - list goals, tracers, required accuracy (star-by-star & statistical); priority by population, etc
 - some algorithm less complex than full neural network?

(4) Filter Evaluation (cont.)

- Complete atmospheric models, synthetic spectra, and observational data:
 - WR, Be, Ap, T-Tau; C stars (C0-C6) this season
 - α -enhancement and CNO anomaly on T_{eff} and M/H
 - what is wrong, what is right, what is lacking?
- Extinction:
 - establish expected scatter on $E(B-V)$ versus distance, field size, galactic coordinates, etc
 - establish “correct” modelling approach
 - define inputs from other experiments/missions

(5) Ground tests

- Must we test photometric system from ground?
 - should not (primarily) be an issue of cost
- **Yes:**
 - enormous variety of objects and real sky
 - various ratios of elements and CNO problem
 - all types of peculiarities
 - test of reduction procedures and expected precision
 - lack/inadequacy of theoretical models
 - need of scientific results during next years
- **No:** current spectra are sufficient

(6) Data Analysis

- Data analysis:
 - verify instrument design (samples, patches, etc)
 - verify imaging performance (and feasibility)
 - verify sky background determination
 - aperture versus PSF photometry (EH clarification)
 - determine accuracies
- Development of a data analysis system:
 - priorities for calibration tasks (CCD calibration,...)
 - priorities for classification algorithm...

(7) Classification

- To start:
 - baseline method to be developed as reference
 - alternatives will follow
 - can be studied in context of data analysis model
 - include RVS, variability, astrometry,...
- Questions:
 - recognition/parameterization of binaries?
 - what other astrophysical parameters to be determined?
 - how to deal with extinction?
 - what range of hi-res spectra are needed for training?
 - agreed method of comparing results (errors, T_{eff} range)