



Splinter session #3: Stars & Secondary Calibrators

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Points to be discussed

- Status of the models for “normal” stars:
 - Accuracies (vs instrument requirements)
 - Dependencies on T_{eff} , metallicity, gravity, ...
 - Model assumptions
- Model improvements: *What needs to be done?*
- Network of calibration stars
- Far-IR excess: chromospheres / debris disks
- Available observations to constrain the models
ISOPHT, (sub-)mm programs, Spitzer, ...
Is more needed, if so, how?

Points to be discussed

- What is the role of secondary calibrators?
 - Possible variability of AGB stars
 - Possibly extended
- How well are (emission, absorption) lines known of (post-)AGB, PNe, HII regions?
 - How useful as wvl calibrators / line profile determination?
 - Spatial extent will be an issue, e.g. PACS case: source sizes ranging from $<2''$ to $\sim 1'$
- Need for further modelling and observations
- Spatial distribution

Requirements per instrument – SPIRE

- (Spectro-) photometer
 - Point-like sources (18" beam)
 - $>\sim 100\text{mJy}$ (well above confusion limit)
 - $<\sim 200\text{Jy}$ (non-linearity)
 - Non-variability or known variability
 - Good sky distribution
 - Well known models/SEDs better than 10%
 - No line contamination is desirable

Requirements per instrument – SPIRE

- Spectrometer
 - Point-like sources (18" beam)
 - Dynamic range similar to photometer (numbers TBC)
 - Non-variability
 - Line fluxes known or predicted
 - Several observable lines available (if possible)
 - Lines must be well isolated
 - Good sky distribution

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Requirements per instrument – PACS

- Photometer
 - Point-like sources
 - For routine calibration: $> 100\text{mJy}$ (at central wavelengths of bands)
 - $< \sim 1000\text{Jy}$ (non-linearity)
 - These sources will also be useful for calibration of FOV distortion, relative pointing, PSF measurements
 - Extension down to $\sim 10\text{mJy}$ (PV); normal stars
 - Non-variability or known variability
 - Good sky distribution (high visibility zone)
 - Well known models/SEDs better than 10%

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Requirements per instrument – PACS

- Spectrometer
 - Flux calibration: Well known models/SEDs better than 10%;
>~50Jy, normal stars too weak (except for shortest wvl for brightest stars)
 - Non-variability or known variability
 - Spatial: Distortions: Bright sources with well known lines
 10^{-20} W/cm² from point-like to extended, up to 1' : PNe, AGB
water lines, HII regions
 - Lines well isolated, accurate radial velocity (uncertainty <5km/s),
low outflow velocities (<10km/s)

Requirements per instrument – HIFI

- Only for line measurements, not continuum
- Point-like sources (or well known brightness distribution)
- Bright lines: 0.14K @ 500GHz and 0.5K @ 2000GHz
- One source / 2 hour angle / half hemisphere
- Three strong lines per mixer band
- Variability below calibration accuracy (baseline 10%, goal 3%)

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