Stellar analysis system

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Stellar physics (goal)

- Stellar age, mass, radius
- Inclination /rotation
- Differential rotation
- Activity: what to measure ? Short term evolution /spots.
- Teff, gravity, Luminosity, Vsini
- Composition ; structure (convective core,...)

Stellar physics (goal)

- Stellar age: 200 Myears
- Mass: 5%
- Radius: 2%
- Inclination: TBC (precise the need!).

- Activity; dynamo

Activity: what to measure ? Short term evolution /spots.

Rotation: a few %

- Differential rotation (in latitude): 10%
- Differential rotation (in depth):
  « Difference between surface estimate and splittings ? »

Stellar physics (goal)

- Teff: 50 K
- Gravity: 0.1 dex
- Luminosity: (not a concern)
- Vsini: 1 km/s
- Chemical abondances: 0.1 dex
- structure (convective core,...)

Stellar physics (Inputs)

- Light curves
- Colours
- Spectra (resolution ¿ 45000; [3800-9000])
- Parallaxes
- Interferometric measurements (near-by stars)
- Spectropolarimetry (visible AND IR)

LCs tools

LC ANCs

Input Physics ANC

LC ANCs

Power spectra analysis

Av param

Fit param

DP3

Stellar modelling

Stellar grid models

inversions

DP5

Rotation /activity

Spots distribution

Low freq PS analysis of the LC

Activity levels

DP4

Quality/validation

tools

Power spectra analysis

Stellar modelling

Rotation /activity

Quality/validation

Av param

Fit param

forward

Stellar grid models

inversions

Spots distribution

Low freq PS analysis of the LC

Activity PS dist.

Spectroscopic analysis

Stellar age: 200 Myears
Mass: 5%
Radius: 2%
Inclination: TBC
Teff: 50 K
Gravity: 0.1 dex
Luminosity
Vsini: 1 km/s
Chemical abondances: 0.1 dex
structure (convective core,..
Rotation: a few %
Differential rotation (in latitude): 10%
Differential rotation (in depth):
Activity level