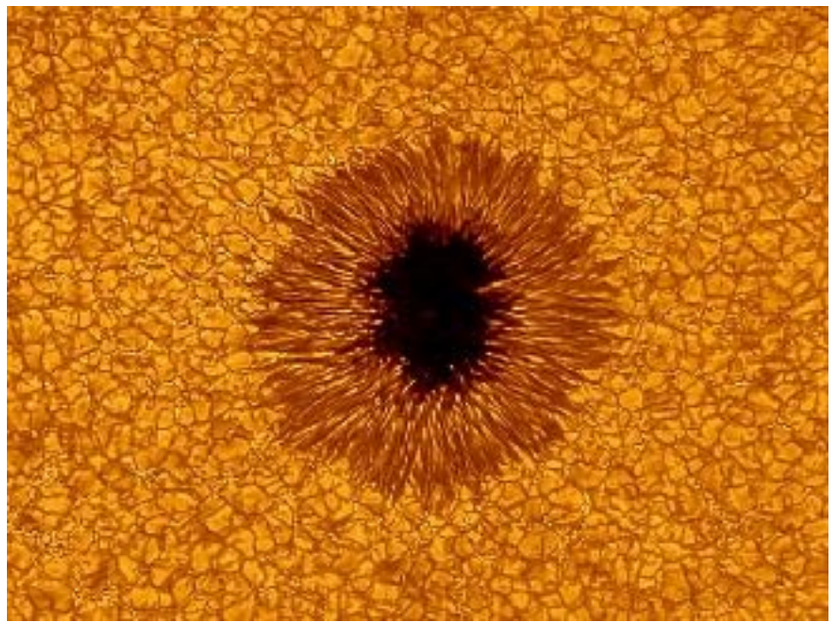
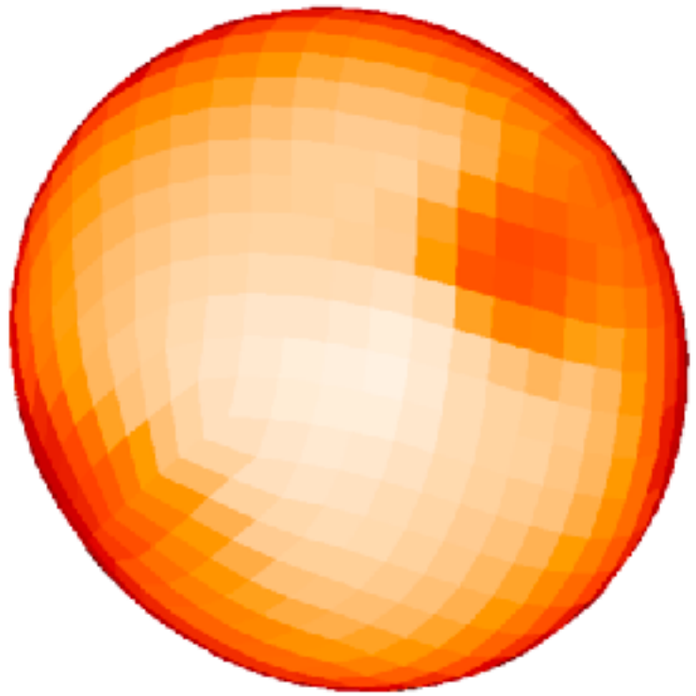




SPOTS

WITH SPICA/CHARA

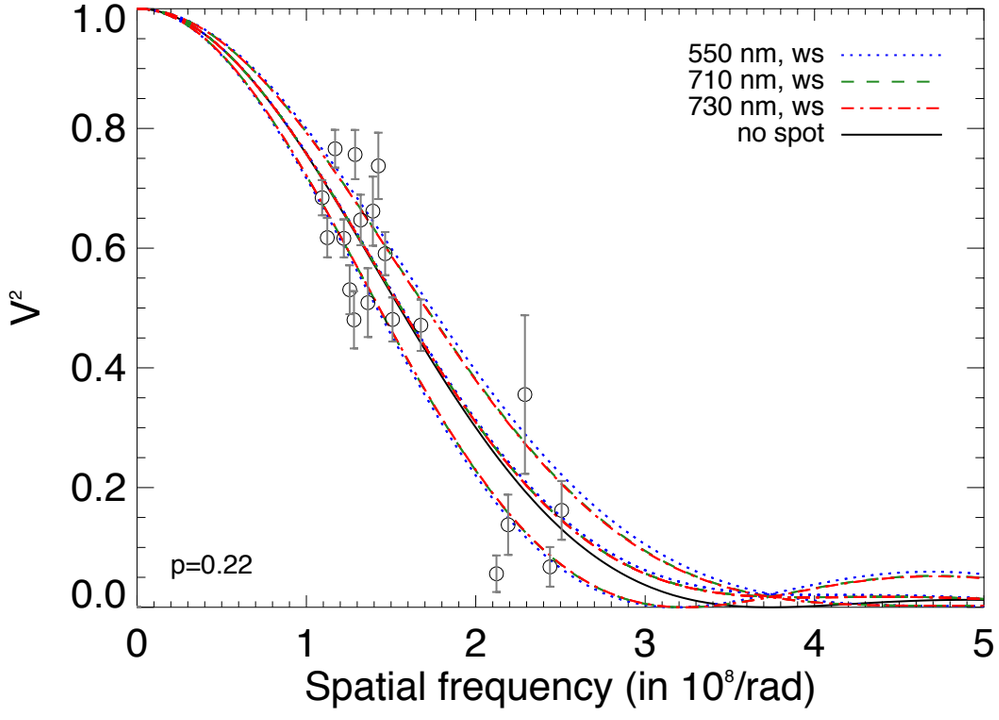
C. Catala, T. Guillot, F. Millour, D. Mourard, K. Perraut, R. Roettenbacher, R. Ligi

SPICA meeting, January 30th

GENERAL STATEMENTS

Strategy to observe spotted stars

1. Identify which stars should be selected in terms of spots, and for which purpose: **imaging, diameter measurement, refine SBCR**
    - Select as a function of stellar type/class, diameter, size of spot (age, rotation…)
2. Quantify what SPICA is able to do
    - Precision at given spatial frequency
    - Knowing that SPICA will provide ~2-3% on V^2; CP?
3. Simulations/models of what we can get
    - Do we detect the spots?
4. Put into the catalog



Bonnefoy et al. 2018

EXOPLANETS AND SPOTS

- Exoplanets will be mostly detected around MS stars, few Giants
- Impact of the diameter determination considering spots → direct effect on R_p
  - active, young stars
  - giant stars (not many planets, not in PLATO)

    → how much spots will impact the measured radius of exoplanets hosts?
- Combine interferometry with (Zeeman) doppler imaging and other techniques
  - τ Boo + combine CHARA and VLTI
  - (LP with) NARVAL?
  - mapping of spots with transits

ASTEROSEISMOLOGY AND SPOTS

- Defining the sample of spotted asteroseismic targets
  - possibly not a lot (if any)
- SPICA probably can't help separating the noise caused by spots and oscillation frequencies
- Angular diameters should be accurate if one wants to use them with asteroseismology

SBCR AND SPOTS

- Spots may not affect the diameter (dark spots + bright faculae)

- For stars with big/numerous spots, the angular diameter should be affected

- ideal world: take the spots into account to build SBCR, but one has to know the « spottedness » of the faint stars → very difficult (need additional data: light curve, spectra…)

CONCLUSION

- Even the observations of a few spotted stars will be beneficial to the stellar activity community
  - SPICA great imager
- We can try to quantify the effects of spots on the angular diameters
  - for exoplanets
  - for SBCR