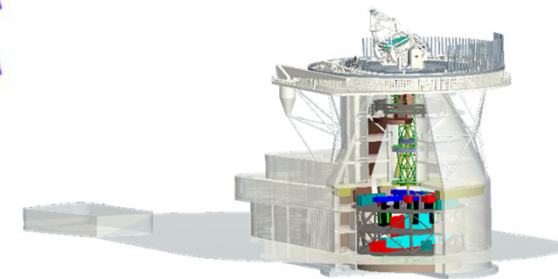
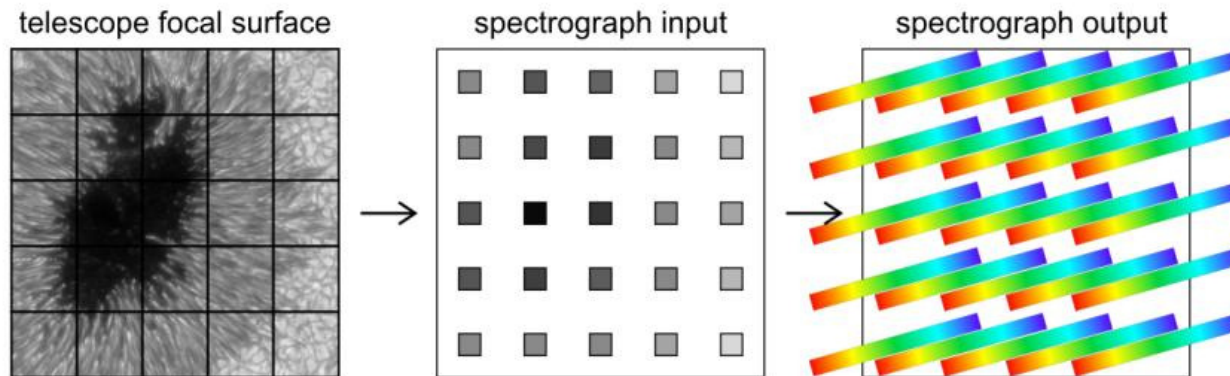
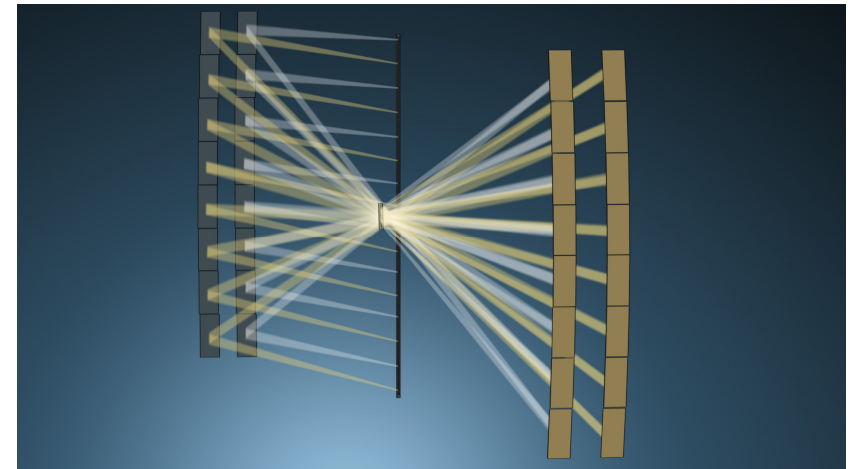


Integral field units

M. Collados

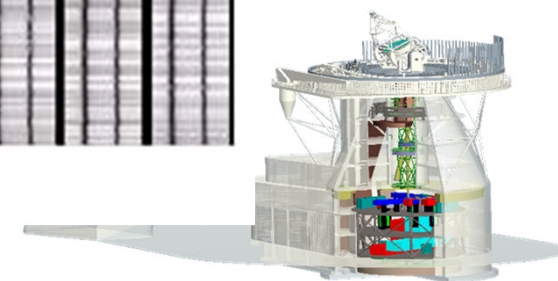
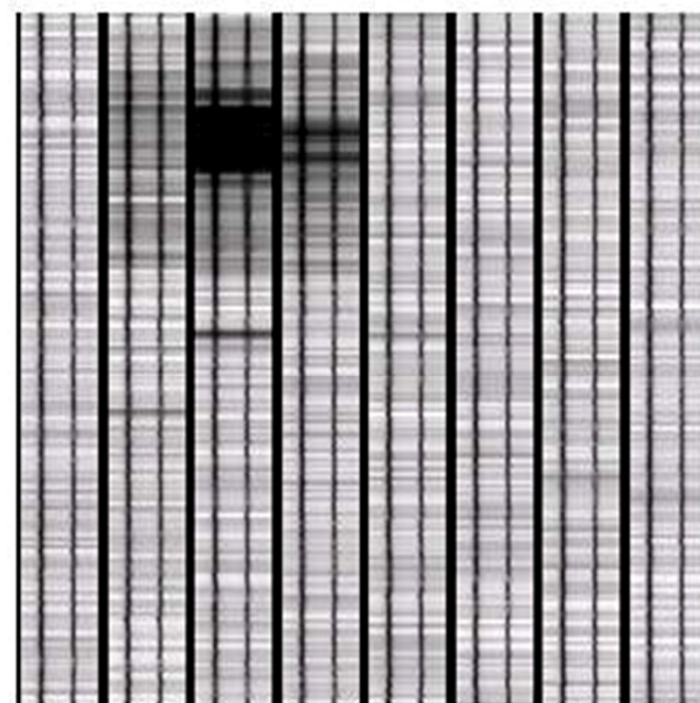
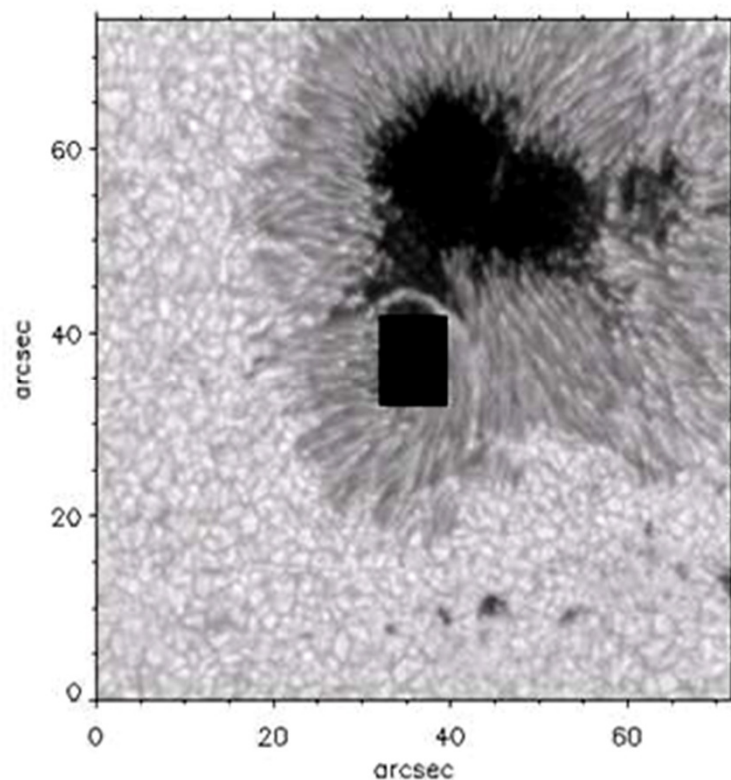
Instituto de Astrofísica de Canarias



Integral field units



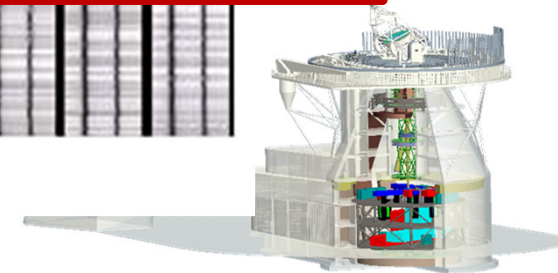
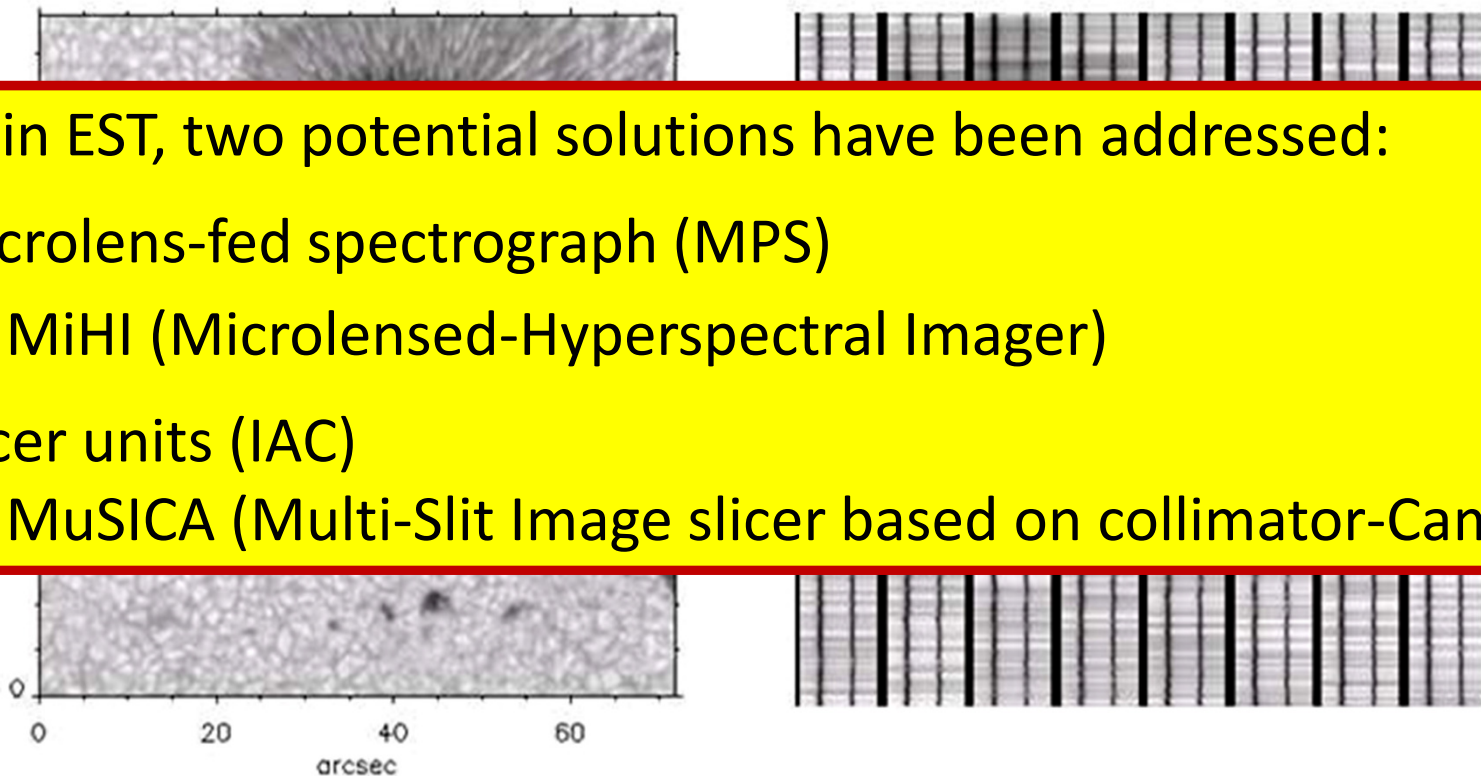
2D spectroscopy is essential for EST



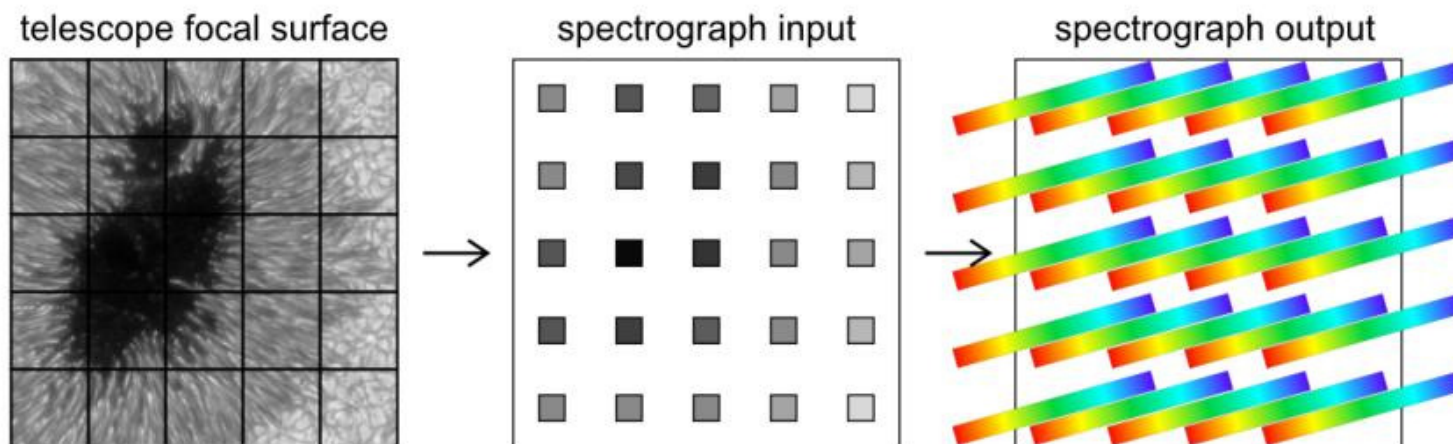
2D spectroscopy is essential for EST

Within EST, two potential solutions have been addressed:

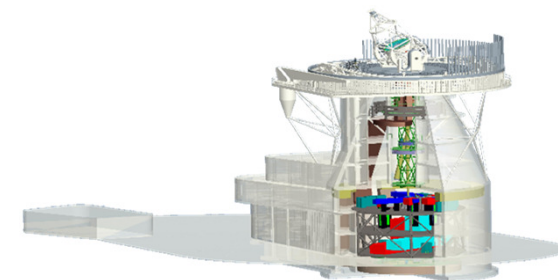
- Microlens-fed spectrograph (MPS)
MiHI (Microlensed-Hyperspectral Imager)
- Slicer units (IAC)
MuSICA (Multi-Slit Image slicer based on collimator-Camera)



MiHI: microlens-fed spectrograph (MPS)



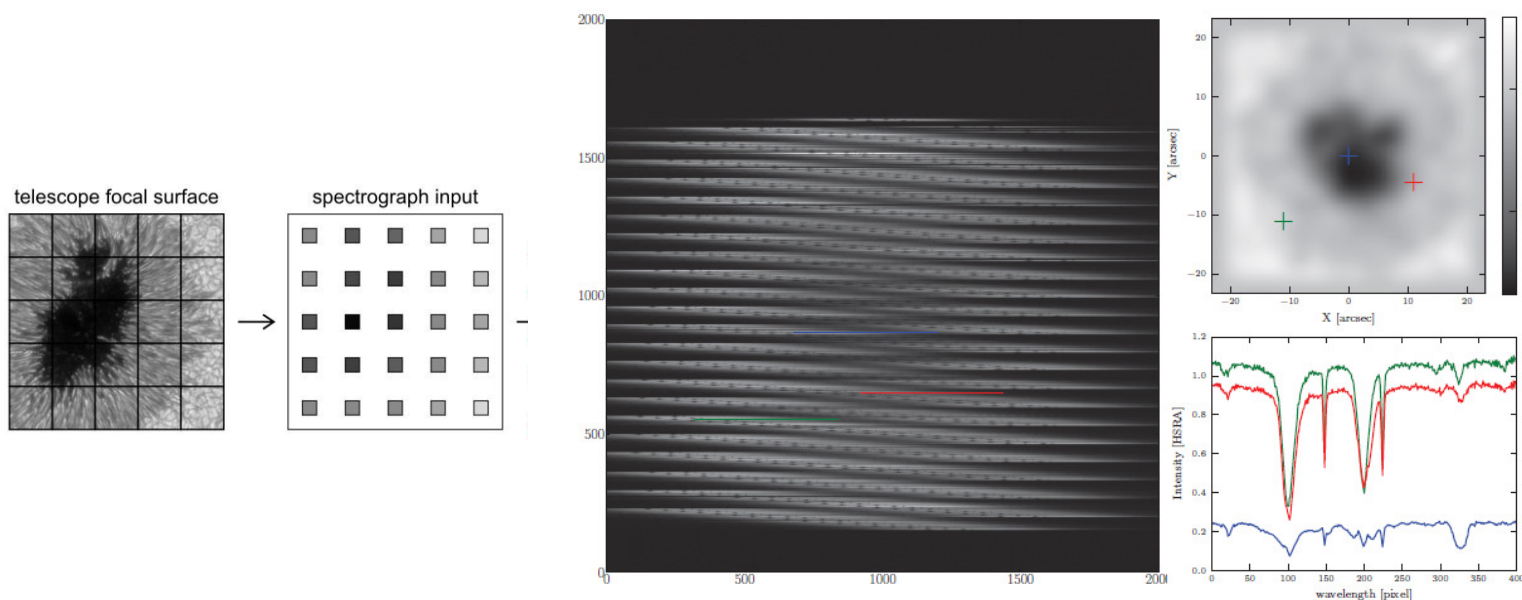
Van Noort et al. (in prep.)



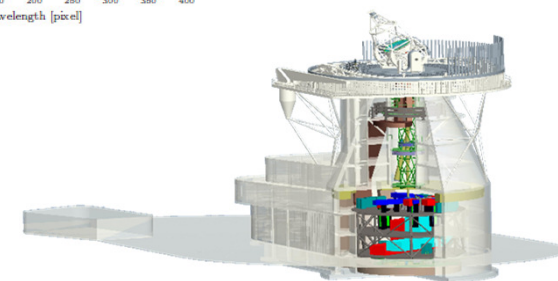
MiHI: microlens-fed spectrograph (MPS)



prototype built for SST



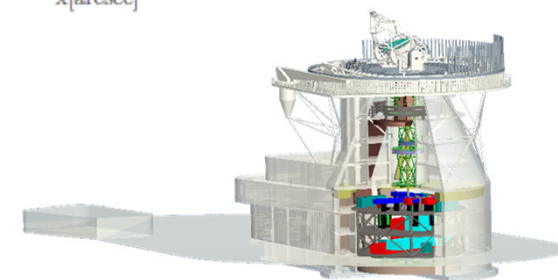
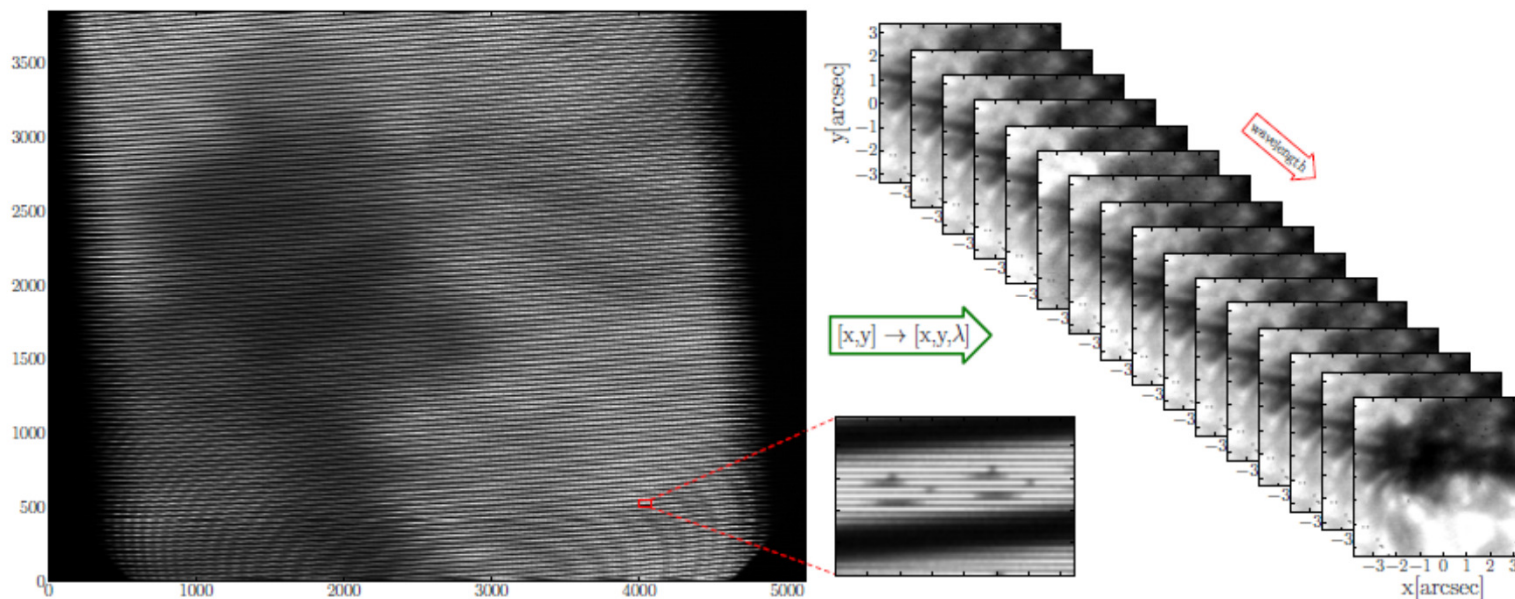
Van Noort et al. (in prep.)



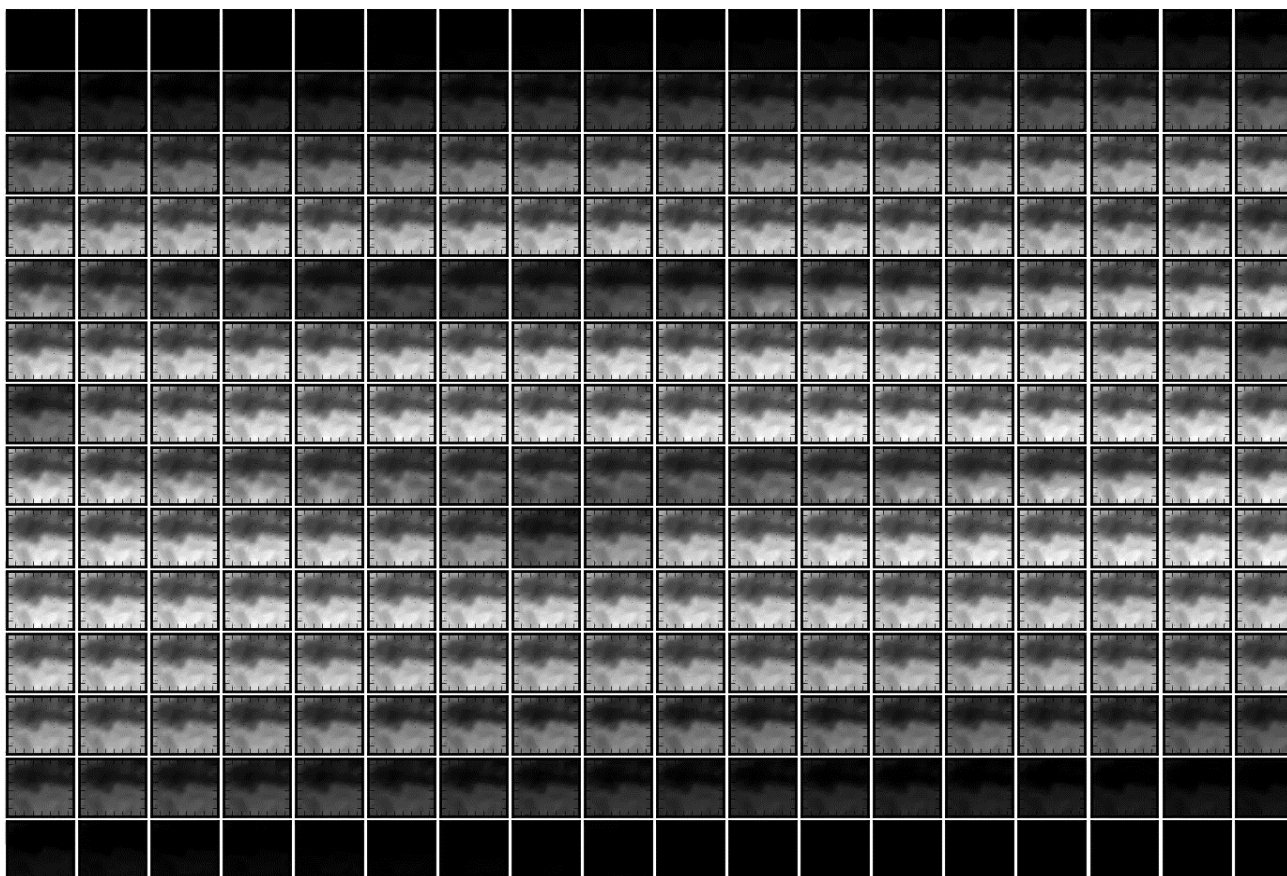
MiHI: microlens-fed spectrograph (MPS)



prototype built for SST



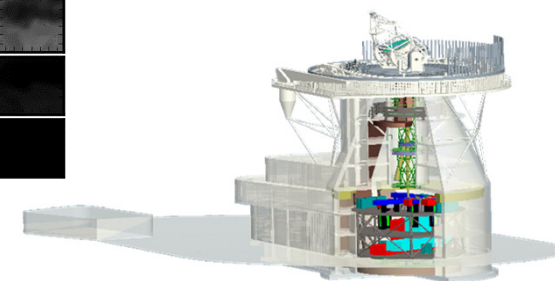
MiHI: microlens-fed spectrograph (MPS)

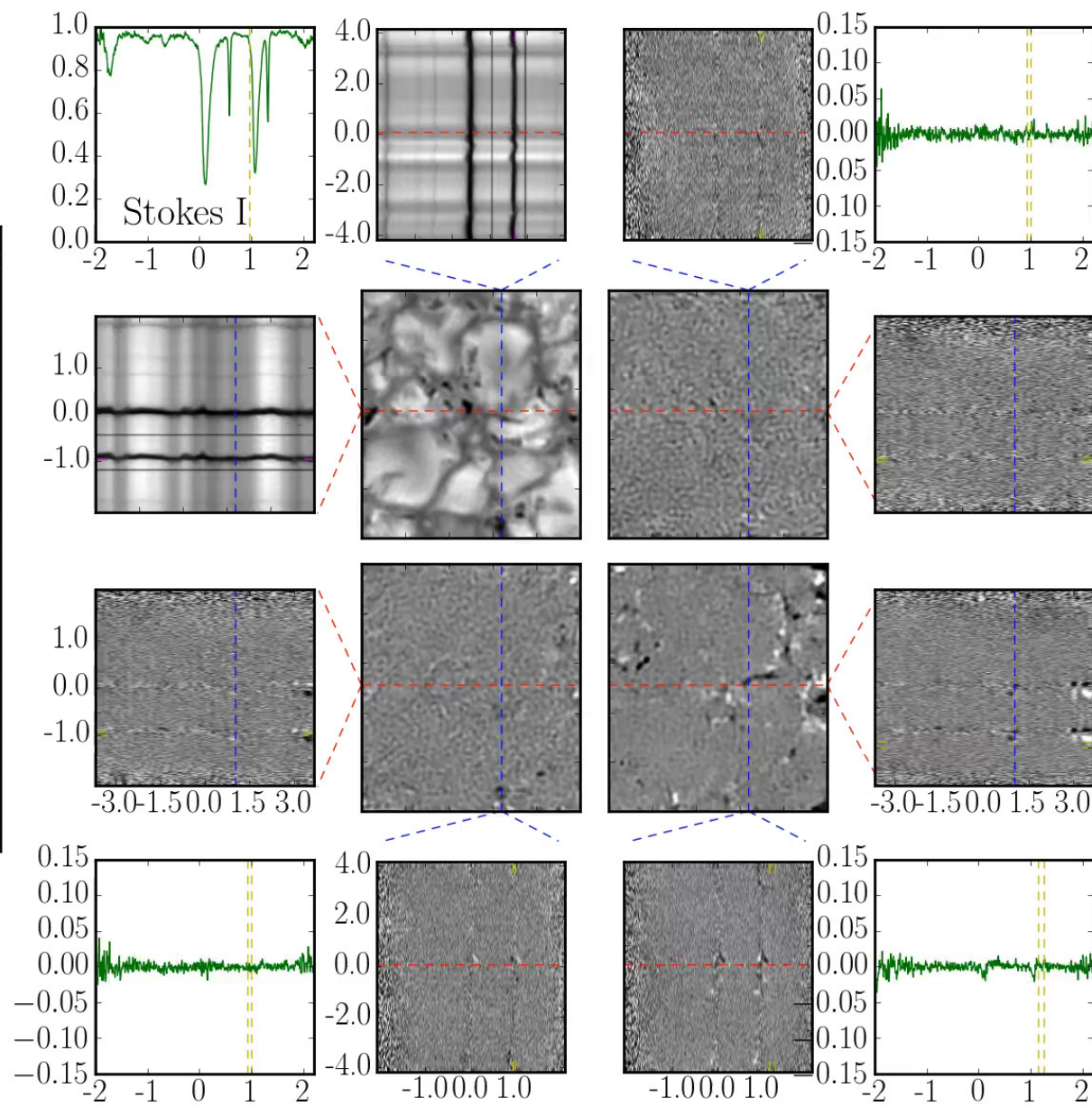
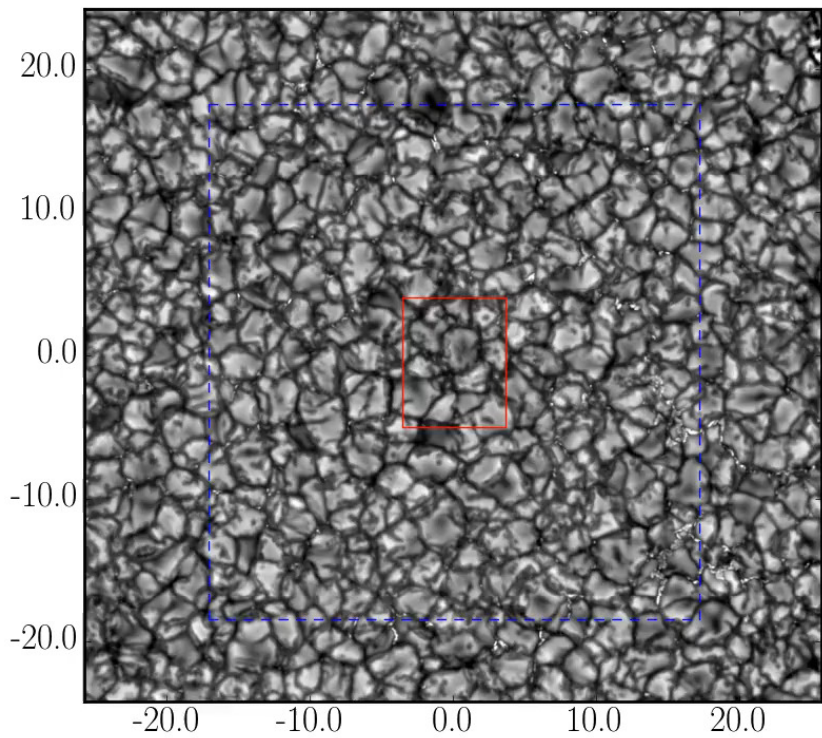


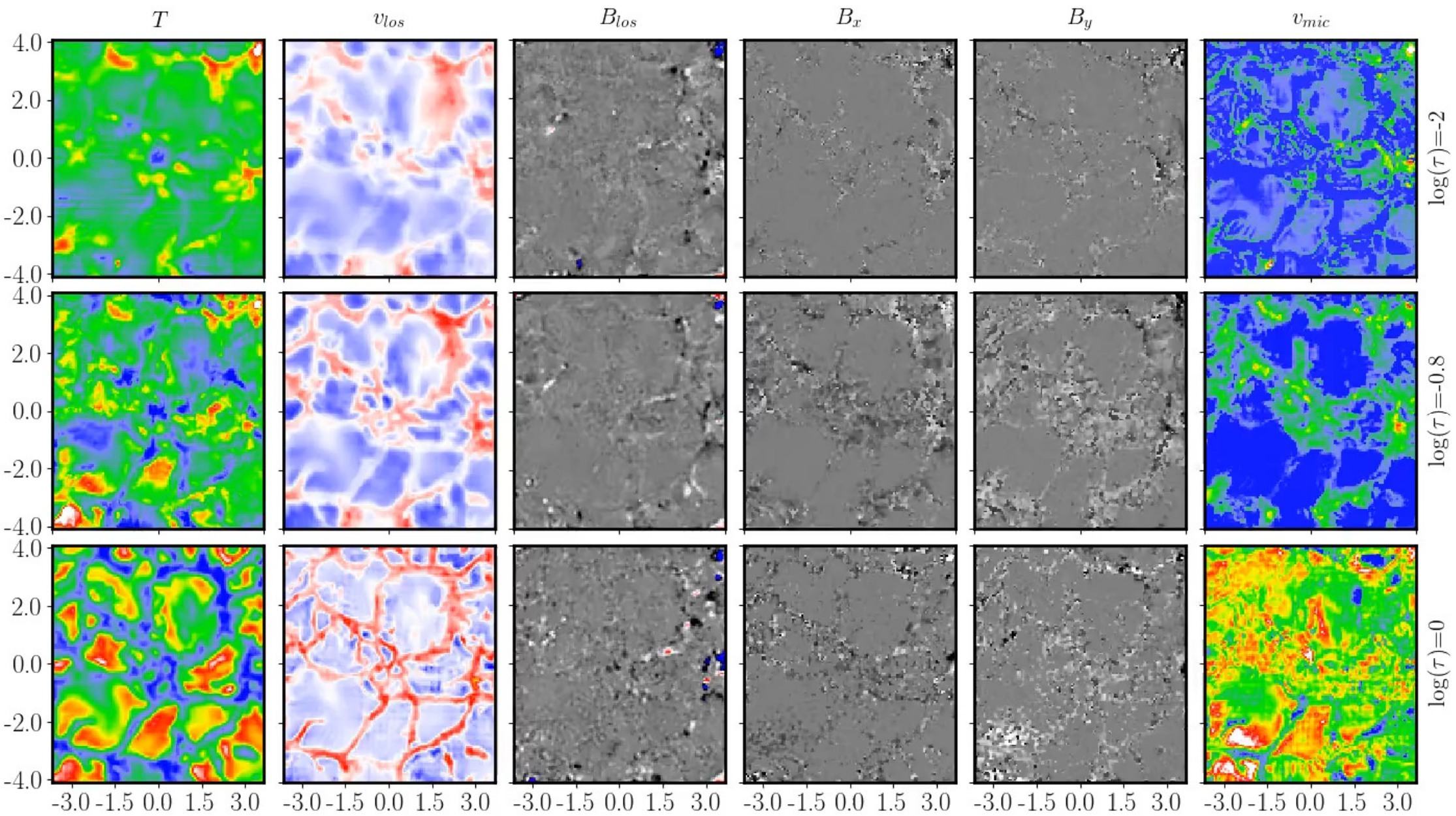
FoV = 7.5" x 6.5"

Sampling: 0.08" x 0.08"

Van Noort et al. (in prep.)



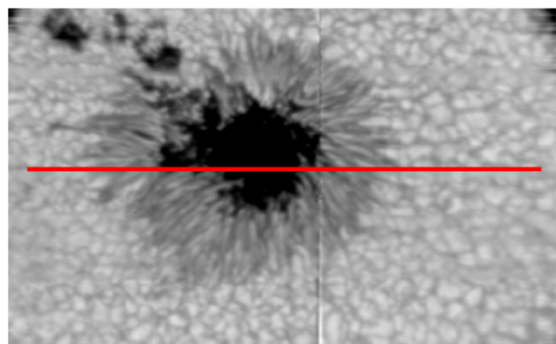




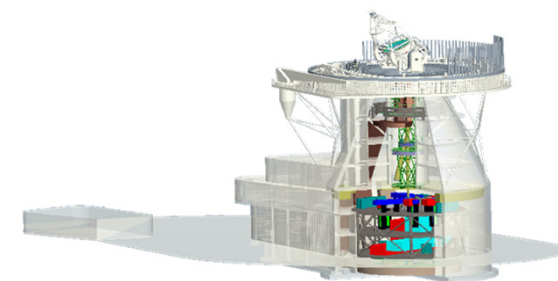
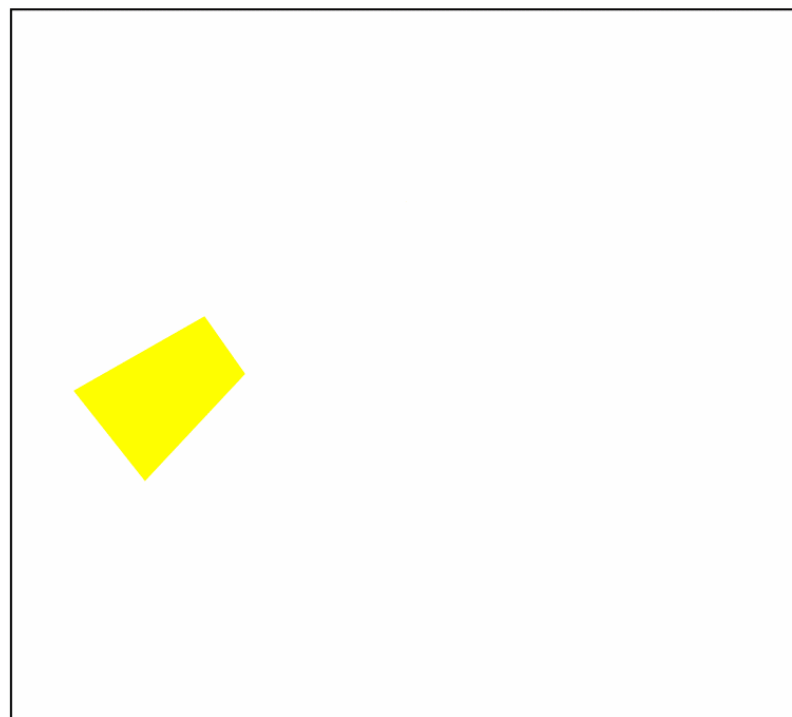
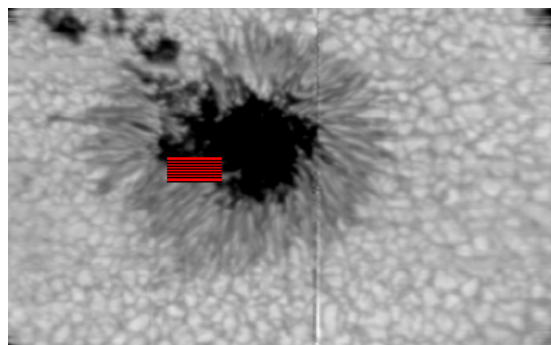
MuSICA: Image slicer (IAC)

Prototype built for GREGOR

Calcines et al. (2014)



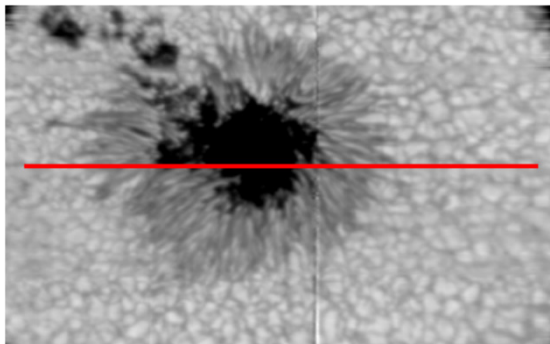
64" × 0.27"



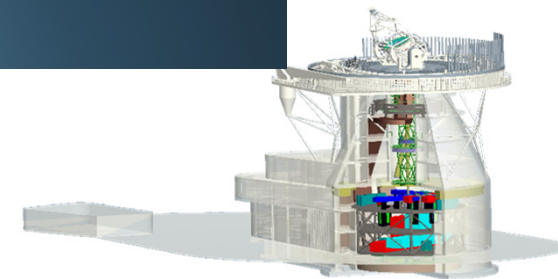
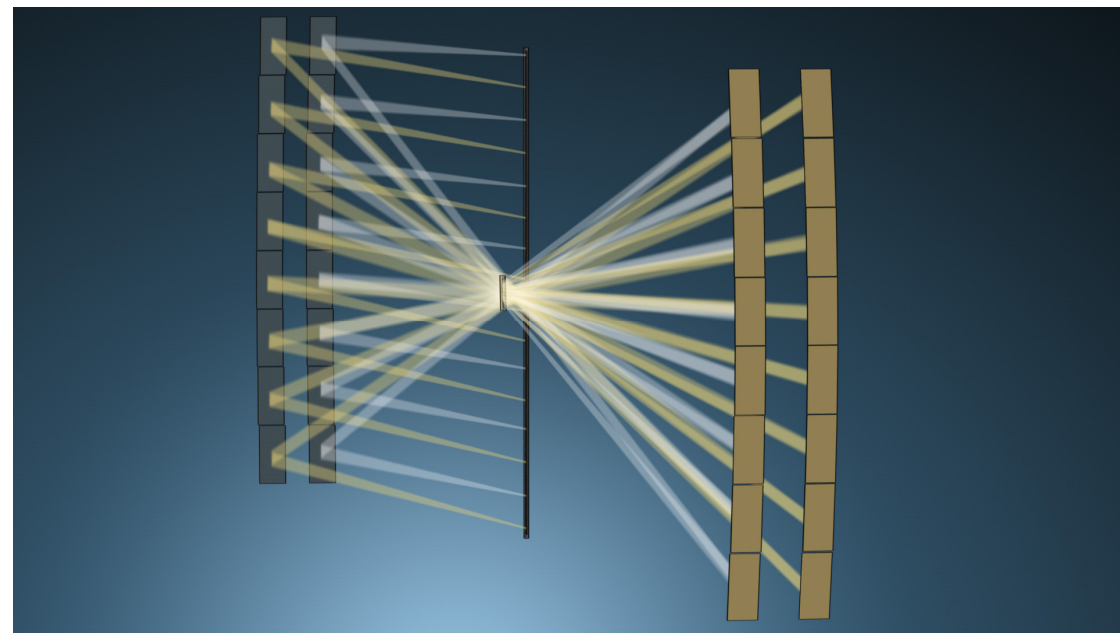
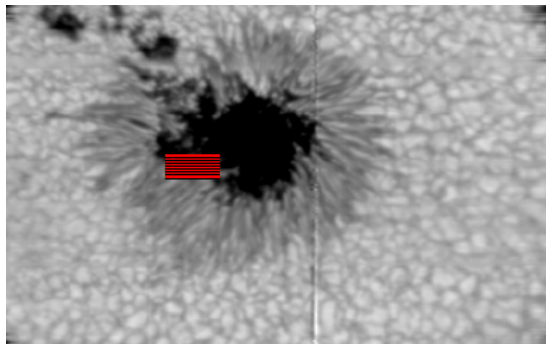
MuSICA: Image slicer (IAC)

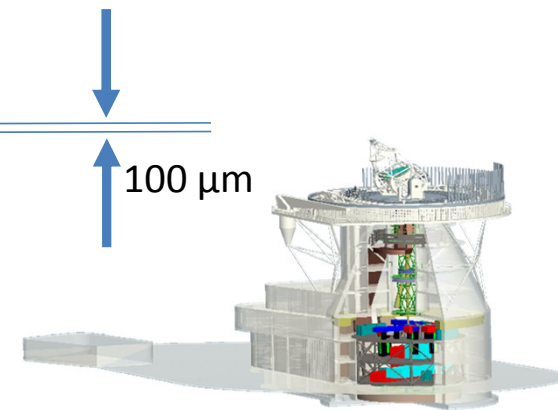
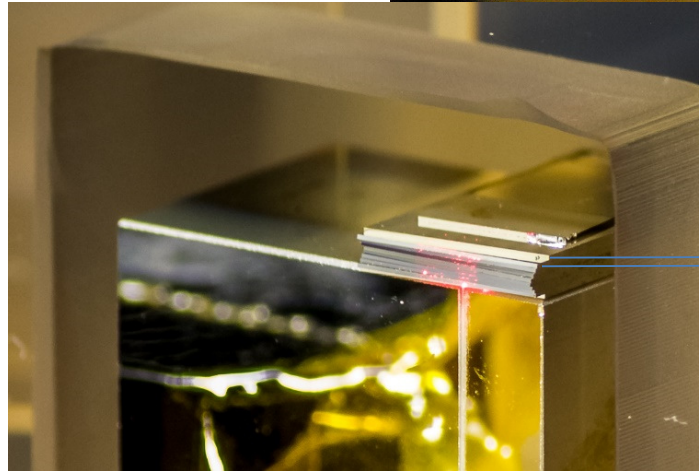
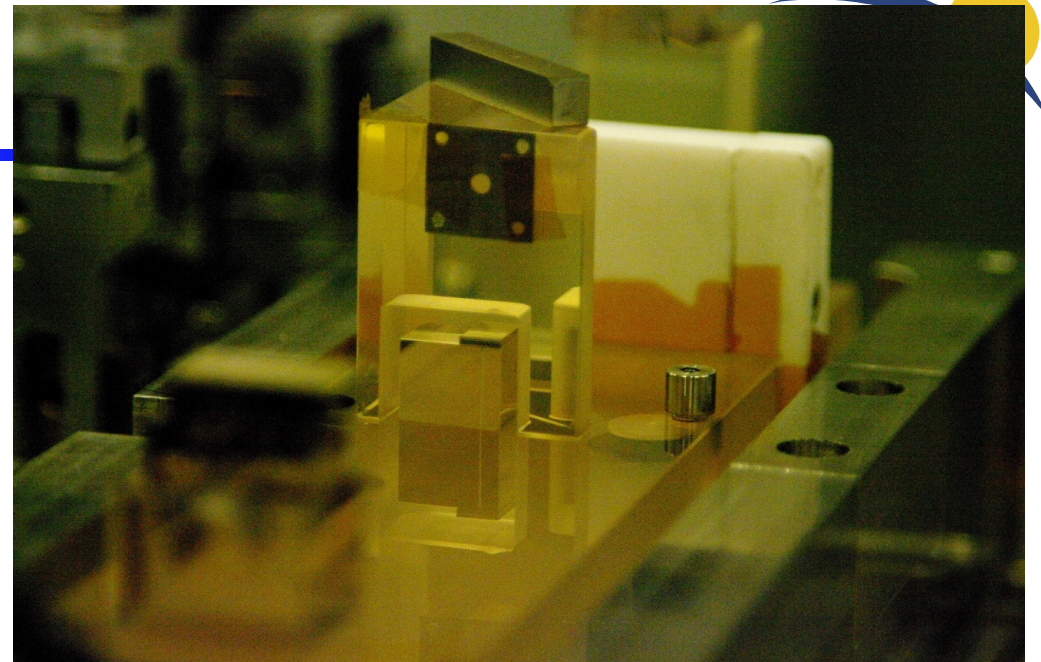
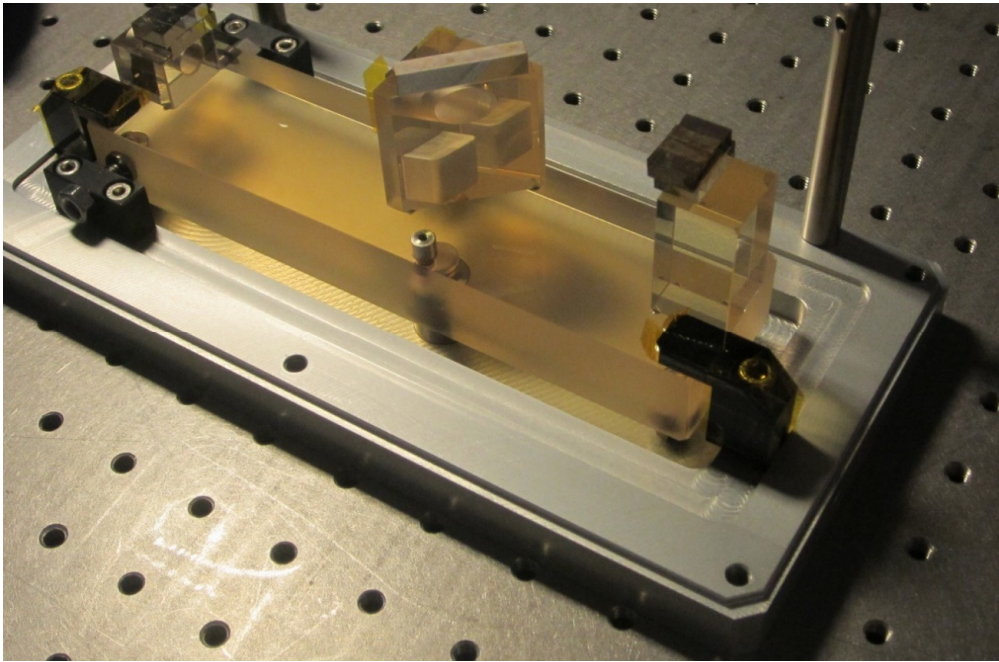
Prototype built for GREGOR

Calcines et al. (2014)



64" × 0.27"

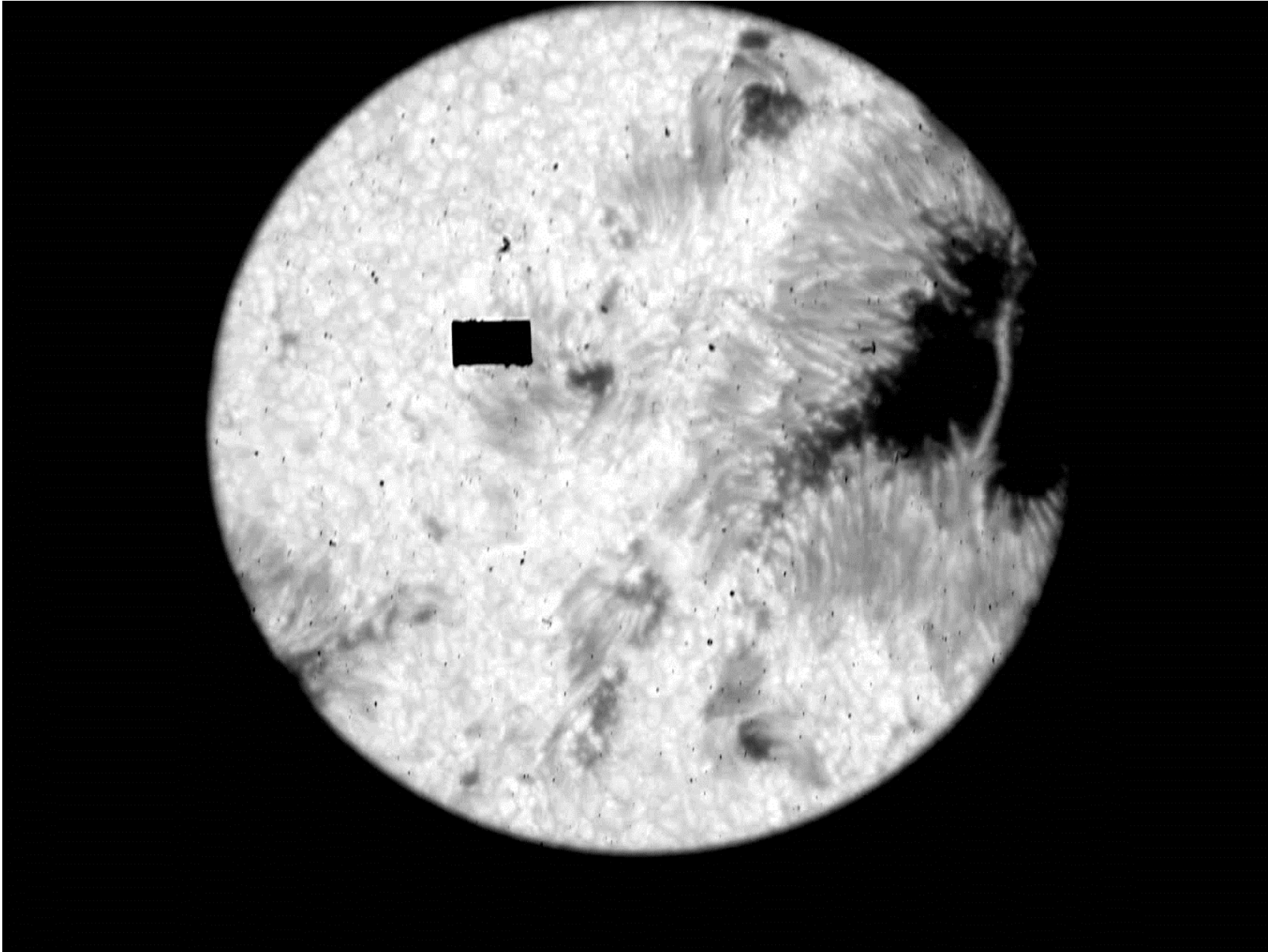




EST Science Meeting
Giardini Naxos (Sicily)
June 11 – 15, 2018

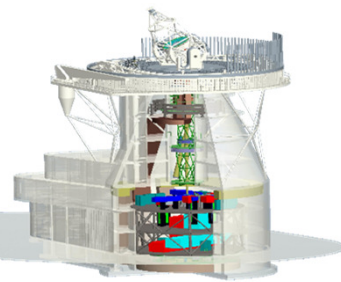


"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 739500"

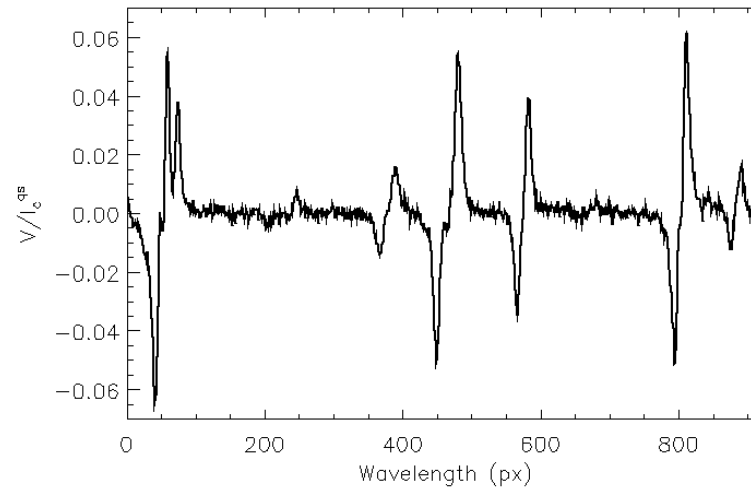
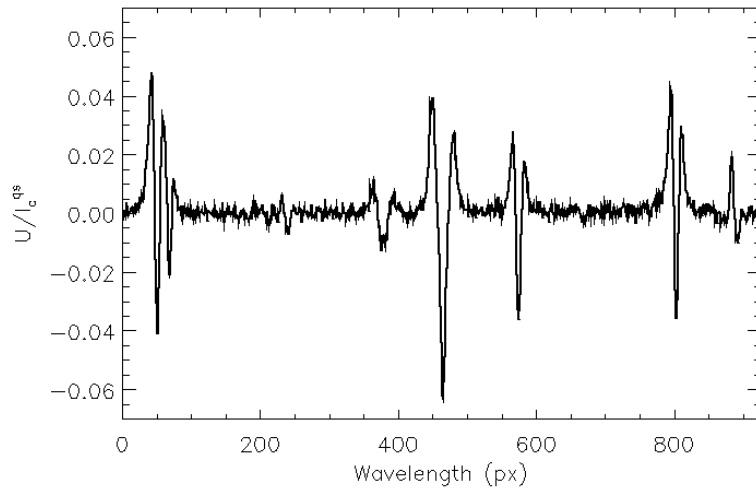
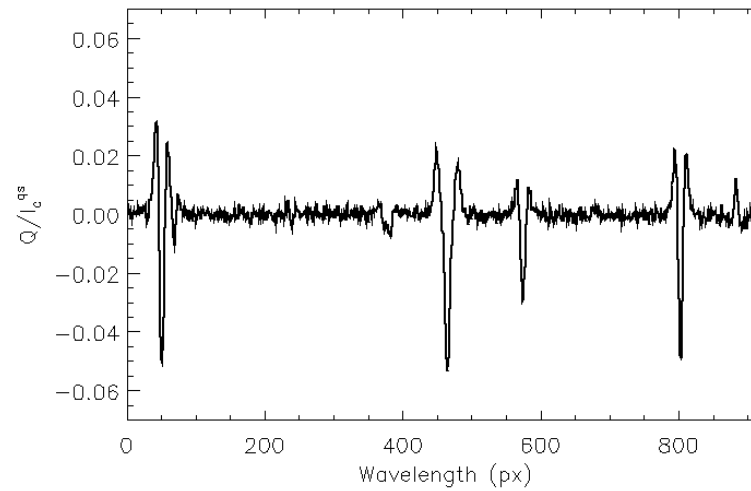
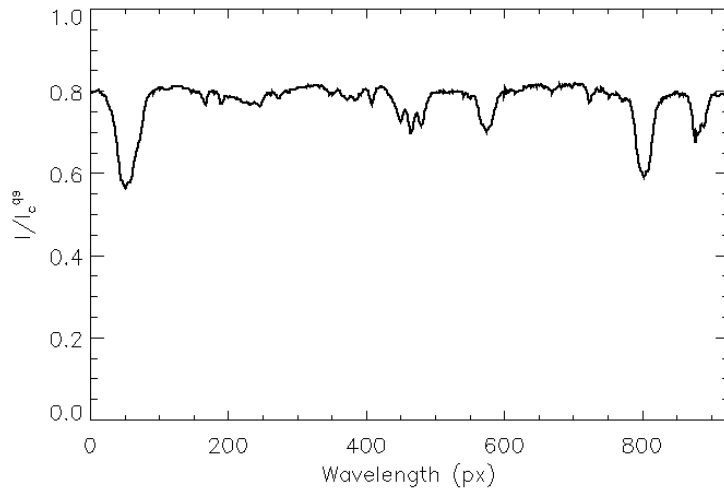


FoV_{window} = 6" x 3"

Sampling: 0.136" x 0.187"



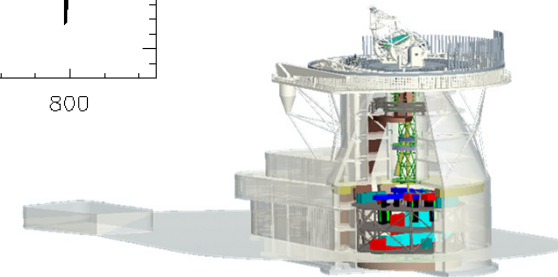
$\lambda_{\text{centre}} = 1.5648 \mu\text{m}$



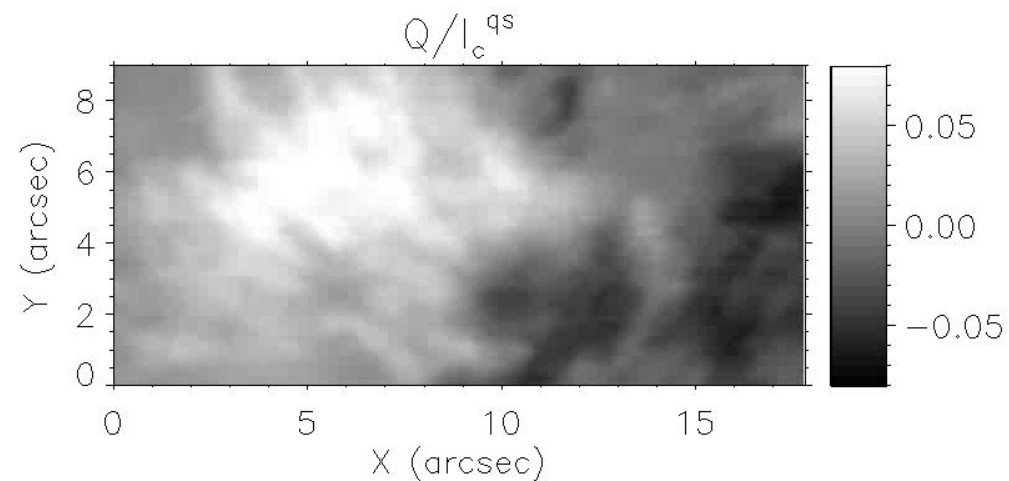
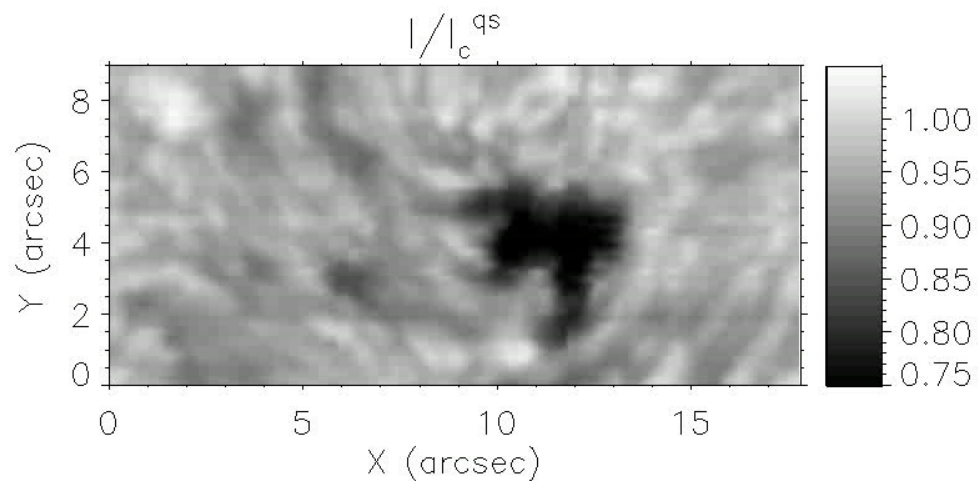
EST Science Meeting
Giardini Naxos (Sicily)
June 11 – 15, 2018



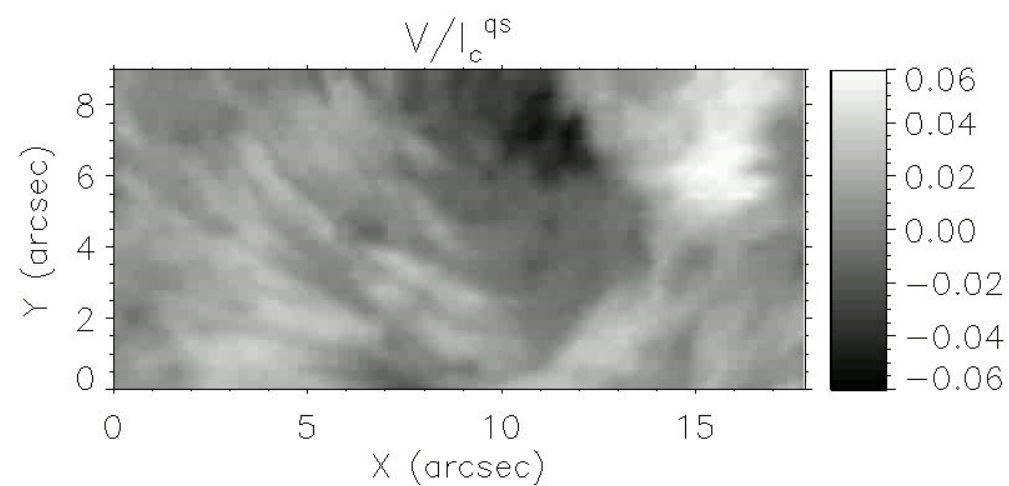
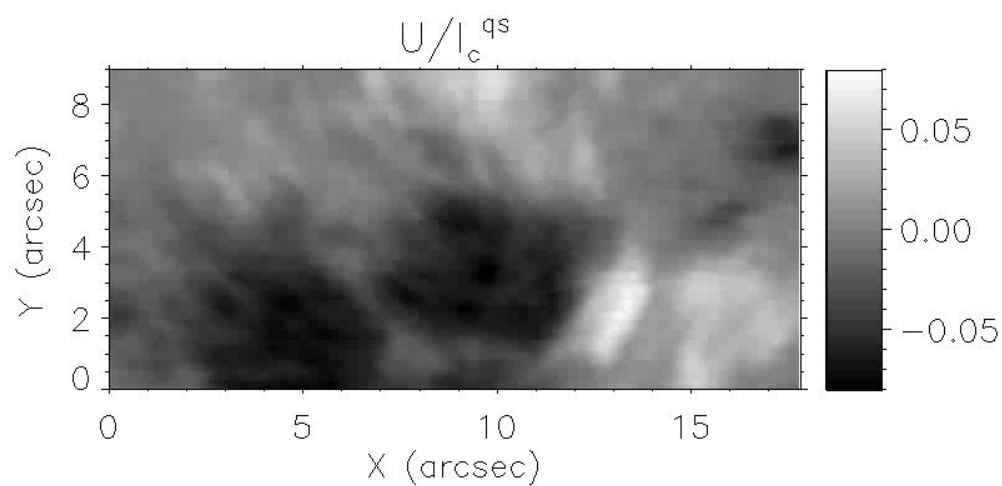
"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 739500"



MuSICA: Image slicer (IAC)



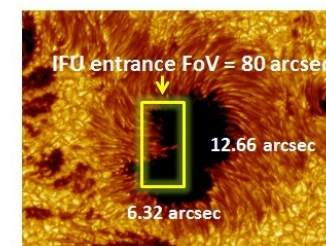
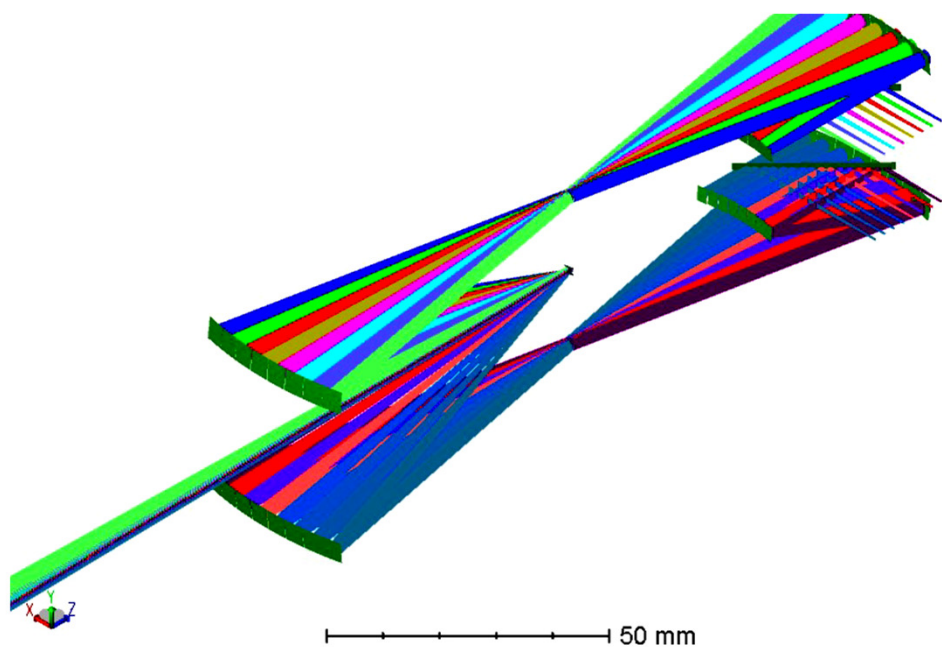
0 s



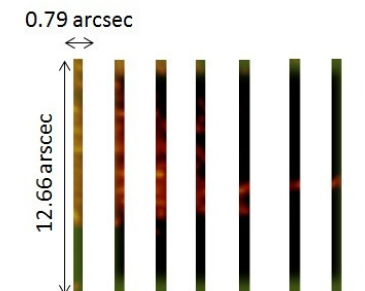
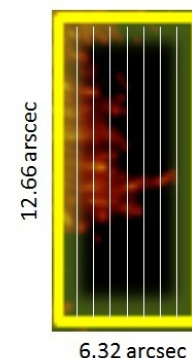
MuSICA: Image slicer (IAC)

- Extension to 2 output slits: 2 image slicers

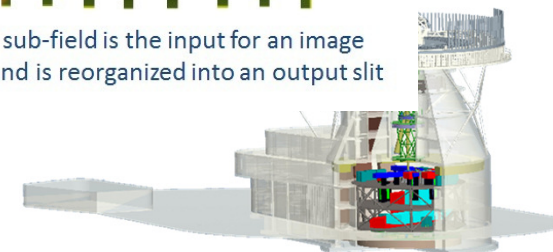
- Macro-slicer and 8 image slicers



The macro-slicer divides the entrance FoV into eight sub-fields



Each sub-field is the input for an image slicer and is reorganized into an output slit



Integral field units



❑ Microlens-fed spectrograph

- Chromatic (lenses)
- Single spectral line per setup (microlens/spectrograph)
- Easily scalable to a larger FoV

❑ Image slicer

- Achromatic (mirrors)
- Compatible with several simultaneous spectral lines
- FoV increase requires dedicated optical designs

Both approaches have led to very promising prototypes.
But there is still work to do

