

# SO/PHI data request form

(Cruise phase + first science orbit; SO/PHI-Team internal version)

## Magnetoconvection in unipolar plages

Lakshmi Pradeep Chitta

Max Planck Institute for Solar System Research

# Science case (stay on one slide):

Please also state, why is PHI needed; why is the science unique?

- Active regions harbour extended unipolar plages. Recently, using SST observations we studied granular-scale magnetic dynamics in a decaying plage region. We found signatures of transient flux emergence/cancellation within unipolar regions. This provides clues on the nature of magnetoconvection in plages. However, SST observations were seeing-limited and were not of long duration. This limited our ability to extract statistical properties of magnetic transients in plages. Such transients could be important in transferring heat to the overlying coronal moss or plumes (densely packed coronal loops rooted in plages). We propose to observe plages with So/PHI in order to gain better insights into how unipolar areas in active regions evolve.

# Requirements/data (use additional slide if needed)

Besides best guess requirements, you may also list minimum requirements on the data

- Type of solar feature: **Active region plage closer to the disk center.**
- HRT or FDT: **HRT**
- Physical parameters needed (available: B\_LOS, vector B, v\_LOS, I\_c, raw data): **vector B**
- Total length of observation: **4 hours**
- Cadence (maximum 1 dataset/min): **1 minute**
- Pointing needs (disc centre, limb, active region location, particular  $\mu$ ): **active region closer to disk center**
- Orbit needs (spatial resolution/co-rotation/angle to Earth/angle to other spacecraft):
- Total number of datasets: **4**
- Full frame 2k x 2k or partial frame 1kx1k, 0.5kx0.5: **Full frame**
- Full resolution or 2x2, 4x4 binned data: **Full resolution**
- noise level (default  $10^{-3}$ ): **Default**
- Co-observations with other instruments: **SO/EUI**
- Special requests: