



SOXS



מכון ויצמן למדע  
WEIZMANN INSTITUTE OF SCIENCE

Queen's University  
Belfast



Turun yliopisto  
University of Turku

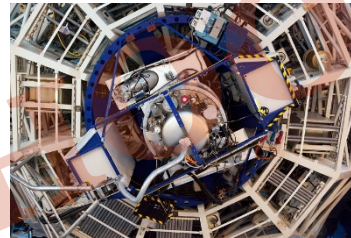
TEL AVIV UNIVERSITY

Dark Cosmology Centre



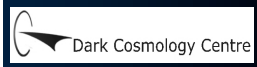
# SOXS (Son Of X-Shooter) in a nutshell

- Single-object wide band spectrograph from U to H band @ESO-NTT 350-2000 nm
- 'Similar' to X-Shooter
- Two arms (UV-VIS + NIR) with partial overlap around 800nm to cross-calibrate spectra
- $R \sim 4,500$  (3,500-6,000)
- $S/N \sim 10$  spectrum - 1 hr exposure for  $R \sim 20$
- Acquisition camera to perform photometry ugrizY (3.5'x3.5')
- 180 n/yr for 5 yr GTO





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# Consortium

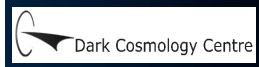
Institutes from 6 Countries

- Common Path (INAF)
- Control Software & Electronics, Vacuum and Cryogenics, Detectors control (INAF)
- UV/VIS Spectrograph (Weizmann)
- NIR Spectrograph (INAF)
- Acquisition Camera (Un. Andres Bello-MAS)
- Calibration Unit (Turku University)
- Data Reduction (Queen's Un. Belfast)
- Tel Aviv University
- Dark Cosmology Center

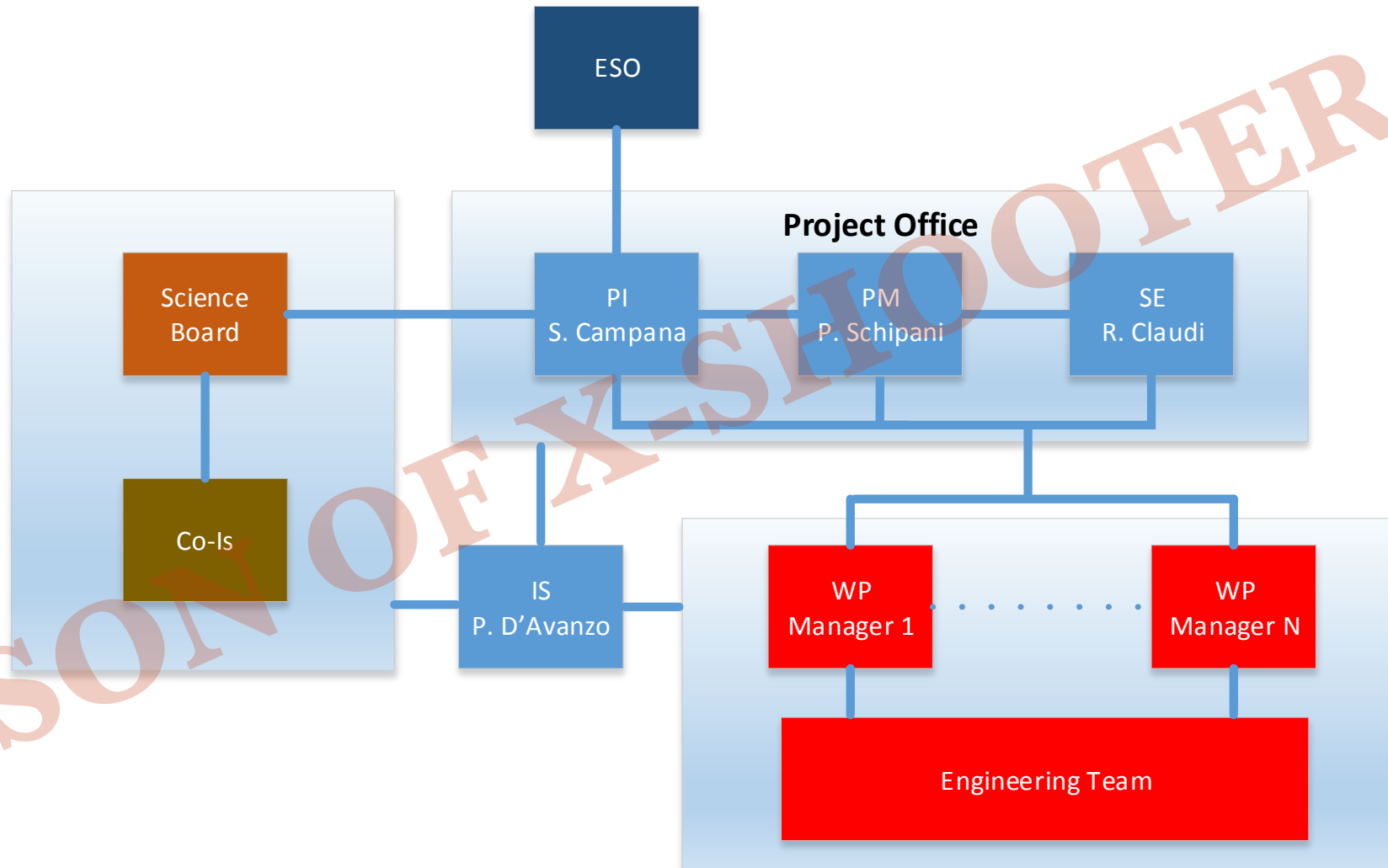




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# Organization structure





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# Project Schedule

Project Phase	Start	End	Duration
Preliminary Design	08/2016	07/2017	12 months <b>DONE</b>
*Final Design	08/2017	07/2018	12 months
**MAIT	02/2018	06/2020	29 months
Commissioning	09/2020	03/2021	7 months
Operations	2021		>5 yr

\*Split in 3 intermediate steps (two already done)

\*\* (Some) procurements anticipated



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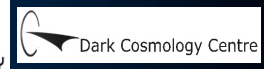
# Operations

After commissioning no SOXS scientists is supposed to be in La Silla unless for limited periods.

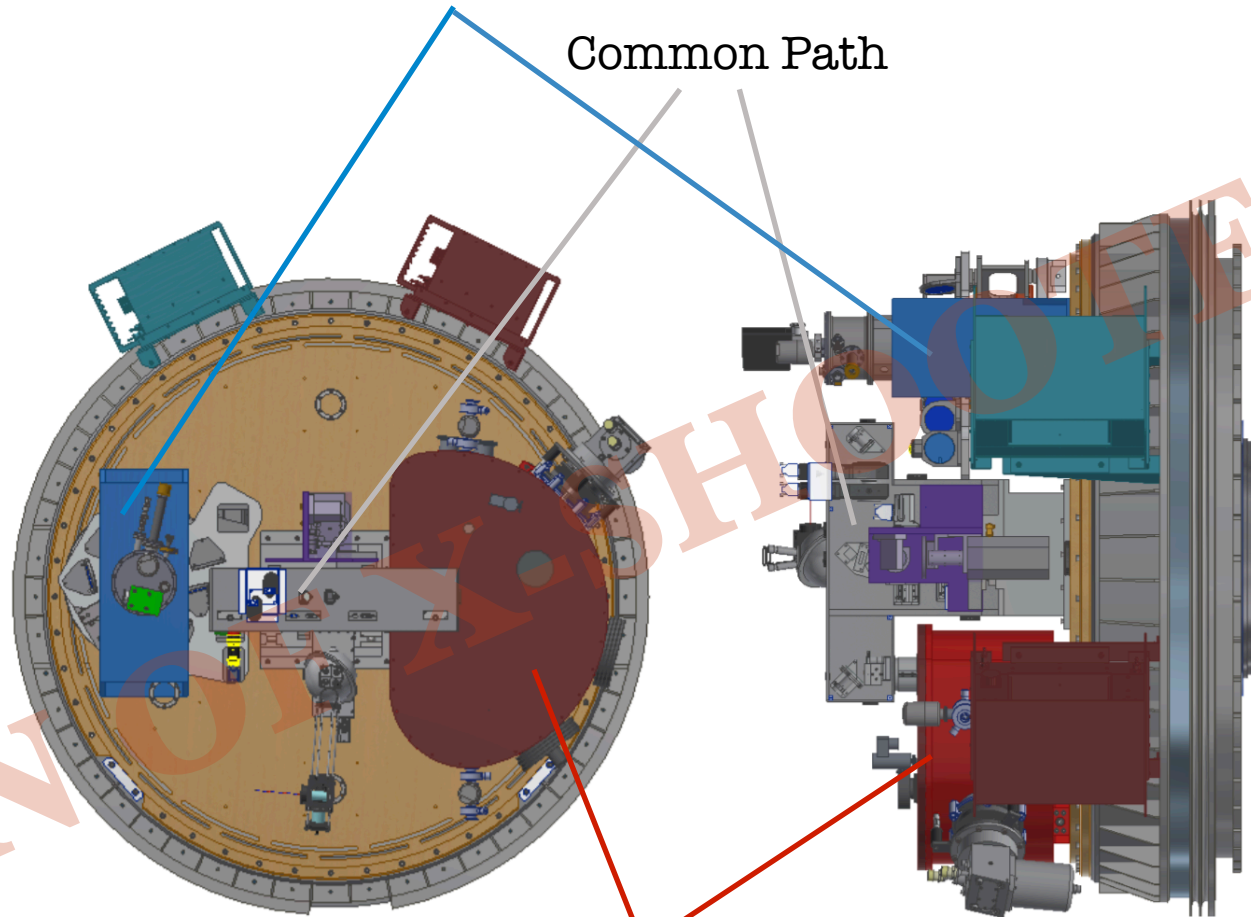
- SOXS Consortium will manage the entire schedule, including Consortium time and open time.
- SOXS will not have a pre-planned program.
- All SOXS observations will be TOO.
- The schedule is worked out every day (1-3d in advance).
- One scientist will be on-call for problems and for changing the schedule in case of unforeseen fast-track events.
- SOXS Helpdesk: 3 people on duty for the observing runs.



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# UV-VIS Spectrograph



Common Path

NIR Spectrograph

SONEN SHOOTER

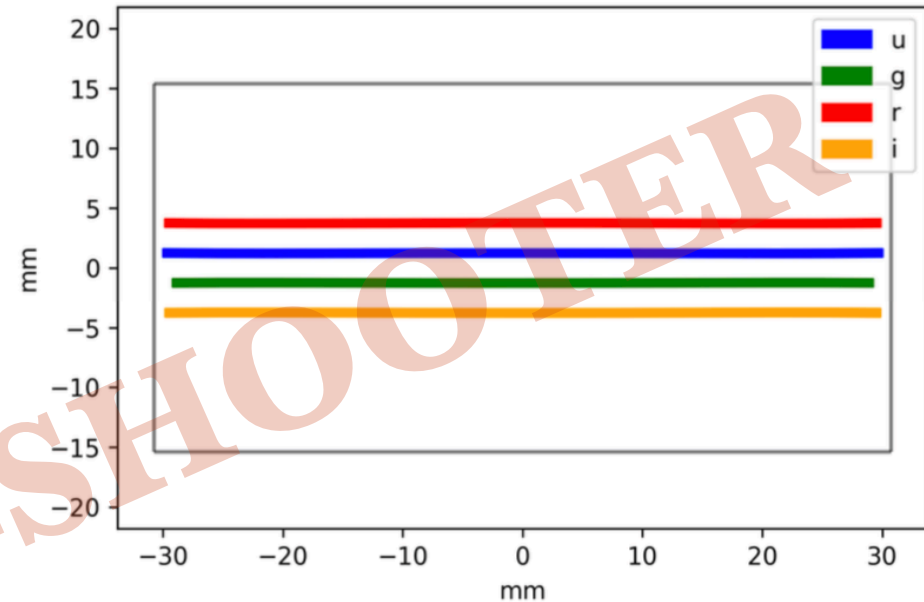


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# UV-VIS: Multi-Imager Spectrograph

- Collimated beam is divided to 4 bands using 3 dichroics.
- Each band has its own optimized optics (disperser + camera).
- 1<sup>st</sup> order dispersion,  $\mathcal{R} \sim 4500$  at  $\alpha \downarrow Lit$ .
- 4 bands quasi-orders are imaged onto a single 4k×2k CCD.



Quasi-Order	Wavelength Range [nm]
<i>u</i>	350 - 438
<i>g</i>	438 - 552
<i>r</i>	552 - 700
<i>i</i>	700 - 850 (880)



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# NIR Spectral Format

