Lunch/Poster session

To all speakers:

- Be prepared to share your slides
- 2 min per poster teaser
- Stop sharing when your time is up

To the audience:

• All questions at the end to allow everyone to speak

Not all posters will be presented:

- The missing ones can be accessed here: <u>https://indico.cern.ch/event/932122/contributions/</u>
- Will not be presented:
 - <u>Towards a polarization prediction for LISA via intensity interferometry</u>
 - <u>CTA Array Control and Data Acquisition activities at UNIGE</u>
 - Fermi acceleration along the orbit of η Carinae
 - <u>GAMAS A Generic and Multipurpose Archive System</u> •
 - HESS J1632-478: an energetic relic
 - Long-term multi-band photometric monitoring of Mrk 501
 - POLAR-2 The first Large Scale Gamma-Ray Polarimeter
 - TCU: <u>high-level control software of LST</u>
 - <u>Twelve-hour spikes from the Crab Pevatron</u>







FACULTÉ DES SCIENCES

The SST-1M project Past, Present, Future



The SST-1M telescope

	Focal Length	5600 ± 5 mm
	f/D	1,4
	Dish diameter	4 m
	Mirror Area (*)	9.42 m ²
	Mirror Effective Area (*)	6.47 m ²
•	Hexagonal Mirror facets	780 ± 3 mm
	Mirror PSF D ₈₀ (requirement)	0.082° (8.1 mm)
	Mirror PSF D ₈₀ (measured)	0.028° (2.7 mm)
	Telescope PSF D ₈₀ (required)	0.25° (24.4 mm)
	Telescope PSF D ₈₀ (measured) On-Axis	0.082° (8 mm)
	Camera dimensione (R/thickness)	810 mm / 900 mm
	Total pixel number	1296
	Pixel linear size	23.4 mm
	Pixel angular size	0.24°
	FoV	8.9 °
	PDE@470 nm, 8% X-talk (LCT/LVR)	23% / 54%
	Sampling frequency	250 MHz
	Maximum trigger rate (80/200 ns window)	12.5 / 5 MHz
	Maximum readout rate (80/200 ns window)	22.6 / 9.4 kHz
	Time Spread RMS	< 0.25 ns
	Telescope height pointing horizontally	4908 + 400 mm
	Telescope height pointing vertically	9828 + 400 mm
	Telescope length pointing horizontally	9098 mm
	Telescope width	3310 mm
	Elevation range	-16° - 97° (± 1°)
	Azimuth range	±280° (± 1°)
	Max, Min speed	1, 4000 rpm
	Gear ratio	2800
	Oscillation modes	2.8 / 3.4 / 3.8 Hz
	Total Weight	8.6 t



Tab 1: Key characteristics of the SST-1M telescope





Fig. 1: SST-1M telescope in IFJ-PAN Krakow



Camera and Control Software





Fig. 2: SST-1M camera assembled at **University of Geneva**

photons in different NSB conditions

Telescope control and file writing software developed at UNIGE-ASTRO Built around the Alma control software (ACS) and OPC-UA communication layers, the SST-1M control software allows to control the telescope entirely remotely. Observation and calibration procedures are implemented through the telescope master and can be easily altered through a flexible scheduler.





Fig. 3: Charge resolution as function of true

Fig. 4: Time resolution as function of number of photo-election in different NSB conditions







Observation in Krakow and future in Ondrejov



Fig. 5: Optics validation: comparison between data and simulation for the telescope PSF vs. off-axis angle

Tab 2: Expected event rates for the full telescope FoV and energy thresholds for Crab observation in Krakow

Two telescopes will be installed at the Ondrejov observatory, 40 km from Prague, by the end of 2021. To be operated in stereo with 150 m distance. We will observe Crab Nebula and monitor blazars.

	Energy	Crab	Proton
	threshold	event rate	event rate
	[TeV]	[mHz]	[Hz]
All	2.692	5.722	8.957
triggered			
After	3.641	2.447	2.678
cleaning			
Quality	5.009	1.237	1.558
cuts			
g/h	4.966	1.174	0.605
separation			



cherenkov telescope

array

CTa

mono regime



