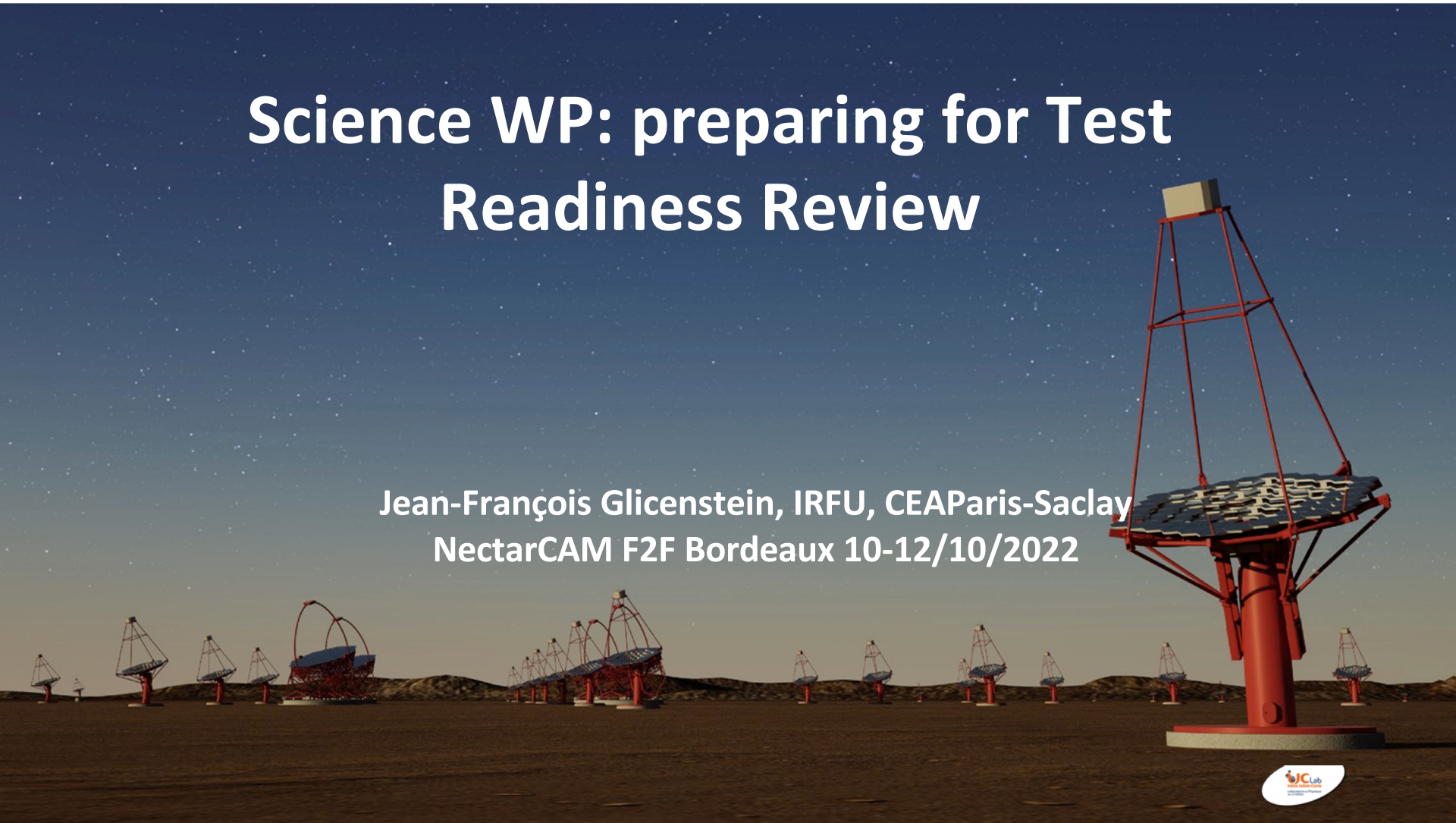
Science WP: preparing for Test Readiness Review

Jean-François Glicenstein, IRFU, CEAParis-Saclay

NectarCAM F2F Bordeaux 10-12/10/2022



Open RIXes

•25 total (*=assigned to CTAO)

•1 high priority on the « Commissioning plan »

« unclear document classification » (#42738*)

• 3 connected to trigger documentation (#42500, #42493*,43939)

• 2 related to PMT/PACTA oscillations (#42506, #42404 (assigned to Pierre))

• 5 on the camera description/architecture document:

- missing thermal images of the camera (#42830)
- psf studies with realistic mirrors (could be taken from MST-STR) (#42751)
- linearity of Nectar (#42406*)
- deadtime « B-TEL-1260 not met » (42413)
- Power consumption (#42630*)

Open RIXes (2)

- 10 RIXes on the Camera User Manual
- Others:
  - Science verification (#42652), should include results of thermal tests
  - Ageing of the pulser => need to quantify (#42485)
  - Duration of L0 delay calibration (being worked out by Patrick and François now) (#42503)
  - Rate of flat fielding events (#42488)

Open and assigned: 21/25

Status of scientific verification at CDMR

Requirement	Topic	Verification method	Verification status	Documentation status
B-TEL-0090	Signal to Noise	D	OK	OK
B-TEL-0095	UV Light Contribution	T,M	OK	OK
B-MST-1230	Minimum gamma amplitude	T,M	OK	OK
B-MST-1235	Minimum proton Amplitude	T,M	OK	OK
B-TEL-1010	Intensity resolution	T,M	OK	OK
B-TEL-1030	Time resolution	T,M	OK	OK
B-TEL-1170	Photon Efficiency	D,M	OK	OK
B-TEL-1280	Deadtime	T	OK	OK
B-TEL-1260	Deadtime measurement	T	OK	OK
B-TEL-1300	Muon trigger	M	OK	OK
B-TEL-1320	Amplitude monitoring	T	TD	no
B-TEL-1370	Pedestal substraction	T,M	OK	OK
B-TEL-1390	Linearity	D,T	OK	OK
B-TEL-1410	Camera trigger timing	T	TD	OK
B-TEL-1440	Post-Calibration trigger timing	T	TD	OK
B-TEL-1430	Trigger-to-Image Timing	T	TD	OK
B-TEL-1380	Pixel Timing Uncertainty	T	OK	OK
B-TEL-1630	RTA intensity resolution	T	OK	OK
B-TEL-1640	RTA time uncertainty	T	OK	no

Progress since CDMR

Amplitude monitoring:

-Histogram of charge of third pixel in trigger patch, tested (François)

Camera trigger timing:

-Measurement performed (thanks to APC help)

-see Federica's talk on timing paper.

-Difference between pre/post trigger timing not clear.

Post-calibration trigger to image timing uncertainty:

- Requirement not very clear
- Requirement to be verified from average pixel time measurement (done) and trigger timing (done)

Requirement verification documentation:

- At CDMR, « scientific » document written for (almost) all requirements
- For TRR, one need this document+a document formatted for CTAO+standard code to obtain the results.