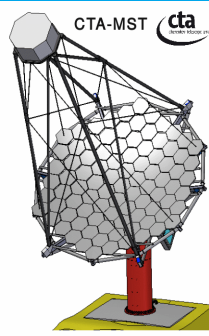




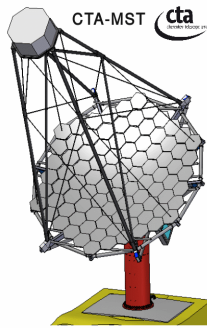
Medium Size Telescope



Specifications

Bruno Khélifi, LLR

Why a task on specs?



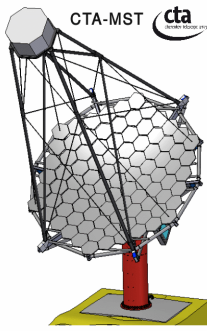
■ Technical reasons

- Build only what is needed
 - Cheaper, safer, faster design
- Optimization of the hardware functionalities
 - E.g.: have the right timing accuracy, and not more
- Derive quickly the functioning and technical parameters

■ Political reasons

- Answer to the comments of the last Camera review
 - Reference: MAN-PO/110802
 - Title: report of the review of the camera activities held on 28-30 june 2011

Recommendations of the last review



- **Section 3.4: Sampling rate needed**

"The proponents of GHz sampling should demonstrate the necessity for these sampling speeds and the corresponding amplitude information."

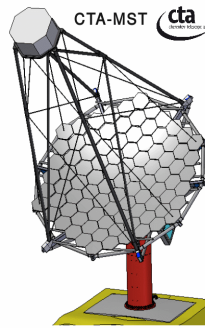
- **Section 3.6: Specifications and requirements**

"Document and present requirements and specifications as proposed below."

- **Section 4.6: Trigger schemes**

"The opinion that a digital trigger seems more natural was also expressed."

Recommendations of the last review



■ Section 5 :PREPARATIONS TOWARDS FUTURE REVIEW

• Section 5.1: Definition of metrics for evaluation

"Produce a document giving the absolute requirements for the camera system, including a rough prioritization of these requirements."

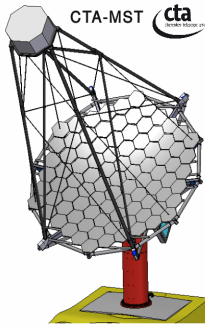
→ Should be done by the TPC-IPO (GH) and the xST-CAM, but activity stopped by GH!???

" Define the performance metrics by which approaches will be compared for down-selection forexample: [...]"

• Section 5.2: Evaluations needed

- 1) Utility of the clipped analogue sum trigger versus a simple digital trigger
- 2) The effect of sampling speed on energy threshold for reconstructed events comparing 250Mps to 1Gps for a DC telescope and an SC (or isochronous) telescope should be evaluated.
- 3) The effect of ADC dynamic range on energy reconstruction (bias) and resolution
- 4) In addition to studies of the baseline configuration of 25 MST telescopes, the effect of including an additional 36 MST telescopes of the U.S. design should be included in estimates of trigger rates, typical telescope multiplicities, data rates, dead time and other specifications
- 5) Evaluate the dependence of trigger threshold and energy threshold on the maximum single telescope trigger rate (1 kHz, 10 kHz, 100 kHz, 1 MHz) or dead time

Next steps



■ Two start-up meetings

- **MC tools**
 - Status of the codes, production tools
 - Identification of experts and FTEs up to the review
 - Goal: evaluate our computing power
- **MST-CAM-Fr Specifications**
 - Identification of the missing specifications
 - Prioritize them as a function of their importance and of our computing power

■ Regular meetings

- **To follow the progress**
 - Programming, Productions, Results
- **Derivation of technical parameters from the specifications**
 - With all the sub-system coordinators