

# The AMS-02 Silicon Tracker

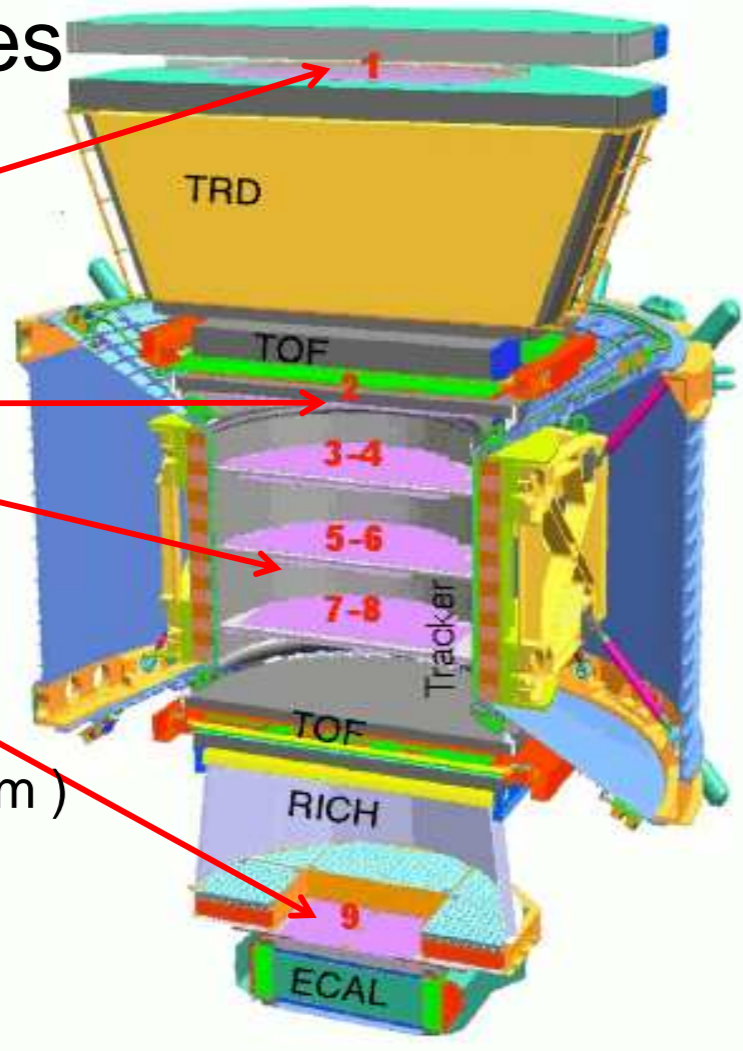
## First Year on ISS in Space

Divic Rapin, DPNC, Université de Genève  
on behalf of the AMS-Tracker Collaboration

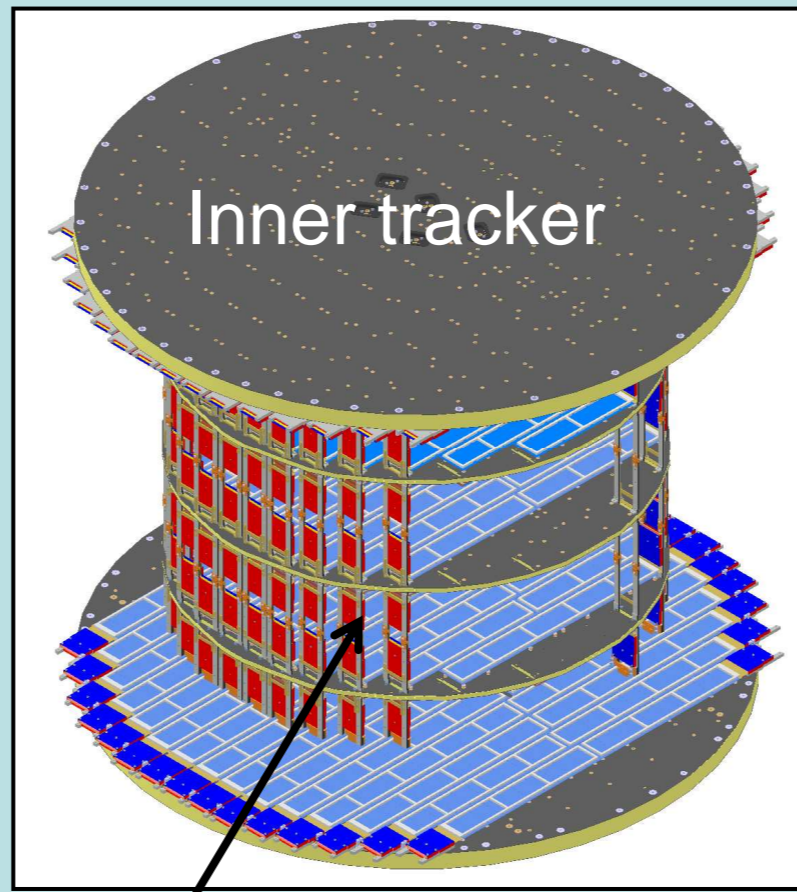


7 m<sup>2</sup> of **double sided** microstrip detectors arranged in 9 planes  
196'608 channels

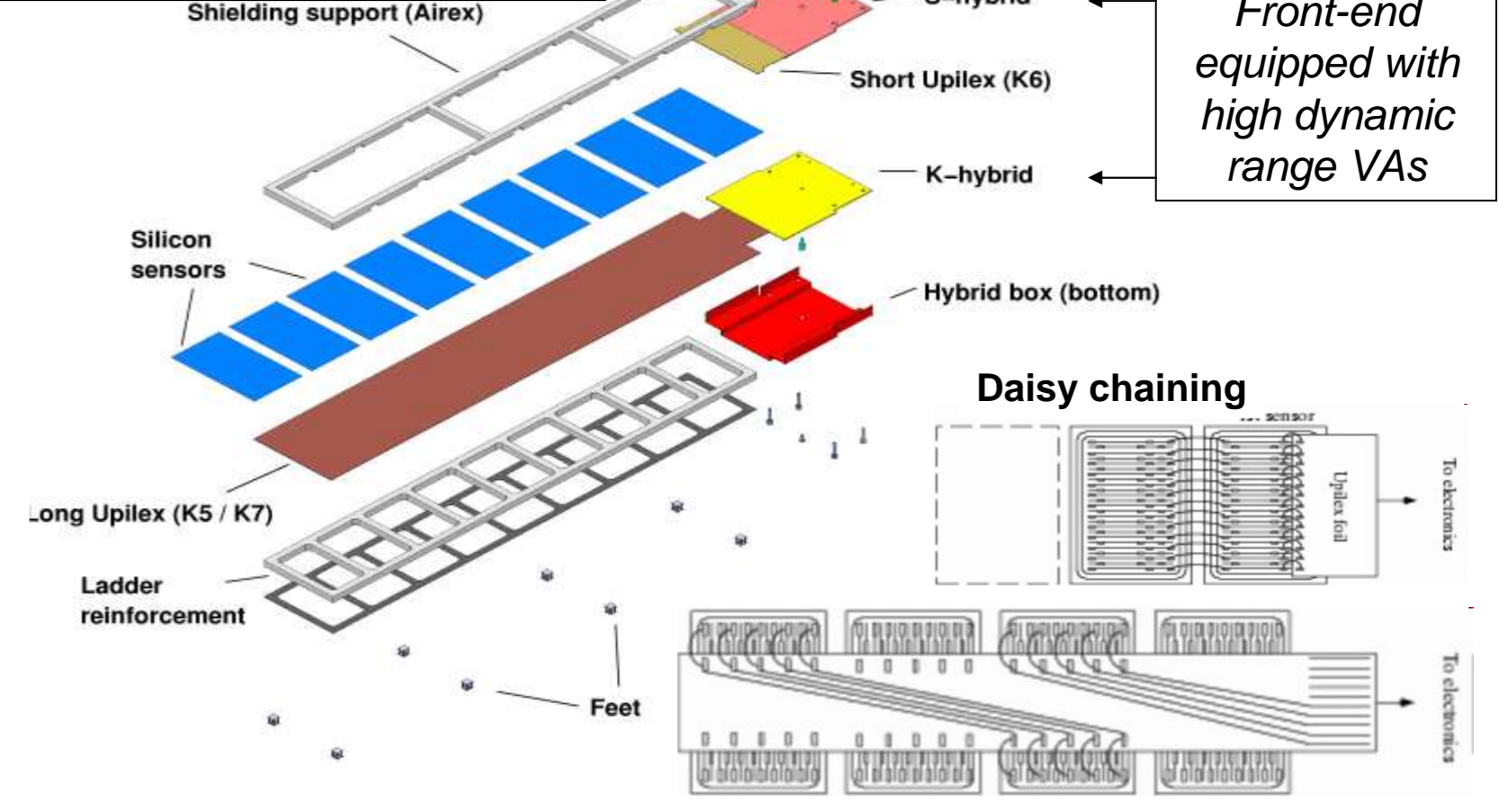
- Upper tracker (1 layer)
- Inner tracker (7 layers)
- Lower tracker (1 layer)



Pitch p-side: **Y** (bend  $\sigma_{th}$ : 8  $\mu$ m)  
- 27.5  $\mu$ m (110 read-out)  
Pitch n-side: **X** (non-bend)  
- 104  $\mu$ m (208 read-out)

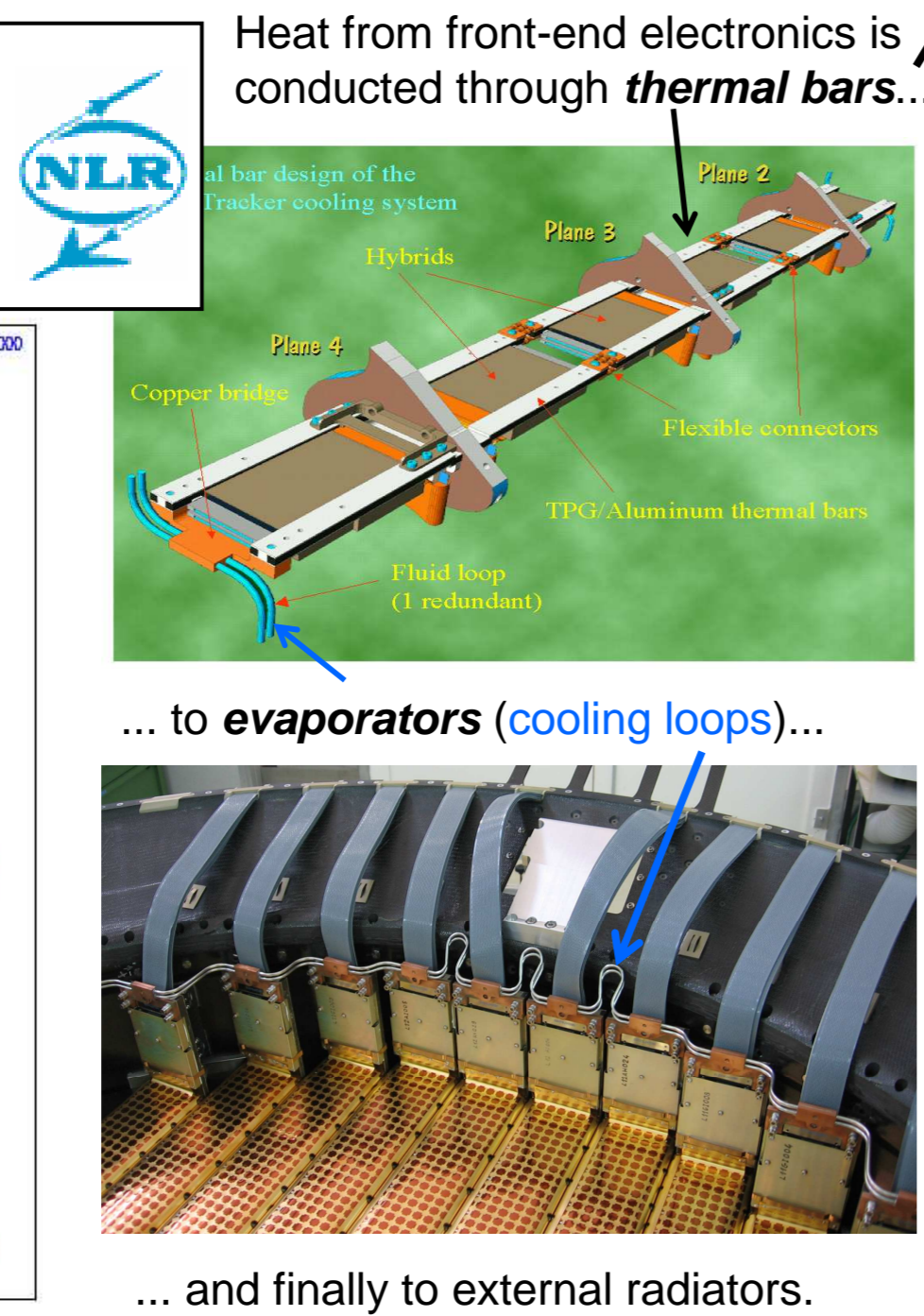
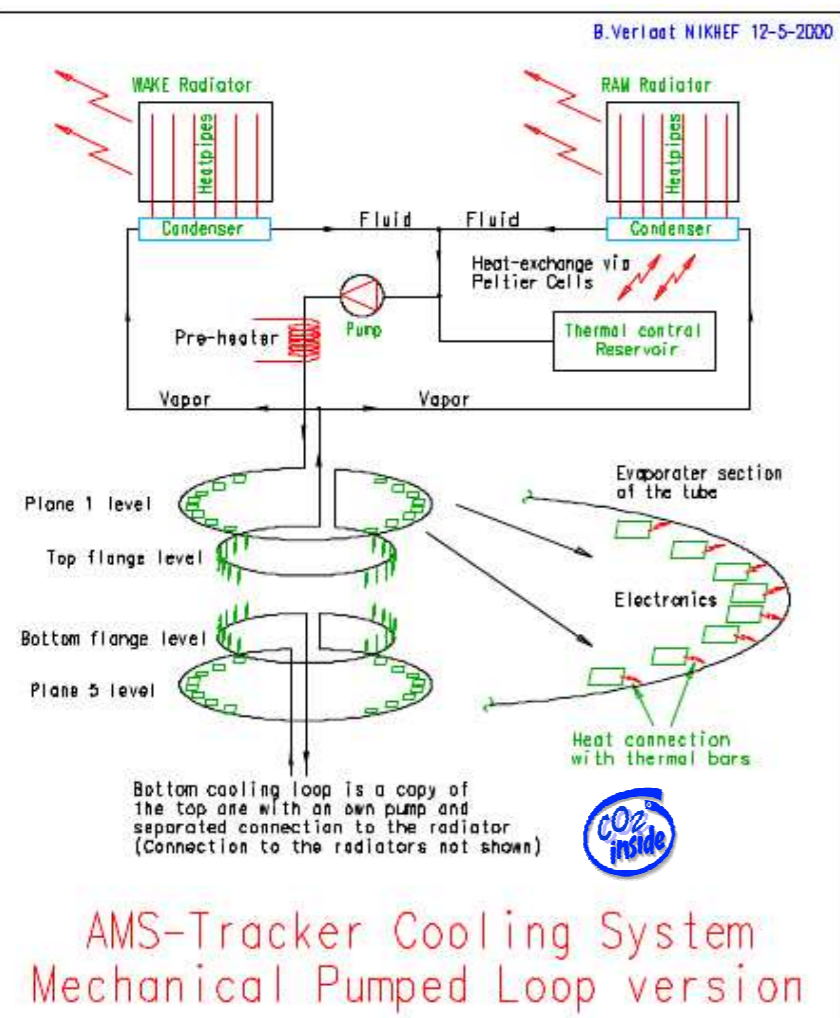


AMS-02 Ladders  
192 tracker modules with 7 to 15 sensors



### TTCS: Tracker cooling

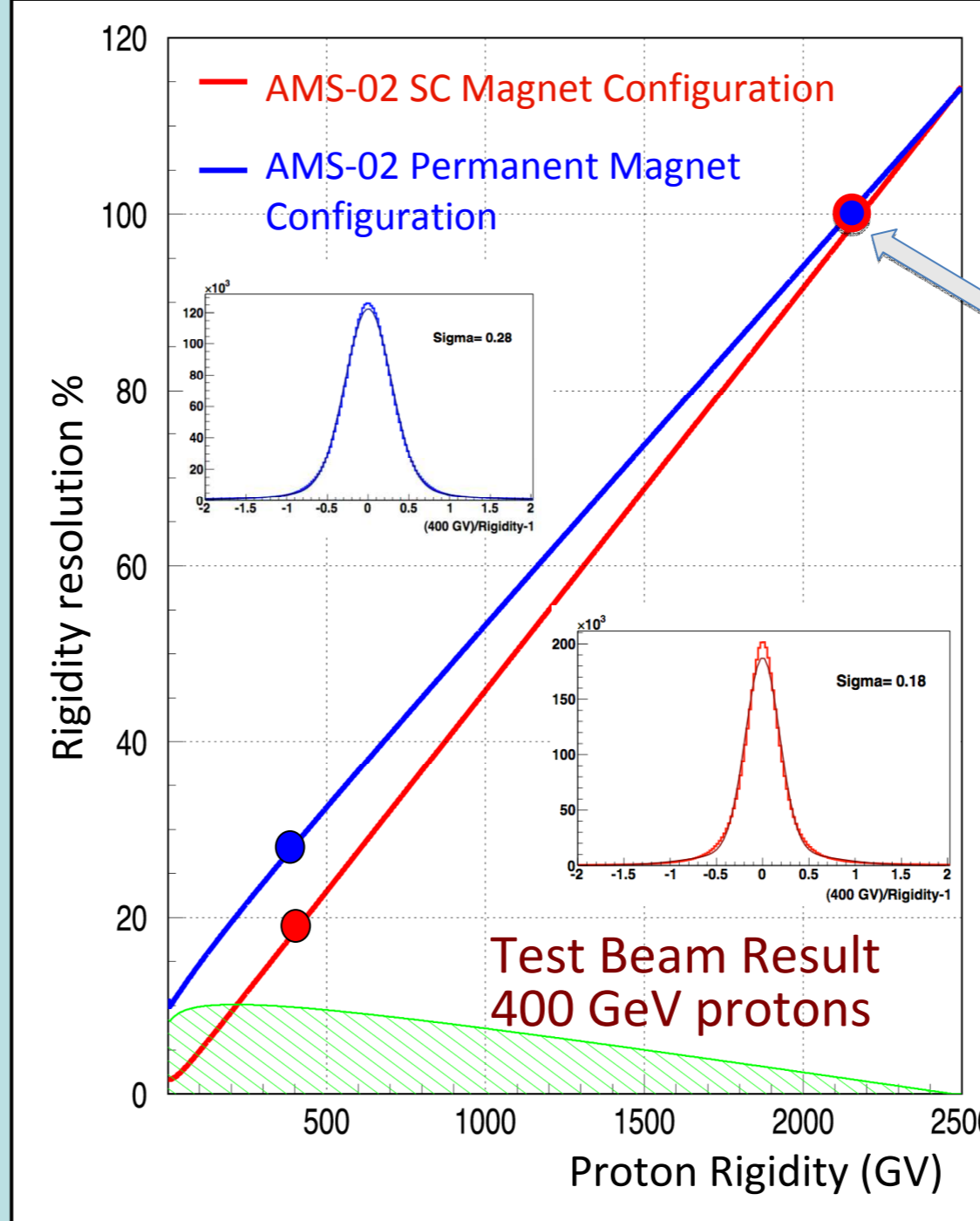
Mechanically pumped two phases CO<sub>2</sub> proposed by B. Verlaet in 2000. J. van Es et al., IAC-09.C2.7.1, 2009



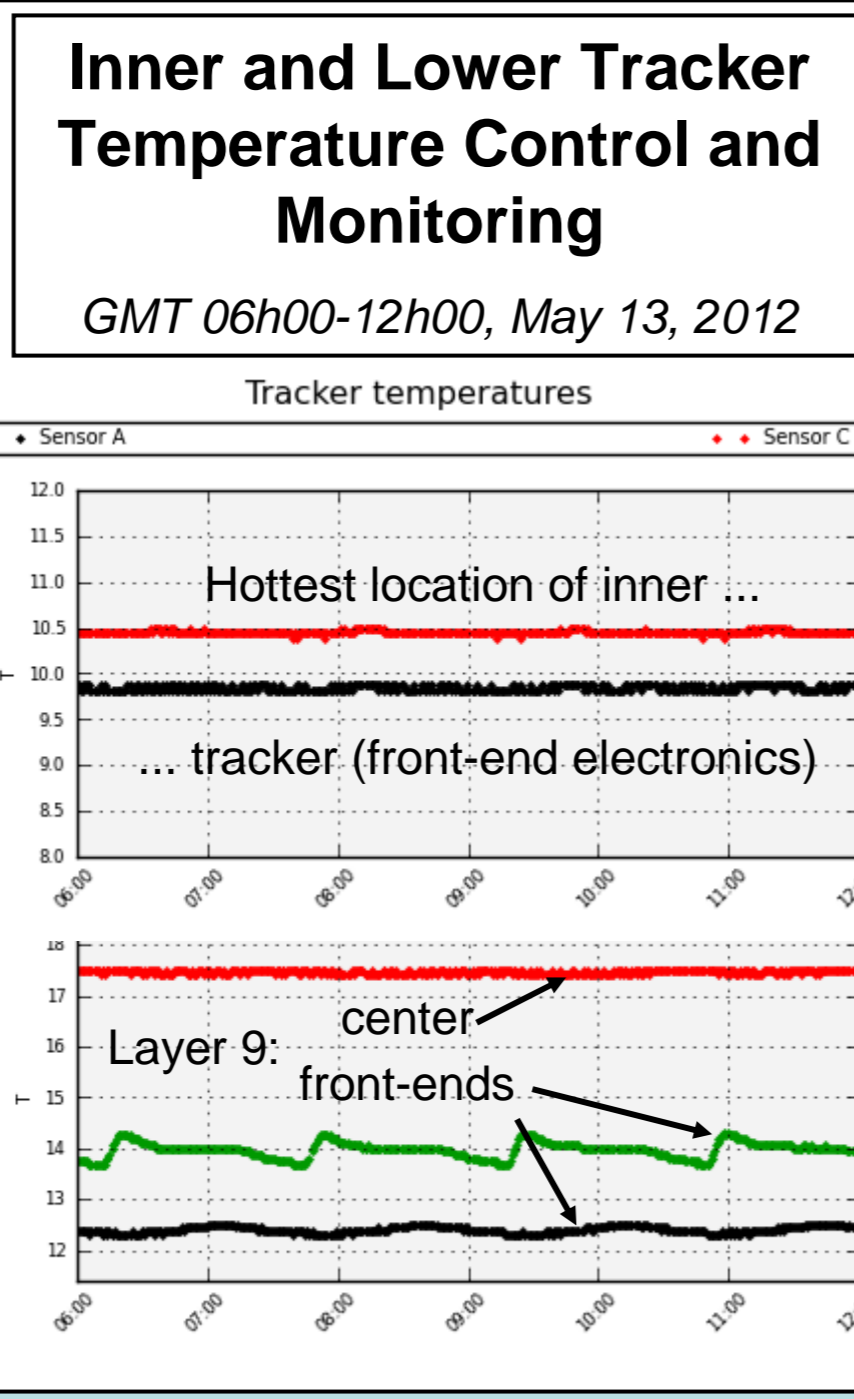
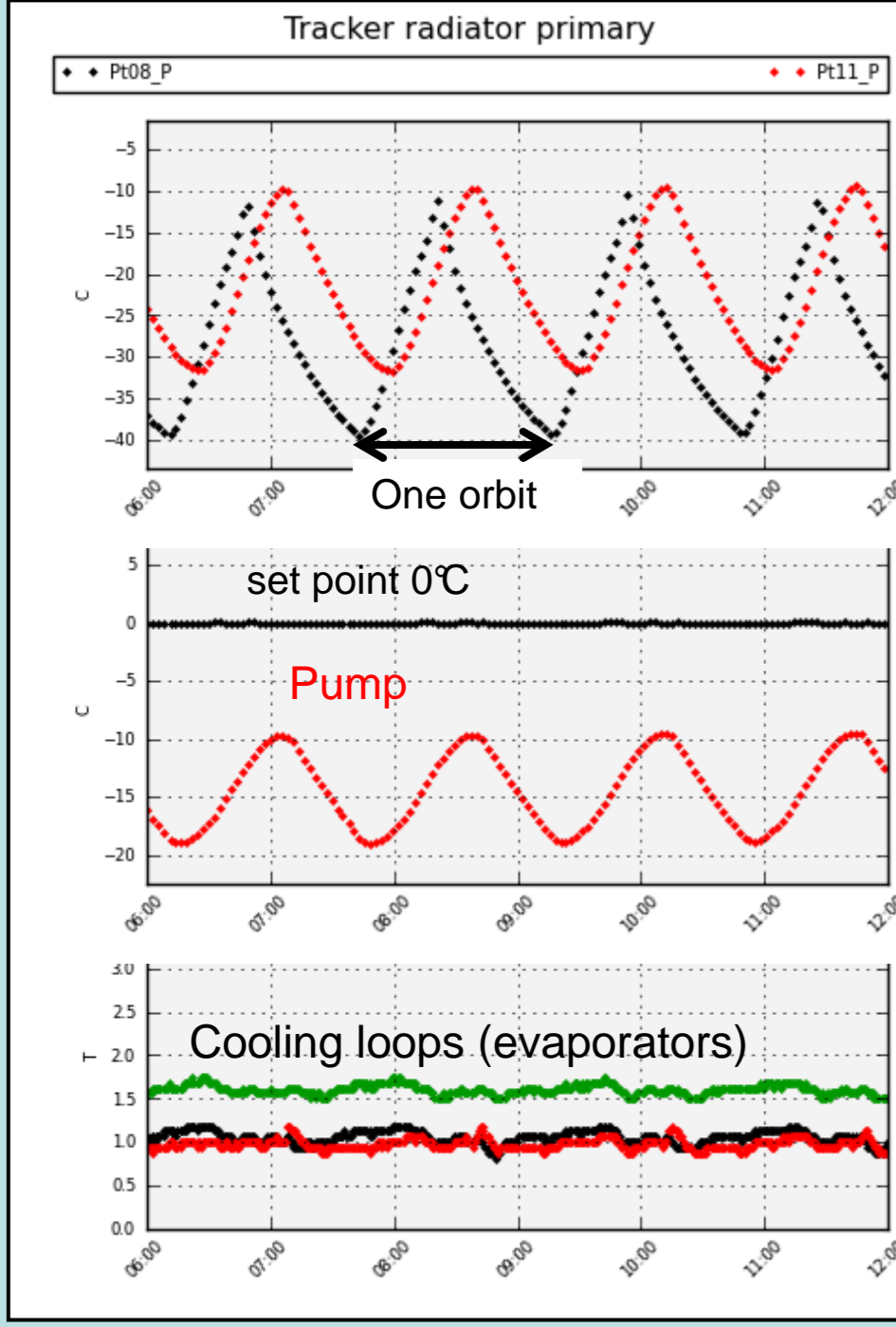
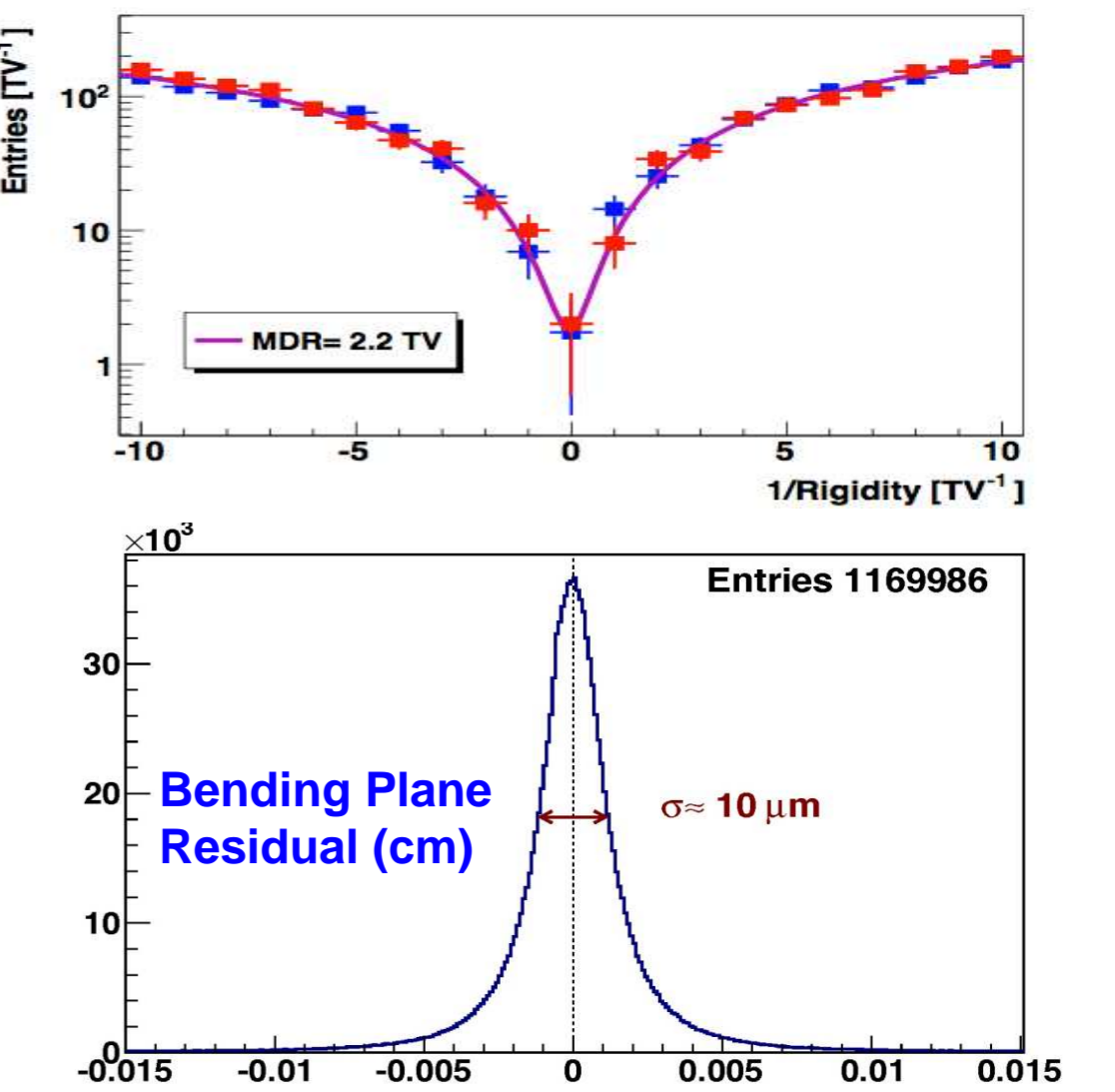
Heat from front-end electronics is conducted through **thermal bars**...

... to **evaporators** (cooling loops)...

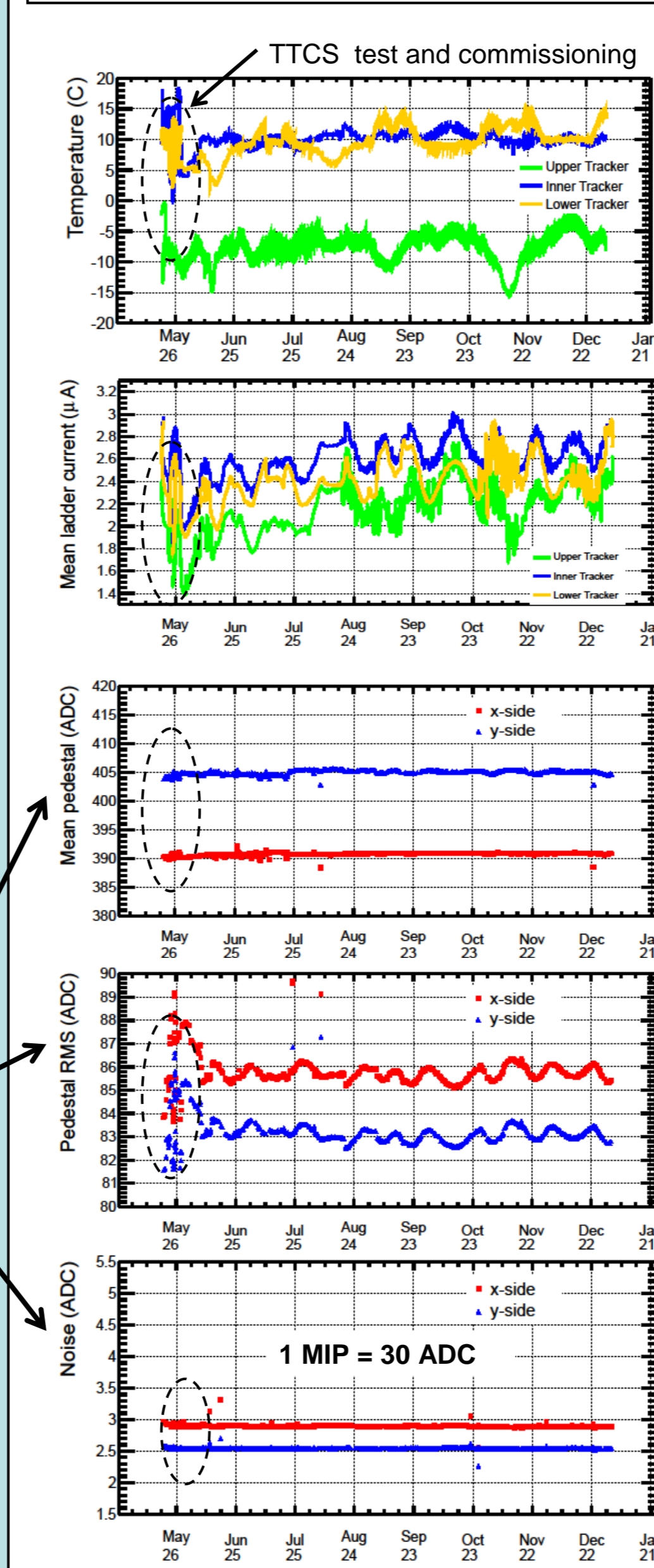
... and finally to external radiators.



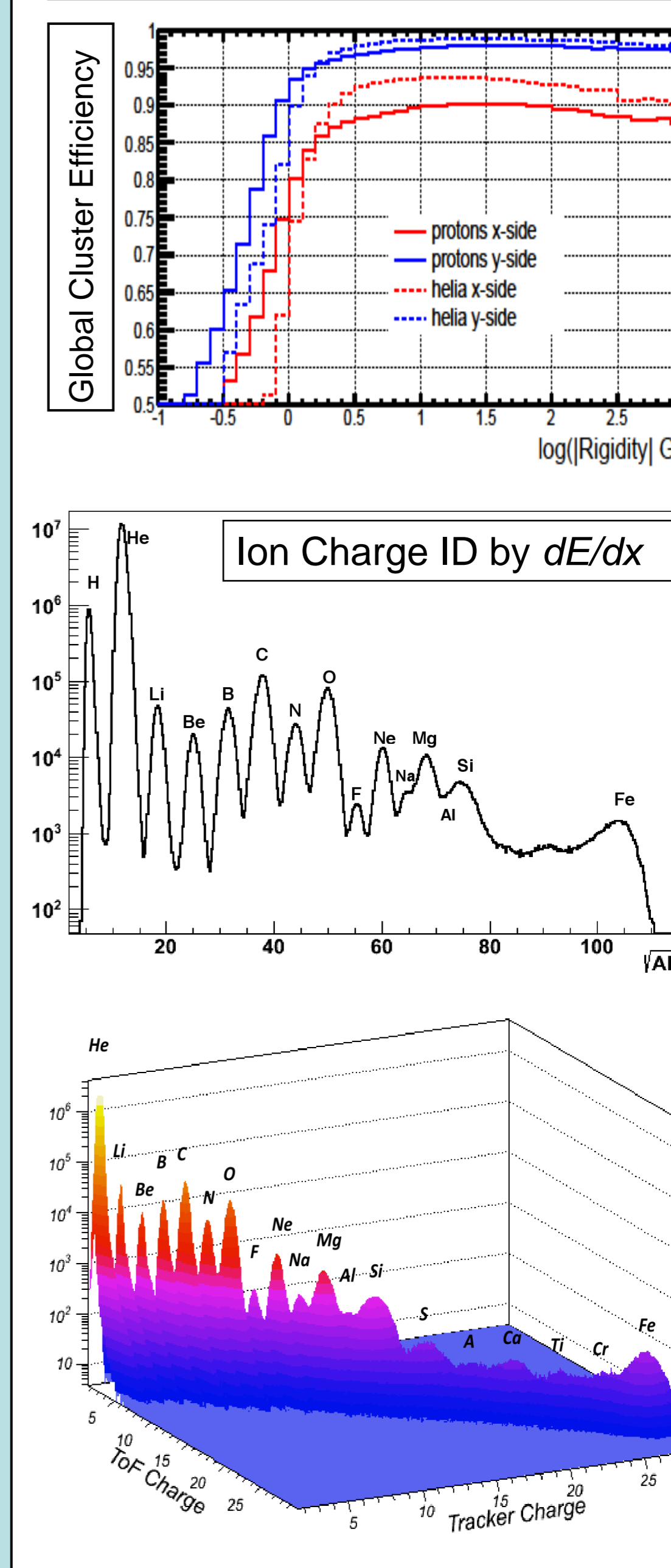
### Performances with Test Beam and Atmospheric Muons



### Tracker Environmental Conditions and Stability



### In Flight Performances



### On-line Calibration Monitoring

