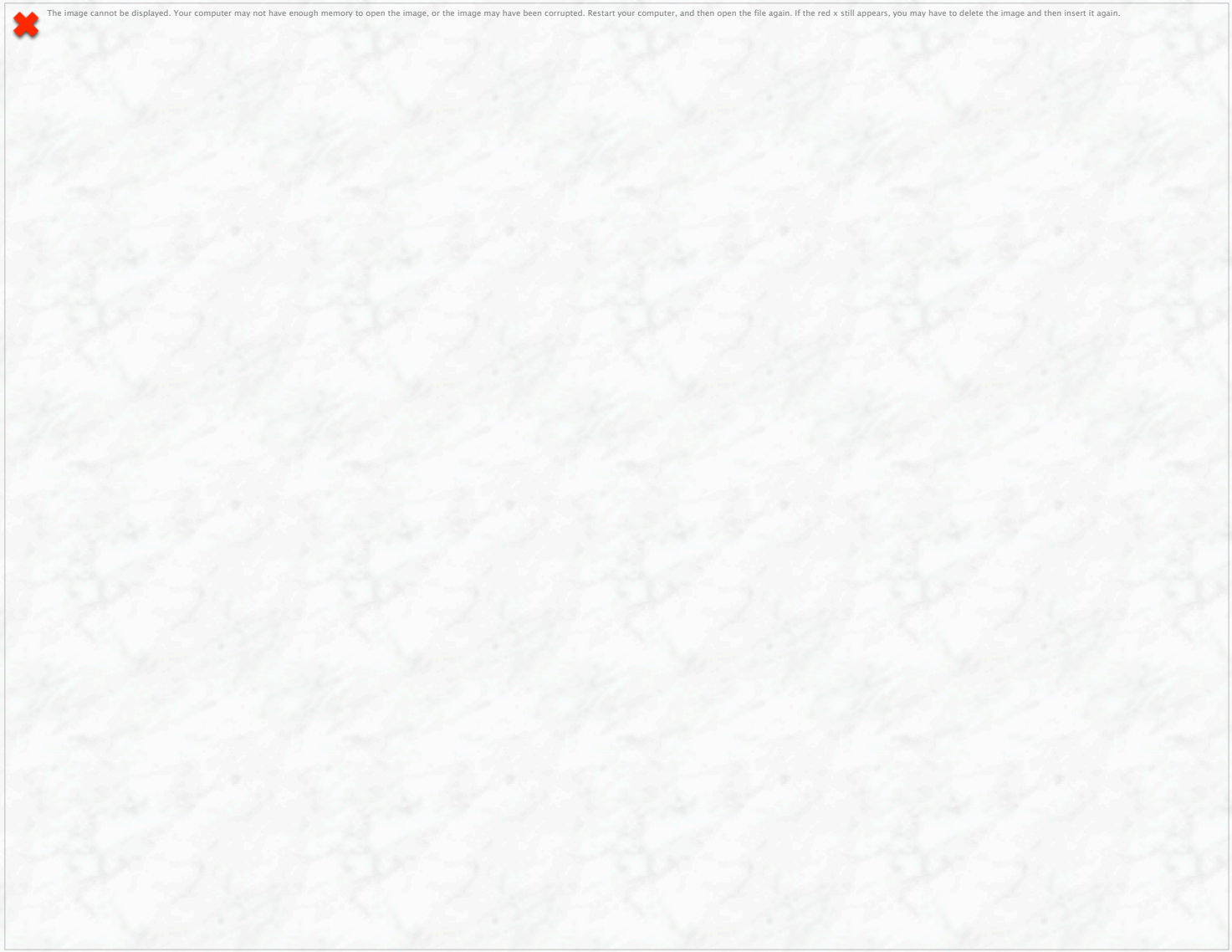
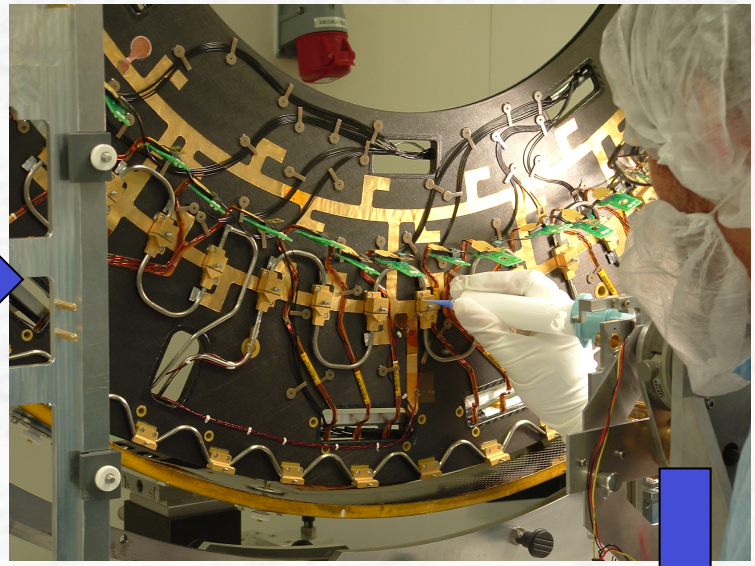
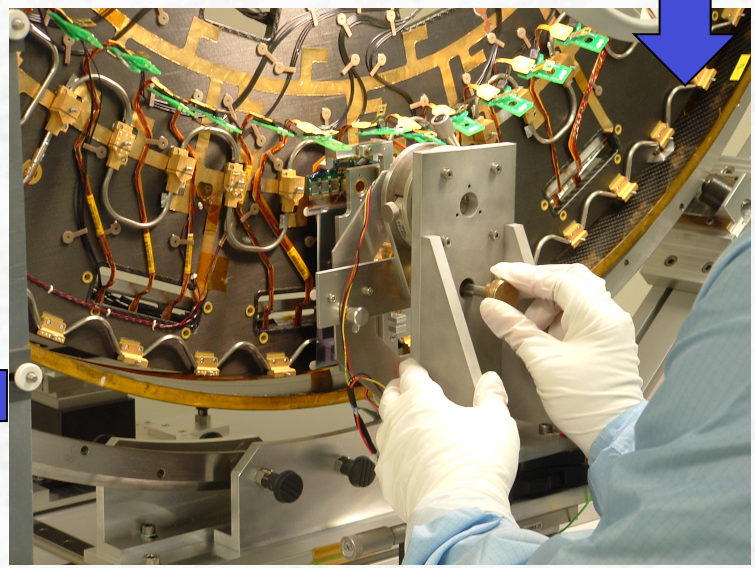
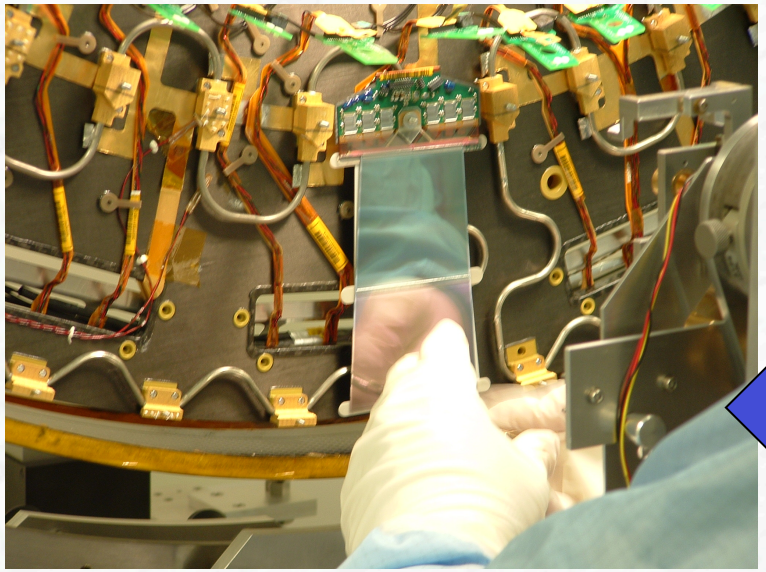
Example: ATLAS SCT Module



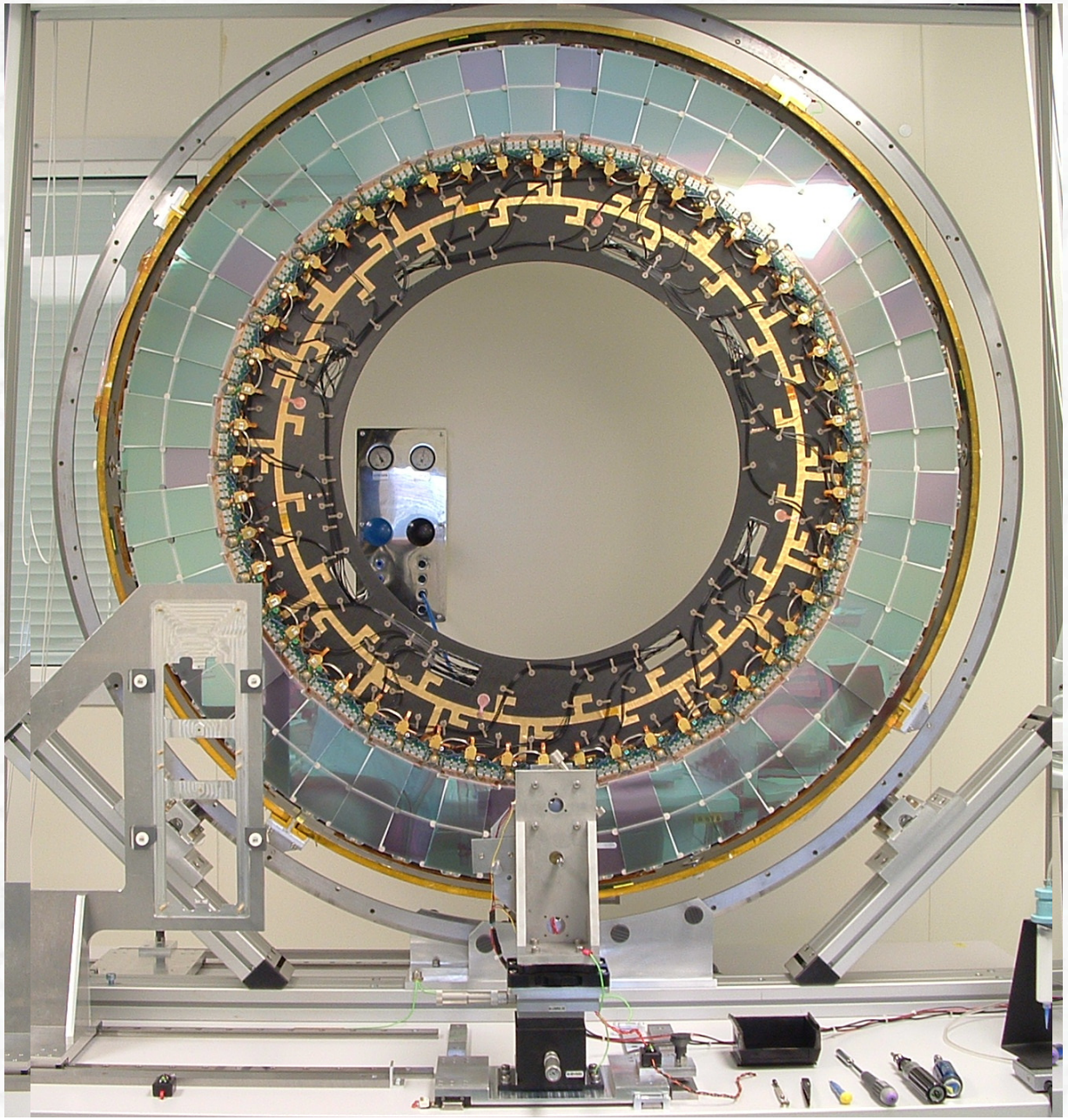
From Module to Detector



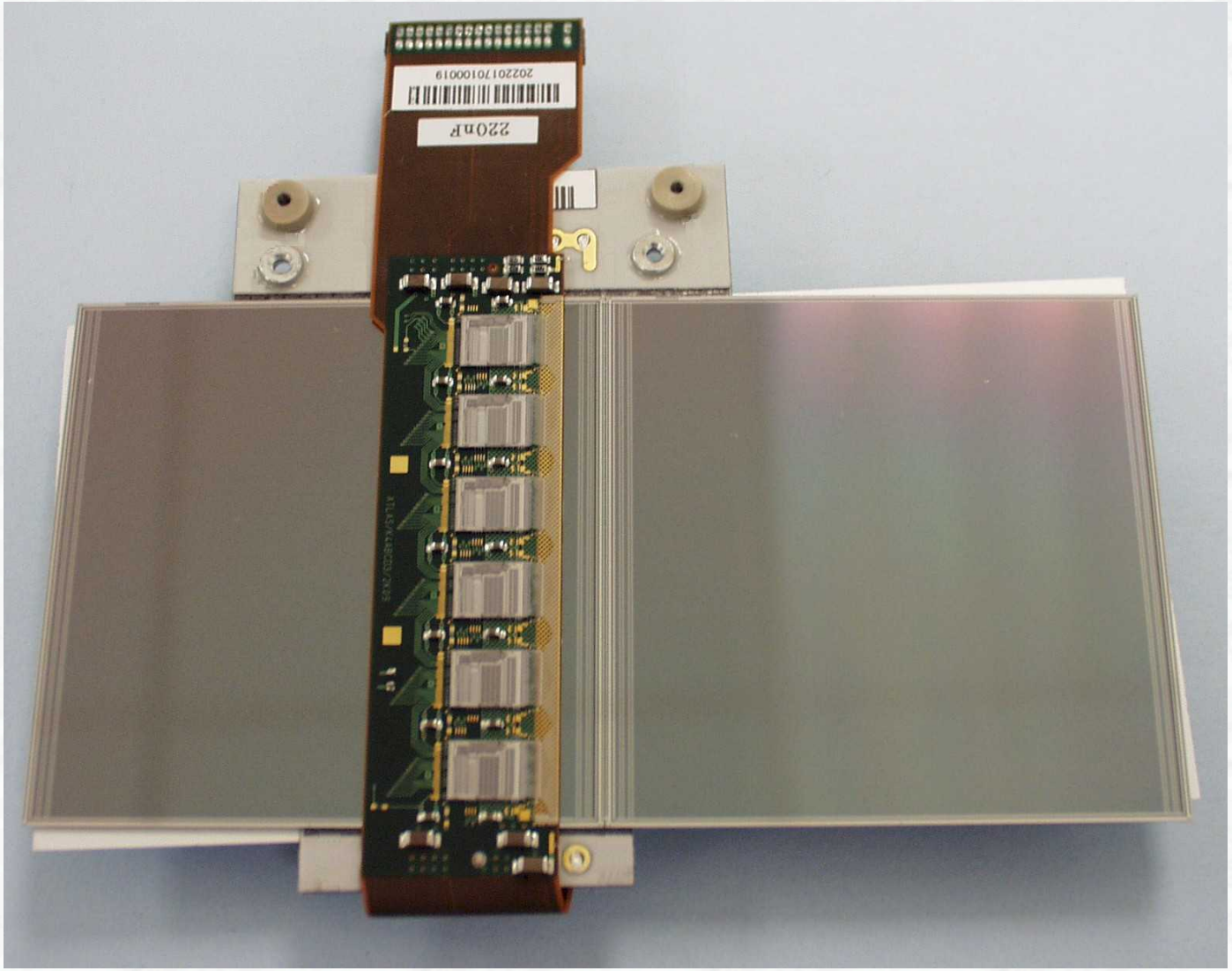




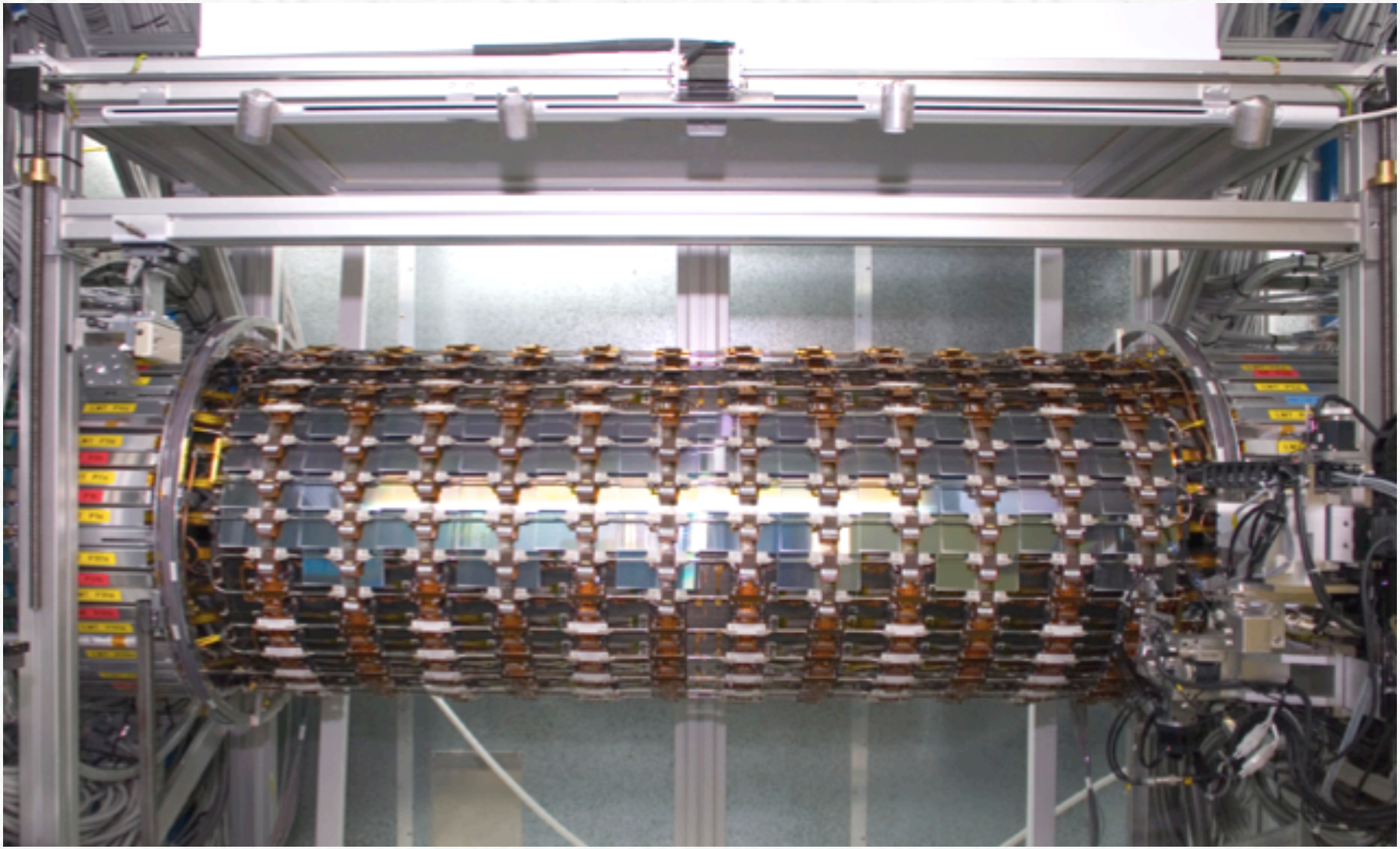
SCT Endcap



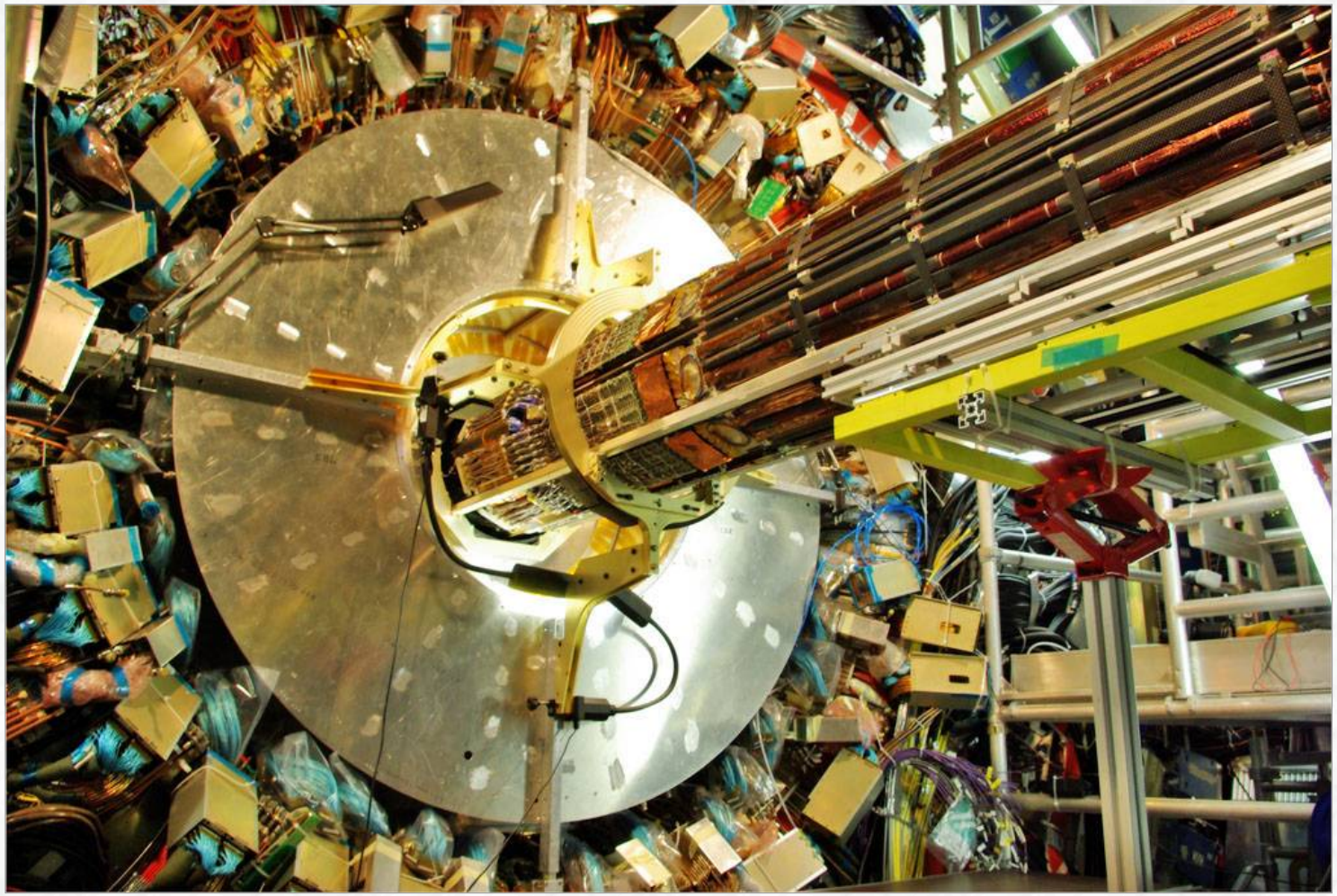
Example: ATLAS SCT Module



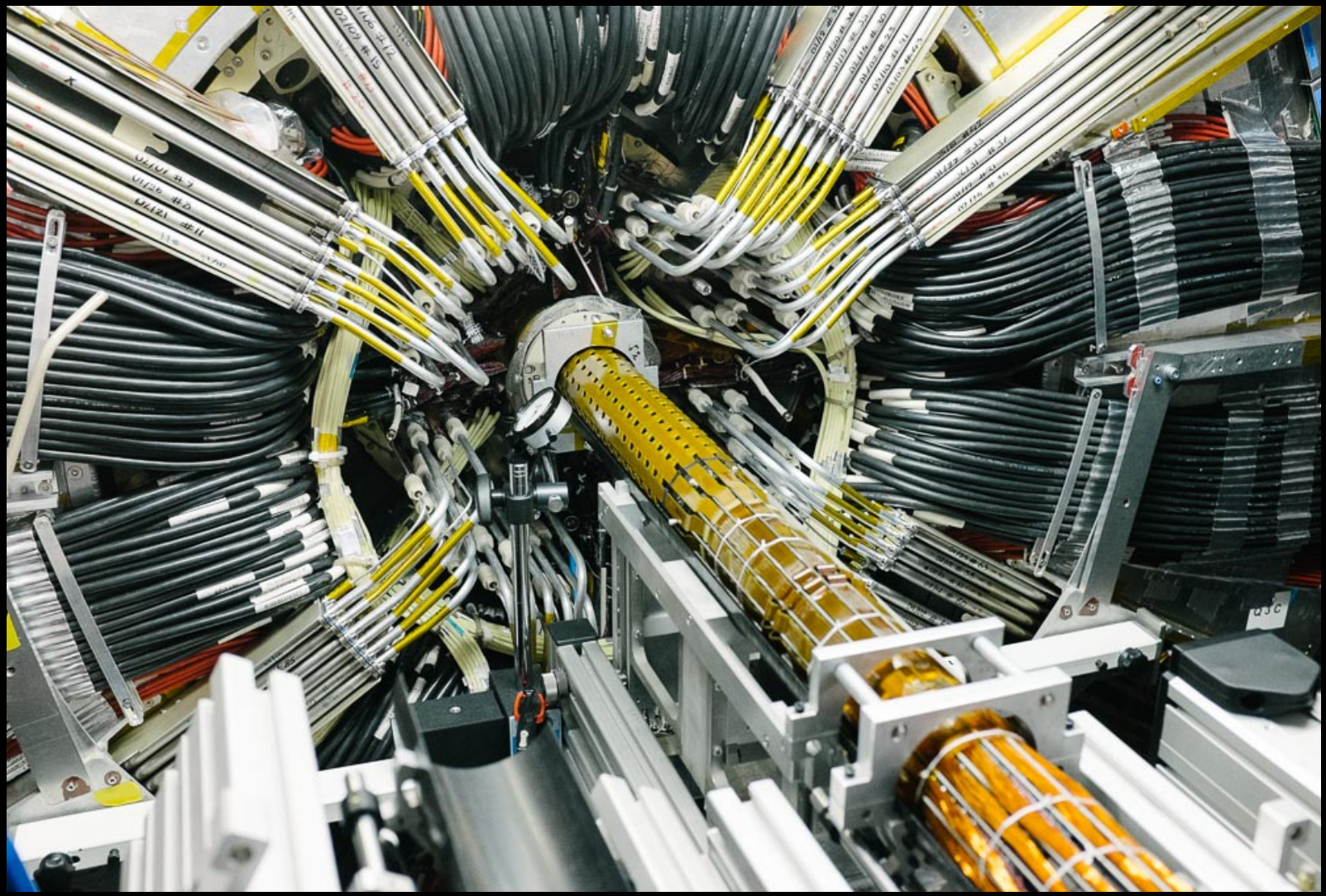
SCT Barrel



ATLAS pixel detector



An additional pixel layer for ATLAS



Installation of an additional pixel layer (IBL = Insertable B-Layer) (7. Mai 2014)

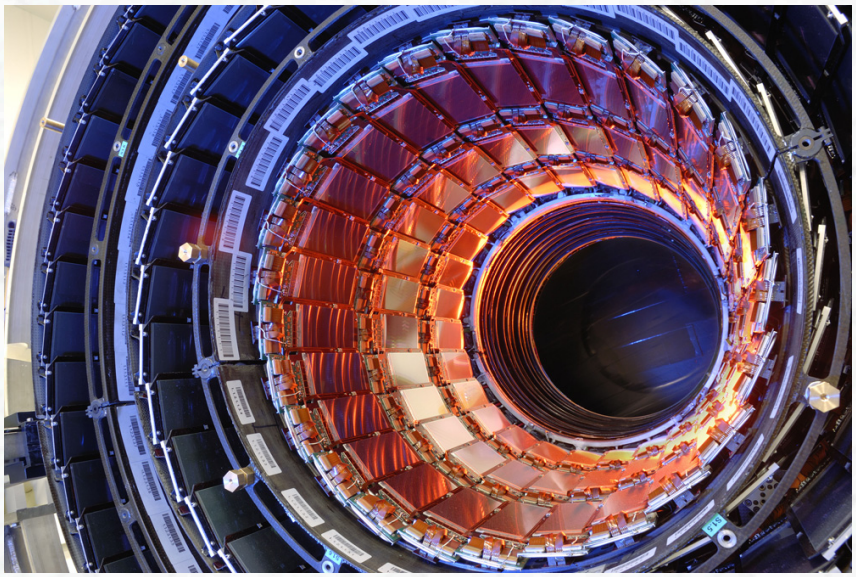
Comparison between the ATLAS and CMS tracking systems

Both use solenoidal fields

- CMS: full silicon strip and pixel detectors
  - high resolution, high granularity

- ATLAS: Silicon (strips and pixels)
  + Transition Radiation Tracker
  - high granularity and resolution close to interaction region
  - “continuous” tracking at large radii

CMS tracking detector



	ATLAS	CMS
Magnetic field	2 T solenoid + independent muon + toroid: 0.5 T (barrel), 1 T (endcap)	4 T solenoid + return yoke
Tracker	Silicon pixels and strips + transition radiation tracker $\sigma/p_T \approx 5 \cdot 10^{-4}\, p_T + 0.01$	Silicon pixels and strips (full silicon tracker) $\sigma/p_T \approx 1.5 \cdot 10^{-4}\, p_T + 0.005$