



Elettra
Sincrotrone
Trieste

Facility report Elettra Sincrotrone Trieste



Ralf Hendrik Menk
Elettra Sincrotrone Trieste
INFN Trieste



Detector needs at facilities 1

- **FERMI FEL**

- large area imagers (almost available)
 - Area $> 25 \text{ cm}^2$ better 100 cm^2 (tiling is ok)
 - QE $> 80\%$ (3 eV - 2000 eV)
 - single photon resolution
 - High dynamic > 16 bit
 - Frame rate > 50 fps
- In situ beam monitors (wishlist)
 - Beam position, Beam cross section, Beam intensity
- Ion and e^- TOF detectors (so far relying on classical solutions)
- THz detectors with spatial resolution (so far off the shelf)

Detector needs at facilities 2

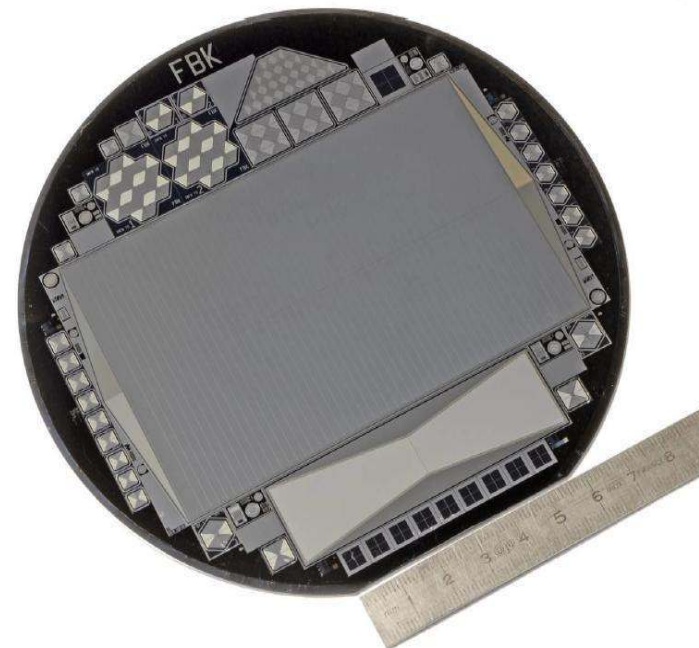
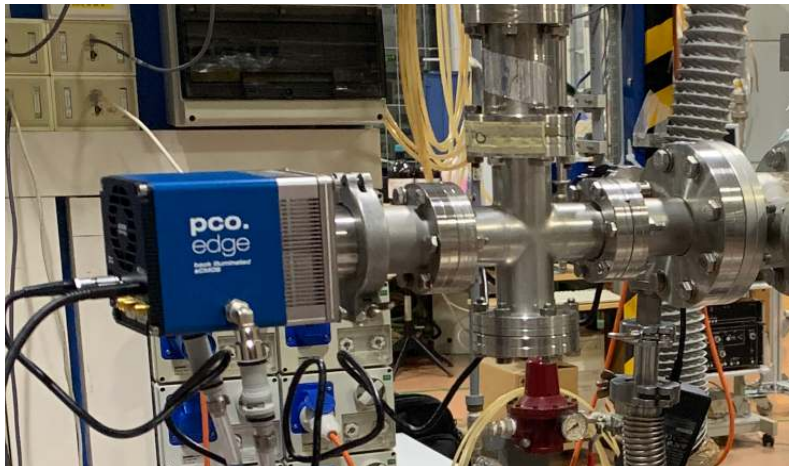
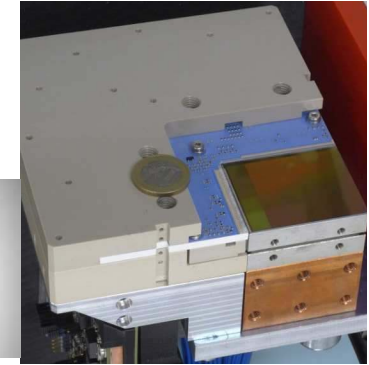
- **Elettra 1+2**

- XRD, powder diffraction, etc -> commercial products
- large area imagers (almost available)
 - Area > 25 cm²
 - QE > 80 (3 eV - 2000 eV)
 - single photon resolution
 - High dynamic > 16 bit
 - Frame rate > 50 fps
- In situ beam monitors (almost available)
 - Beam position, Beam cross section, Beam intensity
- 2-d e⁻ detectors (inhouse so far relying on classical solutions)
 - Electron analyser / MCP / cross delay line or similar
- THz detectors with spatial resolution (so far off the shelf)
- Multi element spectroscopic detectors (inhouse SDDs almost available)
- Spectral imaging (on wishlist)
 - Spectral detectors
 - Optics + detector
- Fast photon counters (inhouse GaAs SAM APDs, SiPM almost available)
- Scalable imaging (on wishlist)

Current status 1

• FERMI FEL

1. large area imagers (PERCIVAL almost available)
 1. DEPROI beamline CDI
2. Collaboration with industry (PCO Edge Bi)
 1. General purpose soft x-ray imager



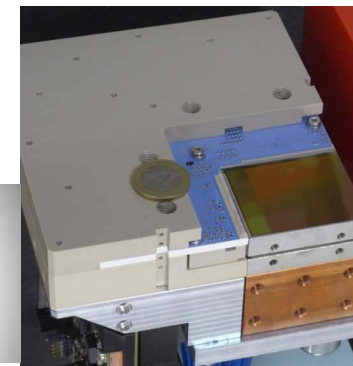
3. large area planar SDDs (wishlist)
 1. CDI

Current status 2

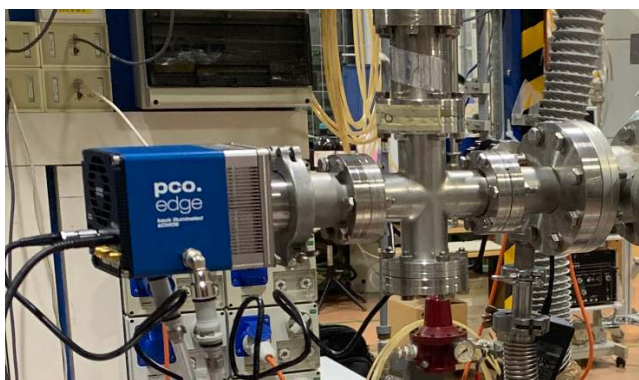
- **Elettra 1+2**

1. large area imagers (PERCIVAL collaboration almost available)

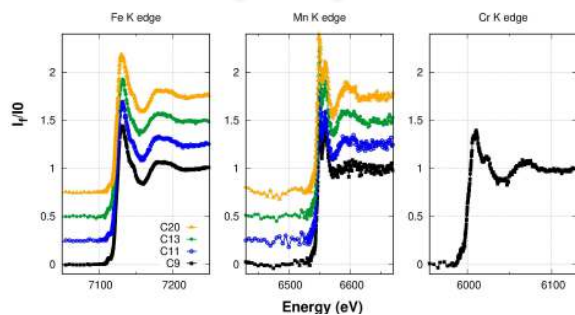
1. soft x-ray microscope
2. pythography



2. Collaboration with industry (PCO EDGE bi)



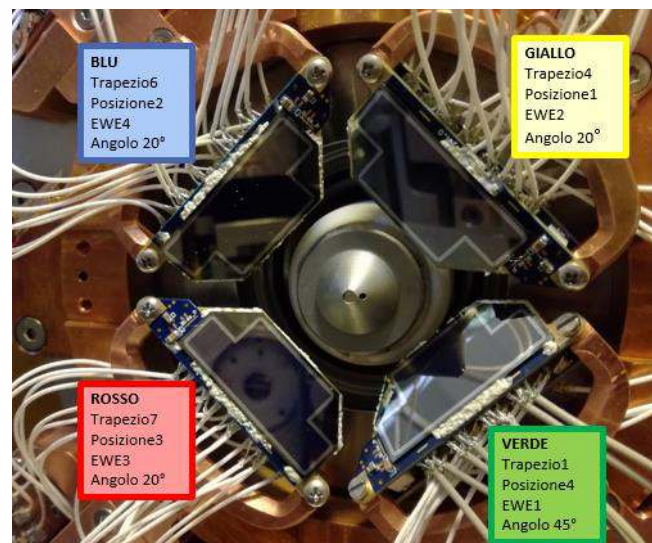
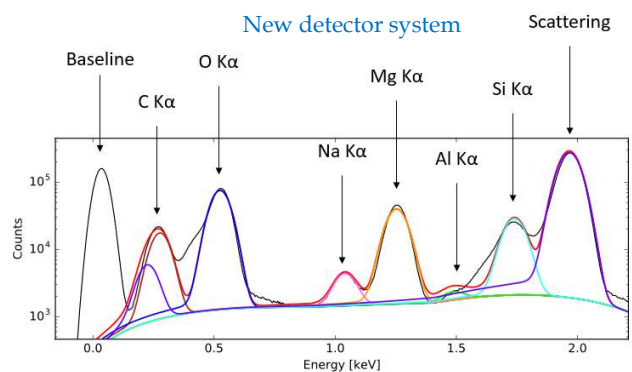
3. Multi channel (64#) SDD for EXAFS (Redsox collaboration)



Current status 3

- Elettra 1+2**

- Soft x-ray multi channel (32#) SDD



- 1d and 2d electron detectors (MCP coupled to cross delay lines)

