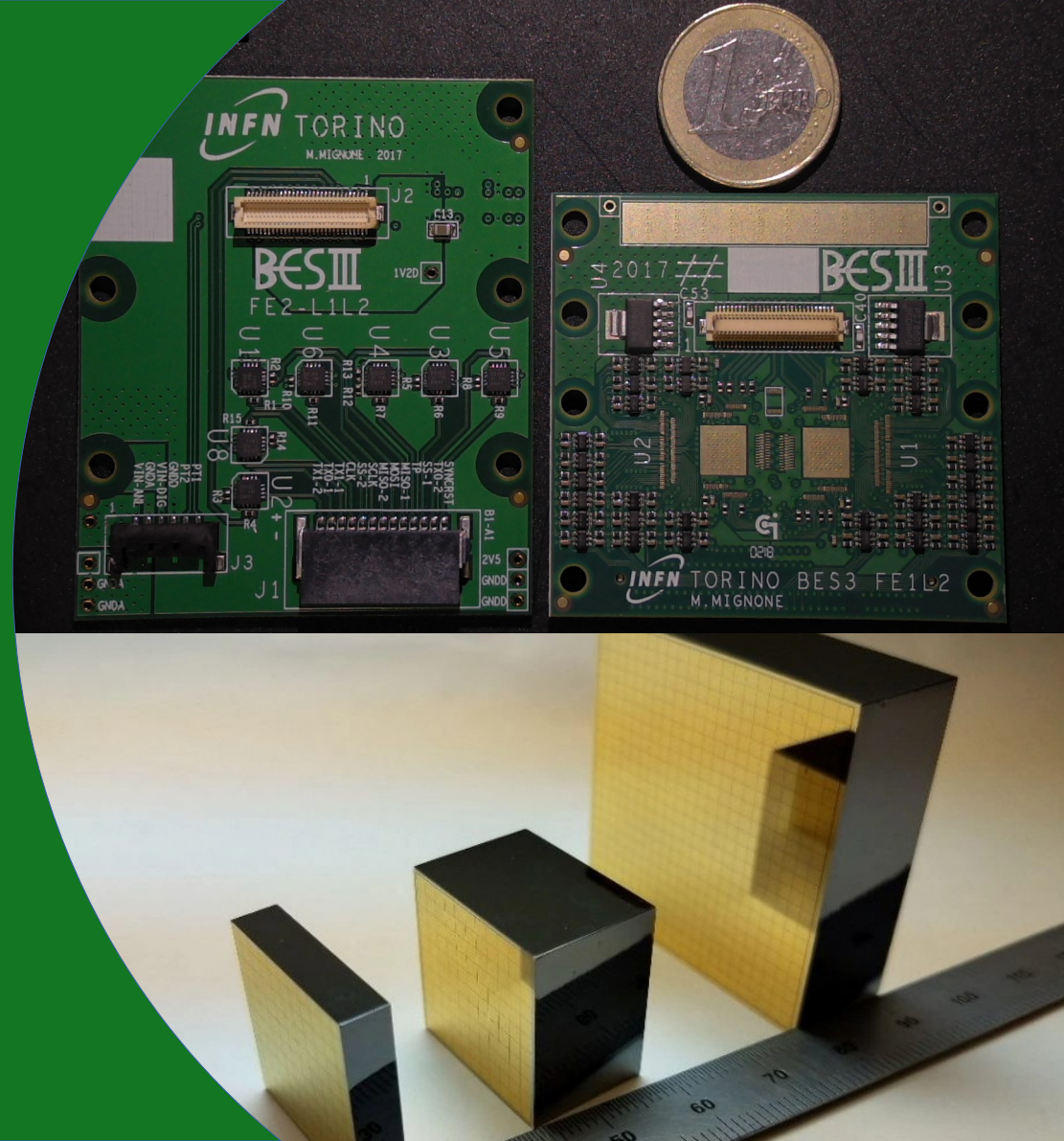


# SPECTRE and Lab 334: The Latest Updates

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# NEW PC CONFIGURATION IN LAB 334

- Two new PCs dedicated to the data acquisition with the TIGER-GEMROC electronics
- Three DOC stations are already registered in the lab (one with a monitor, two standard)
- Dedicated email for windows activation: [pifelaboratory334@gmail.com](mailto:pifelaboratory334@gmail.com)

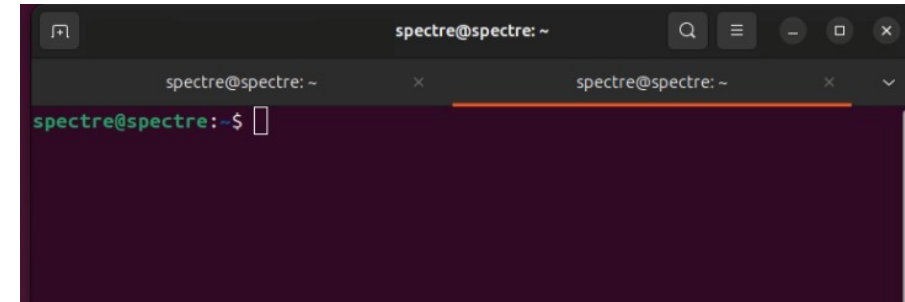
- Current Drive Inventory



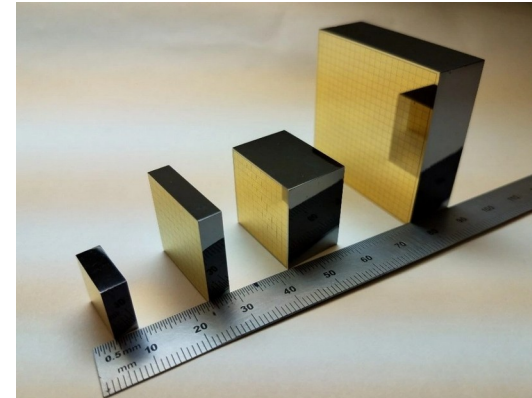
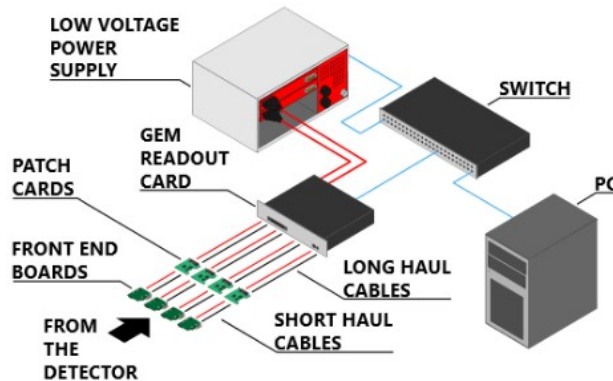
| dispositivo | MAC               | IP statico     | nome registrato        | account |
|-------------|-------------------|----------------|------------------------|---------|
| SuperPC334  | d0 94 66 2b d7 1b | 192.84.144.194 | pcbesiiiLAB (verifica) | spectre |
| pc1 334     | C8 53 09 62 bf 01 | no             | 334PC1                 | pc1     |
| 334pc2      | c8 53 09 62 bc 74 | no             | 334PC2                 | pc2     |

- SPECTRE PC accessible via SSH from the UniFE network

(We've requested access to this machine for our SPECTRE colleagues in Turin)

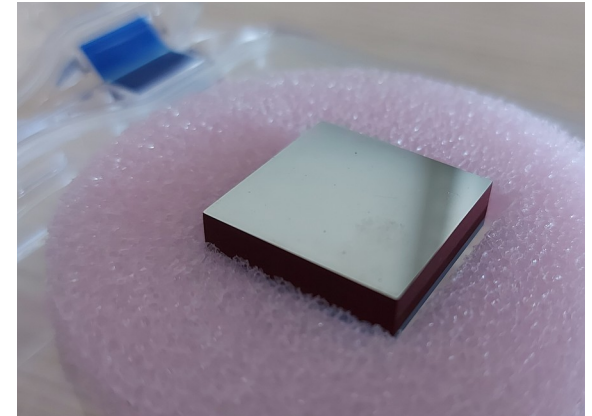
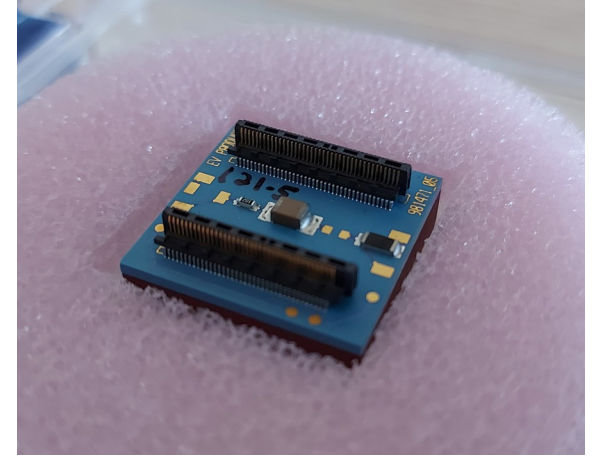


- The goal is the design and implementation of a complete detection system based on **Cadmium Zinc Telluride (CZT)** sensors coupled with TIGER-GEMROC readout
- CZT-based detectors are widely recognized in the industry as the next step forward Single Photon Emission Computed Tomography - SPECT (**kromek**)
- TIGER-GEMROC is a versatile and scalable readout system, designed for CGEM-IT detector, the new inner tracker of BESIII experiment

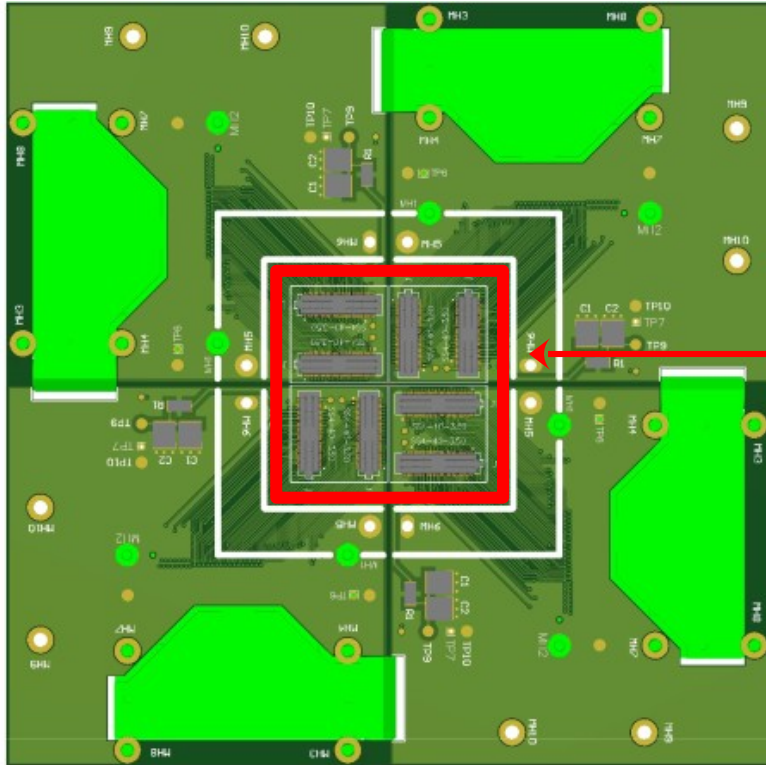


# Kromek CZT sensors

- 22 mm x 22 mm x 5 mm, 121 pixels
- 80 pin Samtec strip connectors (ST4-40-1.50-L-D-P-TR)
- 220 e<sup>-</sup> produced per KeV (declared by manufactory)  
→ @ 140KeV, 30800 e<sup>-</sup> →  $4,928 \times 10^{-15}$  C
- Input capacitance 10 pF



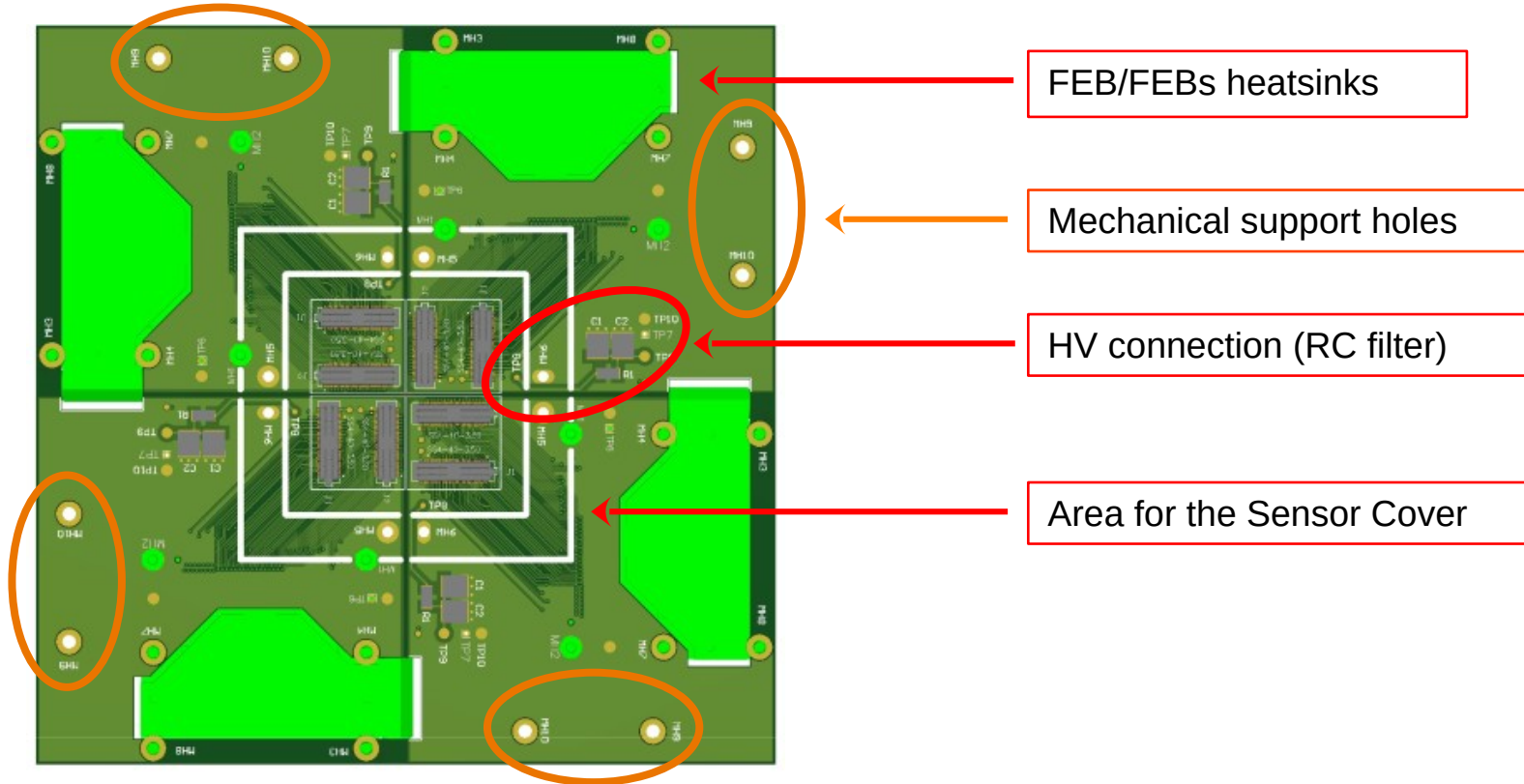
- Definition of the power supply and CZT-TIGER interface card (2X2 matrix)



Connectors for the sensors,  
In this configuration the sensor are  
separated by 0.5 mm



- Definition of the power supply and CZT-TIGER interface card (2X2 matrix)



- Production of the interface card → power-ON our sensors
- Definition the mechanical design, needed for the collimator and radioactive source support  
→ (with in September 2025)
- Ongoing Simulation Efforts (1 sensor → 4 sensors)
- Realization of the mechanics (task for 2026)

- 30/06 – 14/07 → Detector school in Prague
- Second half of July → travel to Turin to power-ON their sensor and work on the data acquisition (to be defined)
- 13/10 – 17/10 (27/10 – 31/10) → visit to the nuclear physics lab in China, with IHEP colleagues (to be defined)

# THANK YOU FOR YOUR ATTENTION!

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