

# R2E Test Campaign in North Area H8

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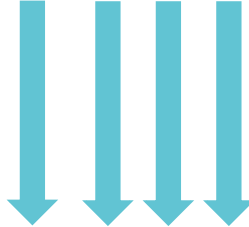
# Scope and background

- Two past test campaigns by R2E: **2017 Xe run**, 19-75 GeV/u, at **H8-128** and **2018 Pb run**, 150 AGeV, at **H8-138**.
- **2022 test campaign. Pb run 150 AGeV.** Objectives:
  - **Characterise primary ion beam by means** of R2E devices, on live
    - ESA Monitor (beam homogeneity), silicon diode (beam energy and time structure), TimePix and radchromic films (beam profile).
  - **Evaluate secondary field generated by beam PMMA fragmenter.**
    - Silicon diodes, TimePix and SRAM memories.
  - **Measure SEE cross-sections of comertial electronic devices.**
    - SEU- and SEL-susceptible SRAM memories and power MOSFETs.
- **Beam properties:**
  - More than 4 days of very stable heavy ion beam.  $5E5$  counts/spill in scintillator. Roughly  $5E4$  heavy-ions/spill from our detectors.
  - Very broad beam (3-4 cm diameter) with reasonably low fragmentation.
  - Slow-extracted beam (10s duration).
- **Special acknowledgments:**
  - All foreseen measurements could be performed!
  - Many exchanges for test preparation: Bastien Rae, Michael Lazzaroni, Iñaki Ortega, Yann Pierre Pira,...
  - Hard work tunnng the beam: Johannes Bernhard, Anna Baratto, Maarten Van Dijk,...

# Experimental setup

Multiple layers of detectors: Silicon diodes, ESA Monitor, TimePix, RPLs

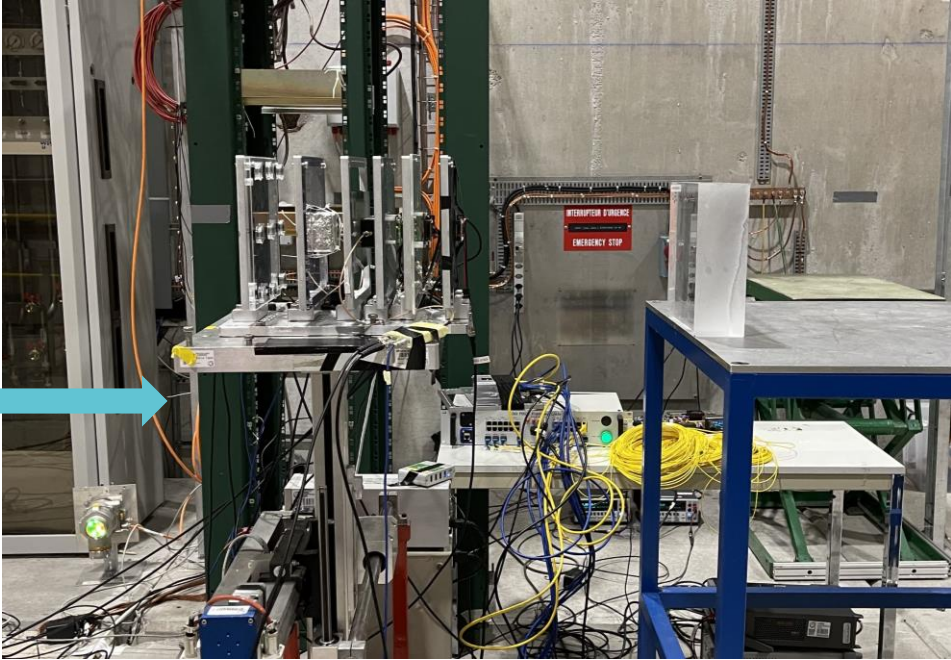
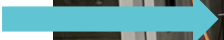
Devices Under Test: SRAM memories, Power MOSFETs,



PMMA fragmenters – 1 to 12 cm

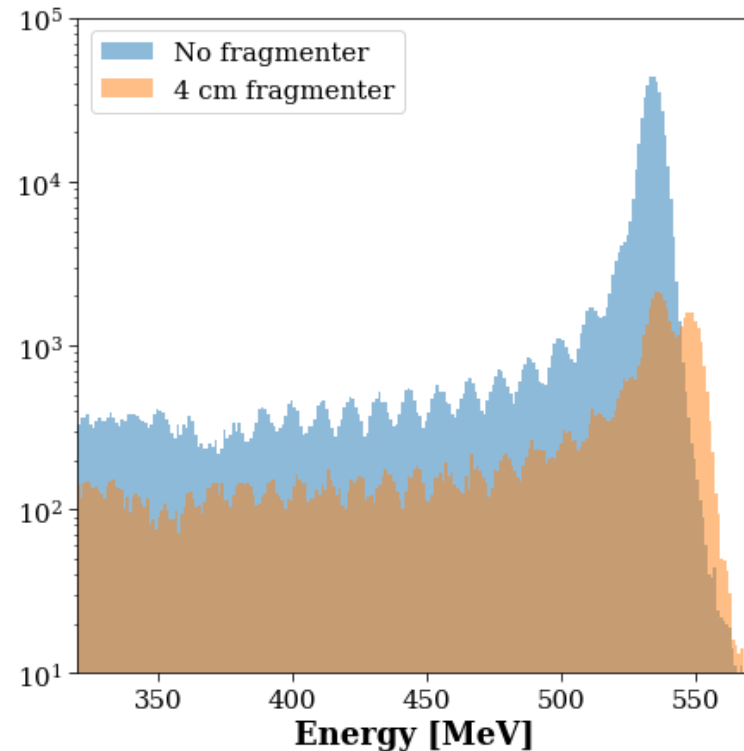


XY table

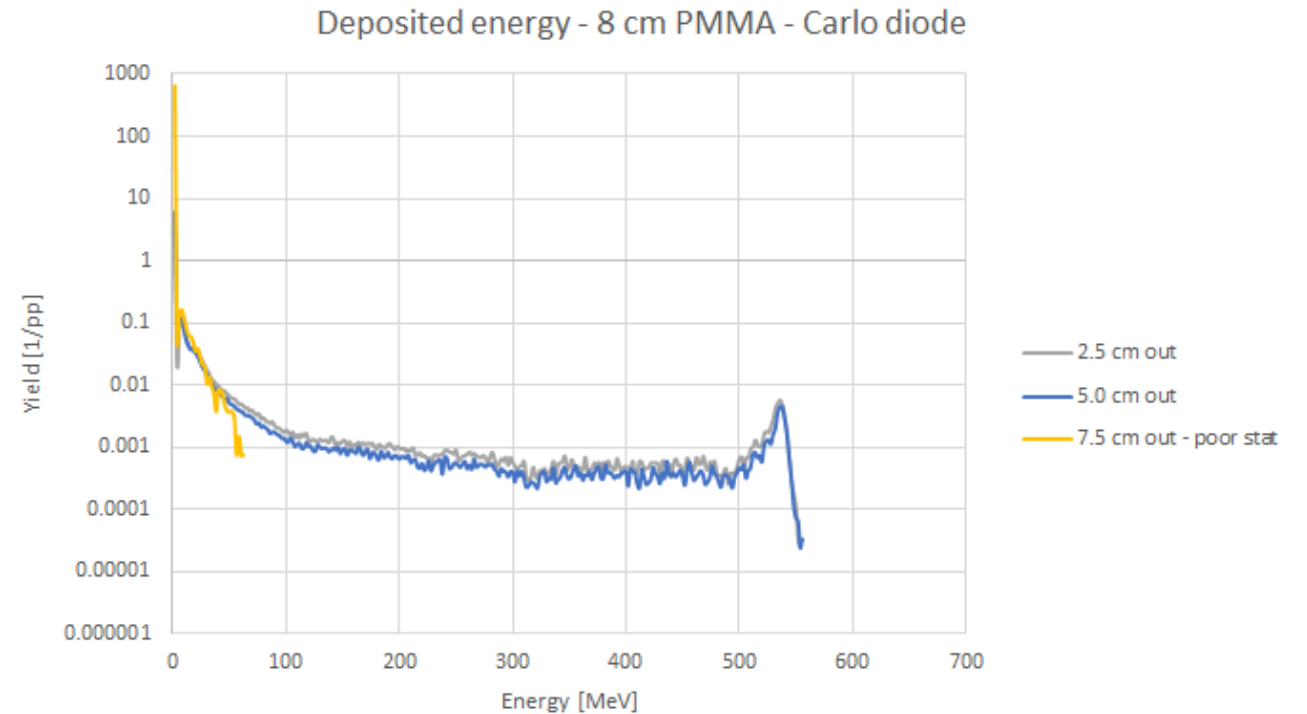


# Some (very) preliminary results: Diode detectors

Silicon diodes – Fragment composition



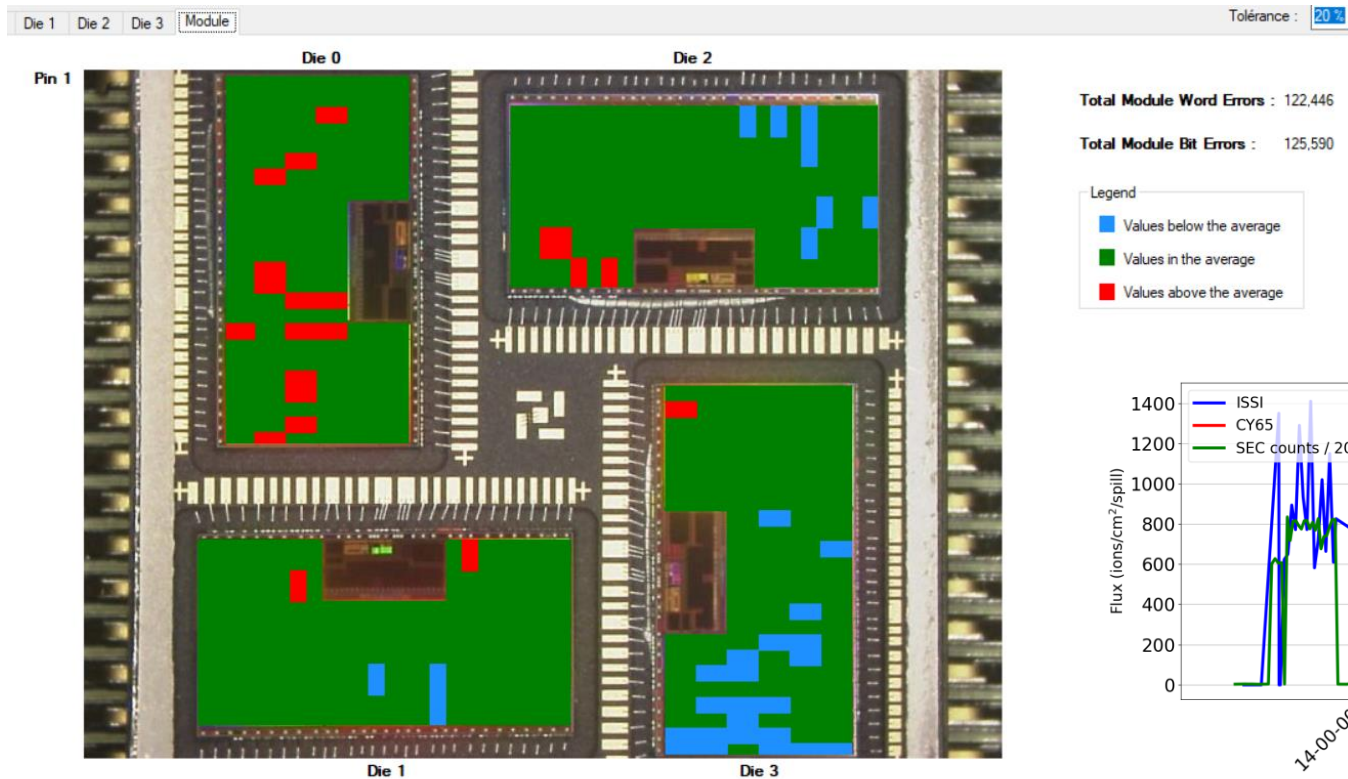
PMMA fragmented beam spatial structure



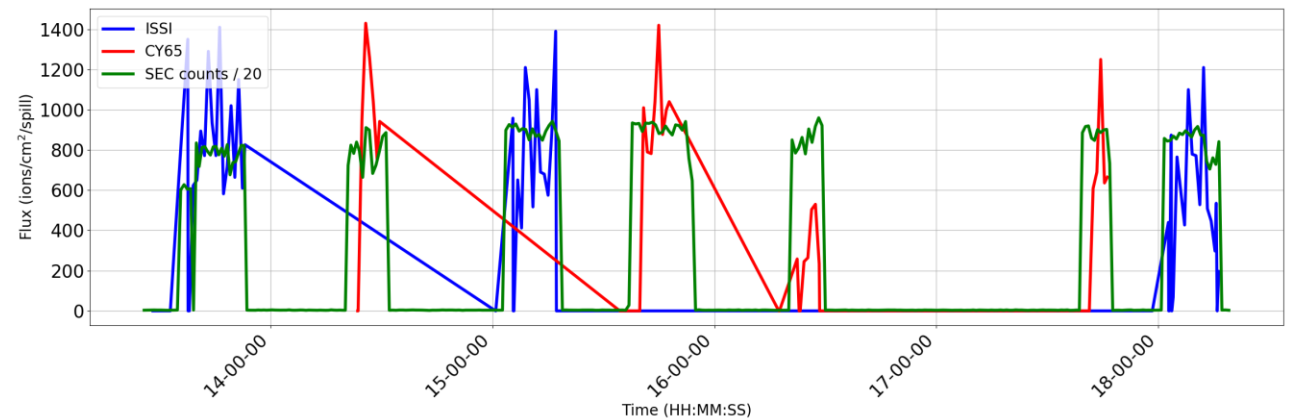
Input and expertise from diode team: Natalia Emriskova, Kacper Bilko, Andreas Waets

# Some (very) preliminary results: SRAM detectors

ESA Monitor – Beam homogeneity and alignment

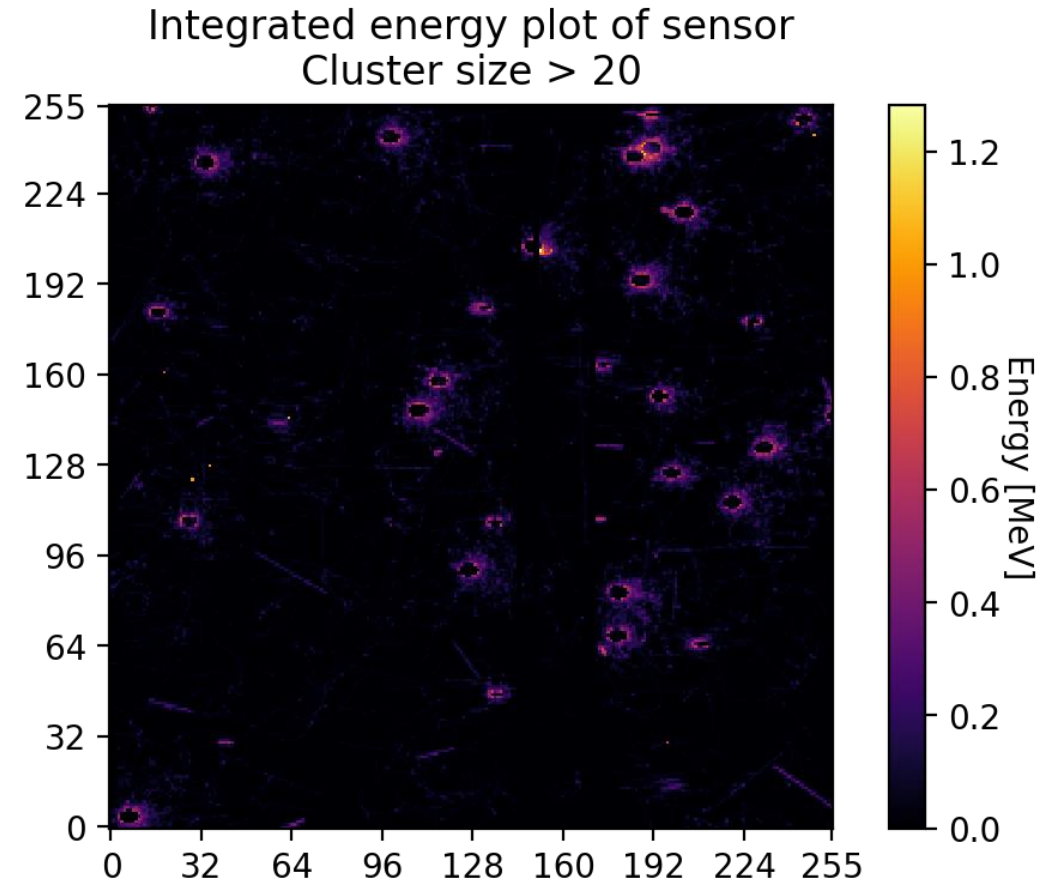
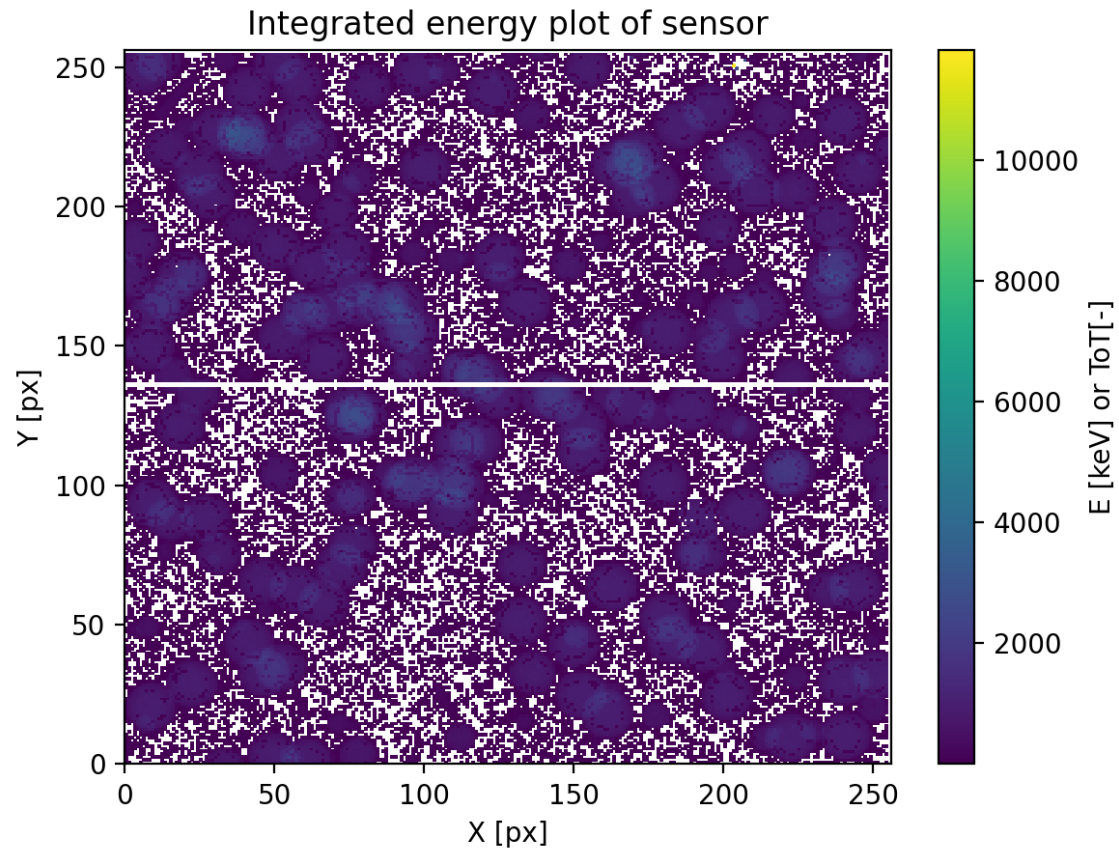


SRAMs and Scintillator - Flux comparison

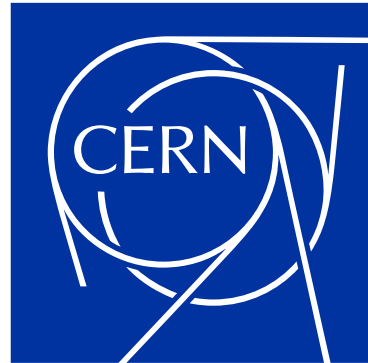


Input and expertise from SRAM team: Matteo Cecchetto, Andrea Coronetti

# Some (very) preliminary results: TimePix



Input and expertise from TimePix team: Ivan Slipukhin, Daniel Prelipcean, David Lucsanyi



Thank you for your attention! Questions?

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