

# CERN SPS experiments

**Proba-V [30.4 – 7/9.5]: Erik Heijne + Carlos Granja [Prague]**



## Motivation/goals

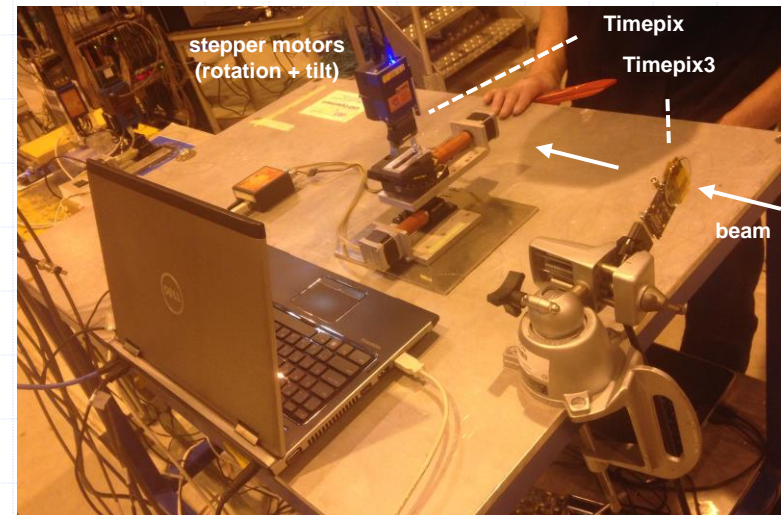
- Calibration of spacecraft payload's Timepix on board ESA's Proba-V satellite
- Calibration/testing of Timepix devices for ATLAS-TPX & MoEDAL experiments
- Characterization of Timepix/Timepix3 detectors with GeV particles (space, hadron radiotherapy)
- Evaluation of detector resolving power (particle species, energy range, direction) +  $\Delta e$ 's

## SPS beams + [days] + hall location

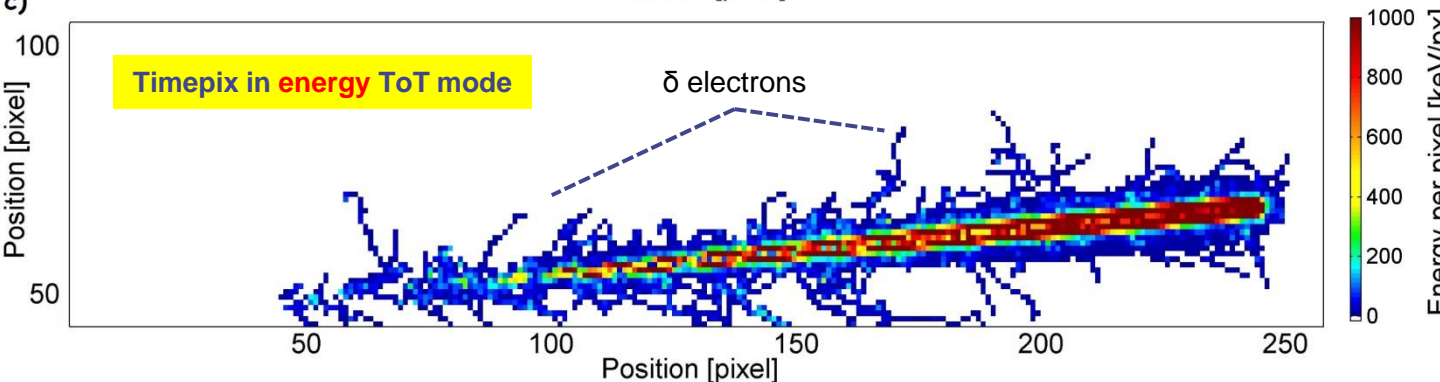
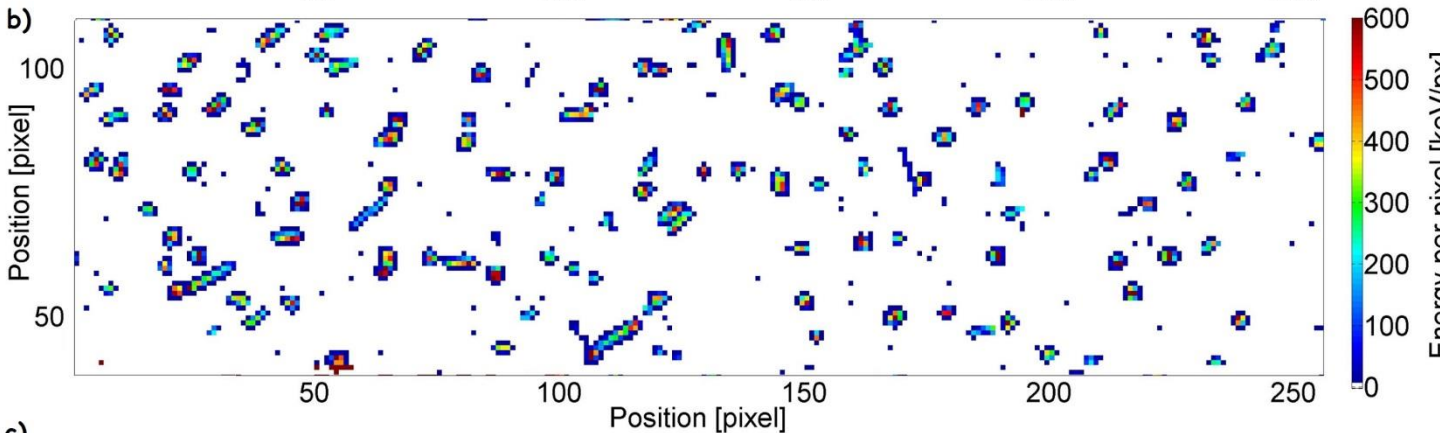
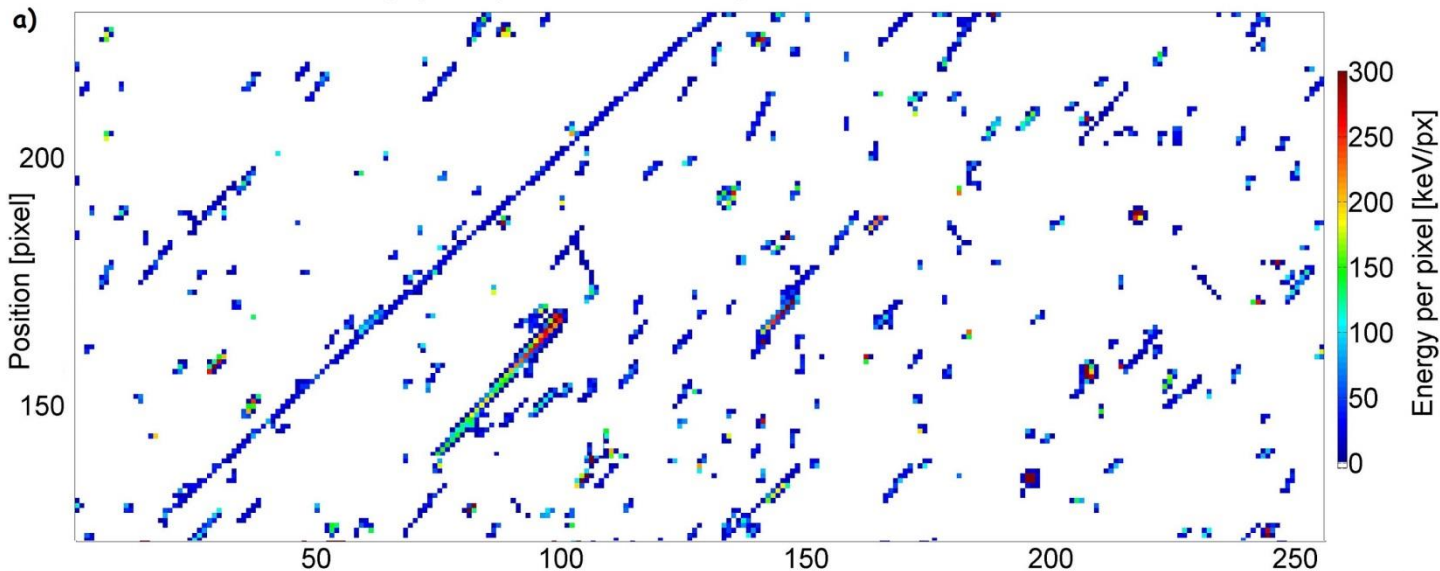
- **protons + pions + muons**: few energies (min, max, middle) [2 days]
  - **muons**: few energies (min, max, middle) [1 day]
  - **electrons**: few energies (min, max, middle) [3 days]
- }  $\approx 7$  days
- all beams: low intensity (e.g.  $10^3$  per spill), large size (1-2 cm), parallel non-divergent
  - PPE142 barrack 1A47 [electrons] + PPE172/PPE142 [hadrons]

## Instrumentation/setup/detectors

- Hybrid semiconductor pixel detectors (Timepix, Timepix3)
- 3-5 compact setups altogether fit in one table (1 m x 50 cm) incld. Stepper motors, holders, power
- most measurements without any targets (only small PMMA, Al ~ cm for few hours)
- 3-5 laptops, no NIM-crates, no cryogenics, no magnets
- several standard AC power plugs, few Ethernet cabling



SATRAM payload (TPX 300 um silicon) onboard ESA Proba-V satellite in LEO orbit



- Quantum imaging detection
- Resolving power radiation components
- directional sensitivity
- dE + track path  $\rightarrow$  LET

