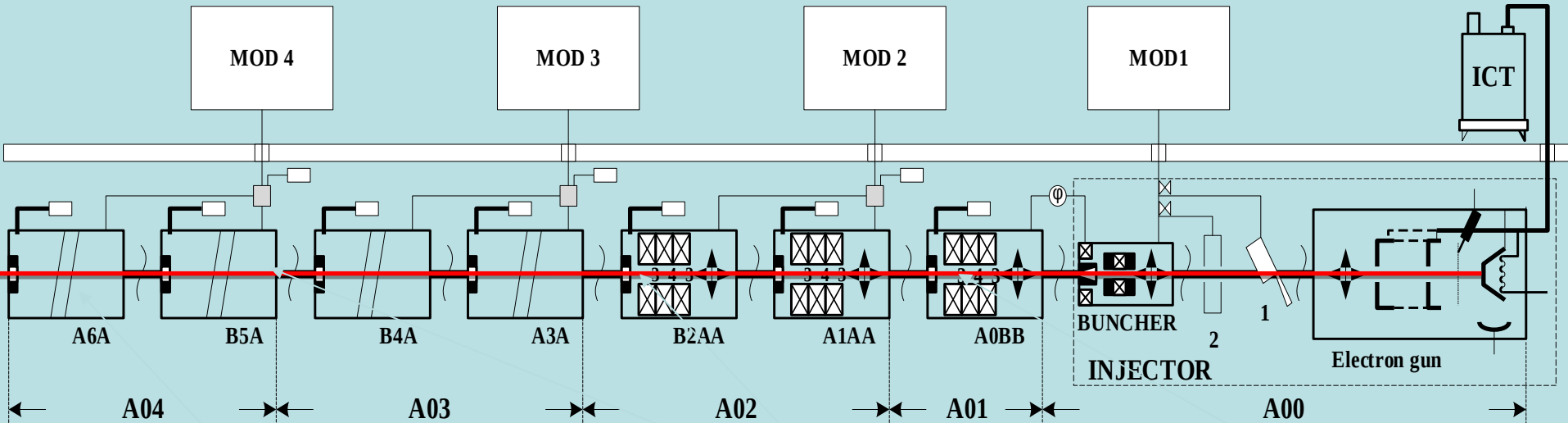


**Linear electron accelerator LINAC-  
200.  
State of works and prospects.**

**V. Kobets**

# Linac-200 Parameters



- Existing extraction point
- $E = 40\text{--}200\text{ MeV}$
- $I_{\text{peak}} = 40\text{ mA}$

- In future:
  - 25 sections
  - 800 MeV energy

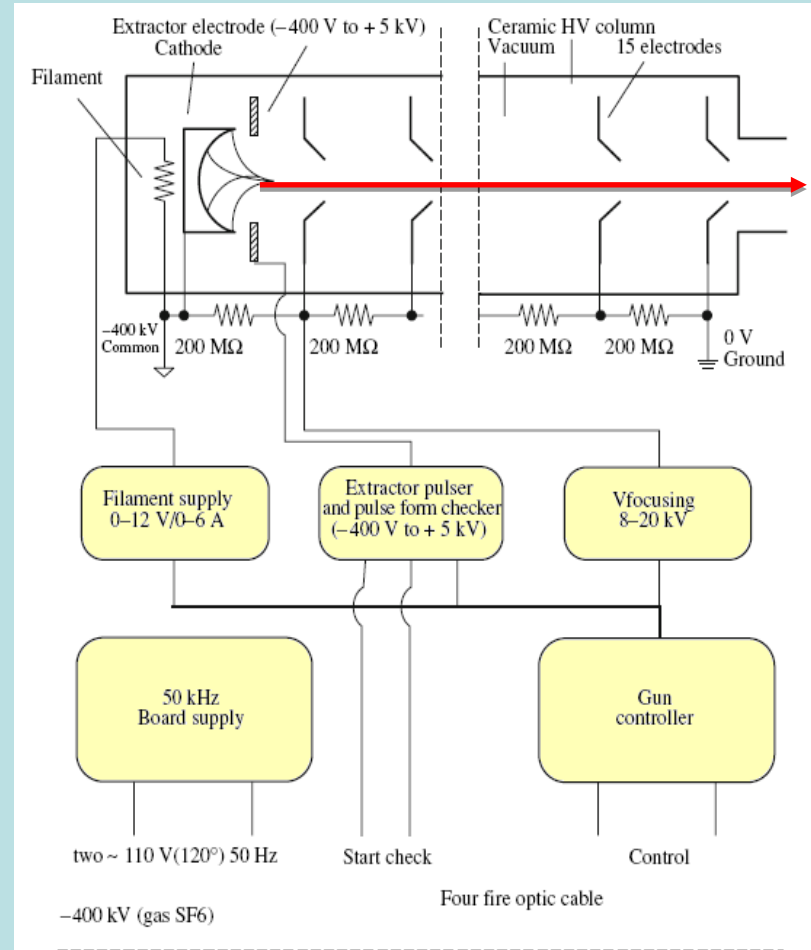
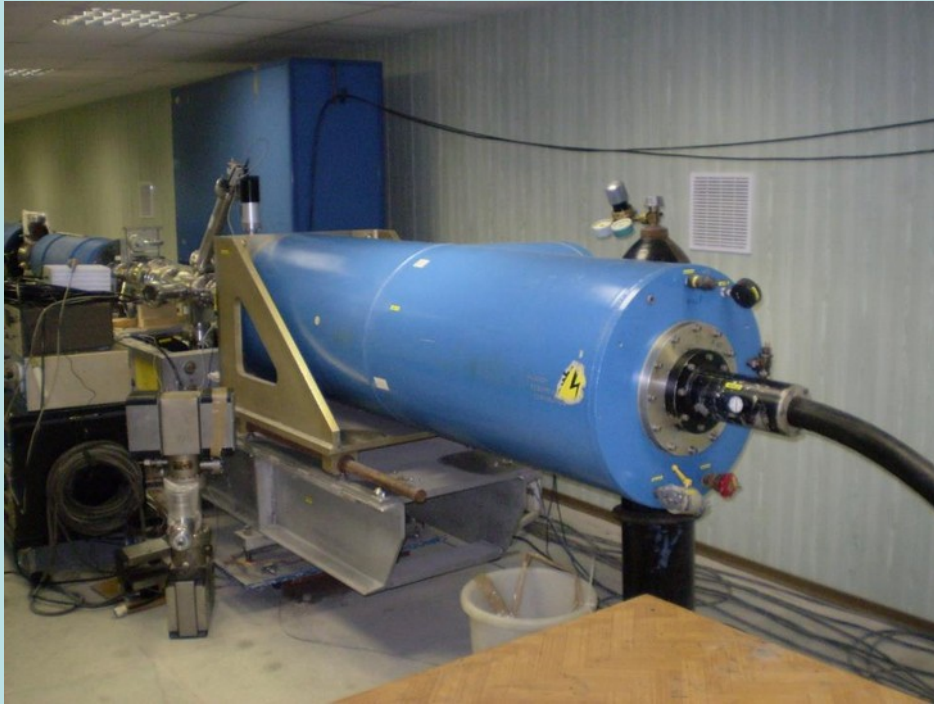
- Future extraction points
- Estimated energy:
  - 60–70 MeV after B2AA
  - 120–130 MeV after B4A
- Peak current:
  - 60 mA after B2AA
  - 50 mA after B4A

- Existing extraction point
  - For users
  - For students
- $E = 5\text{--}25\text{ MeV}$
- $I_{\text{peak}} = 60\text{ mA}$
- $\tau = 0.1\text{--}3.5\ \mu\text{s}$
- $f = 1\text{--}25\text{ Hz}$



- Major building renovation is ongoing
- Startup is foreseen in the end of 2021
- We are open for users!

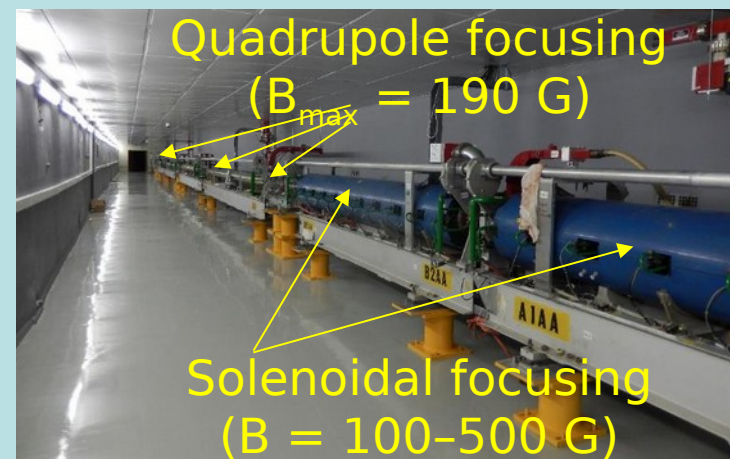
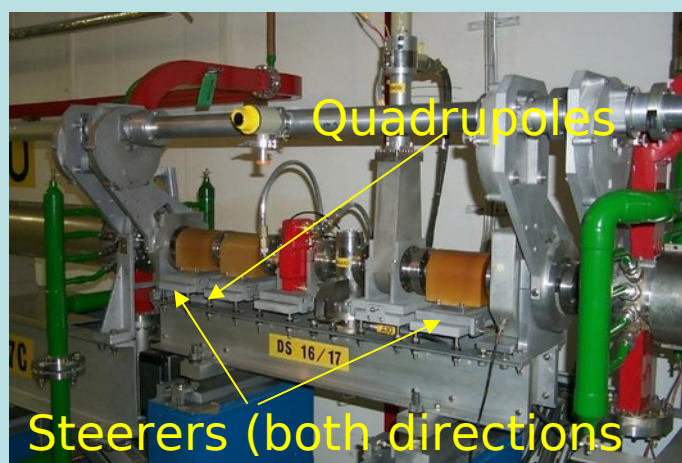
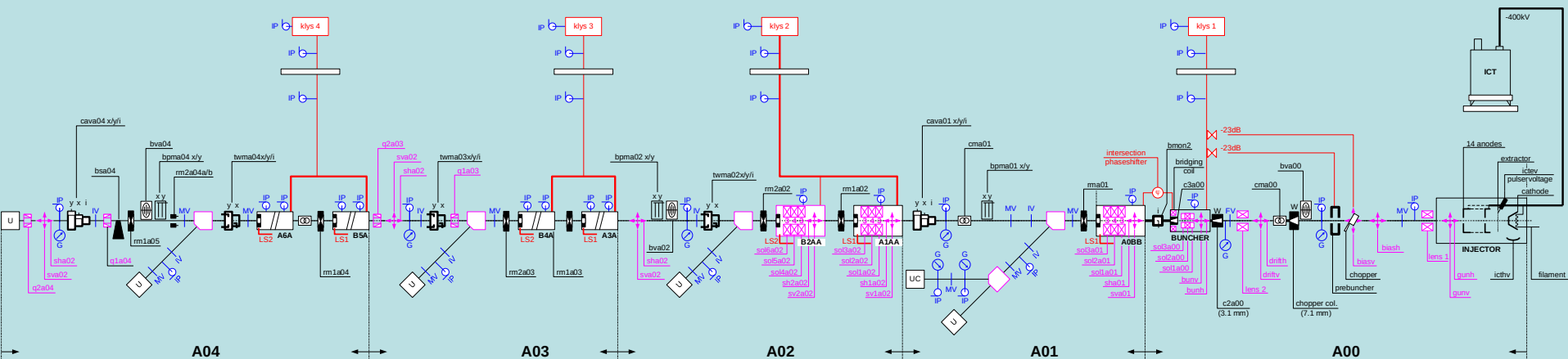
# Electron Gun



Electron beam energy, keV	400
Pulse duration, $\mu$ s	0.1-50
Peak current, mA	200



# Technological devices



Lens 1 — 50 G, Lens 2 — 100 G, solenoids — 100–500 G

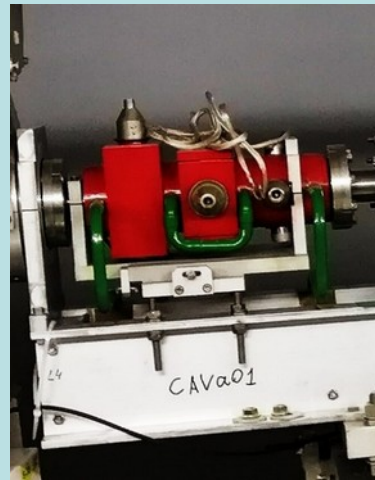
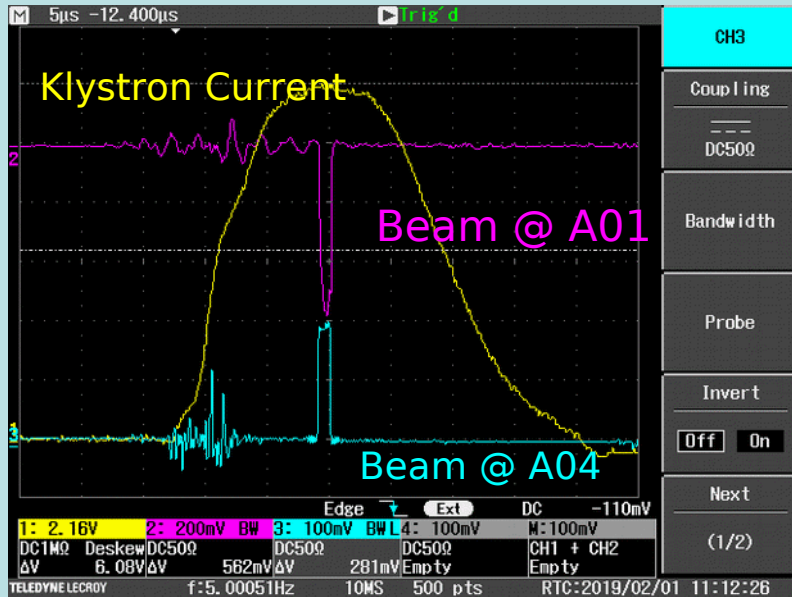
Quadrupoles: 190 G, aperture — 2,5 cm, gradient — 7,6 kG/m, max. current — 3 A, voltage — 36 V

Steerers: 50 G, length — 10 cm, max. current — 3 A, voltage — 10 V

- Forepumping: mobile pumping stations (scroll & turbo pumps)
- Operation pumping: ion pumps (Varian from MEA, gradually replaced by Agilent)

Vacuum in different accelerator systems, Torr	
Gun	$8 \times 10^{-8}$
Accelerating sections	$(1-5) \times 10^{-8}$
Drift spaces	$5 \times 10^{-8}$
Buncher	$1 \times 10^{-8}$
RF waveguides	$8 \times 10^{-8}$

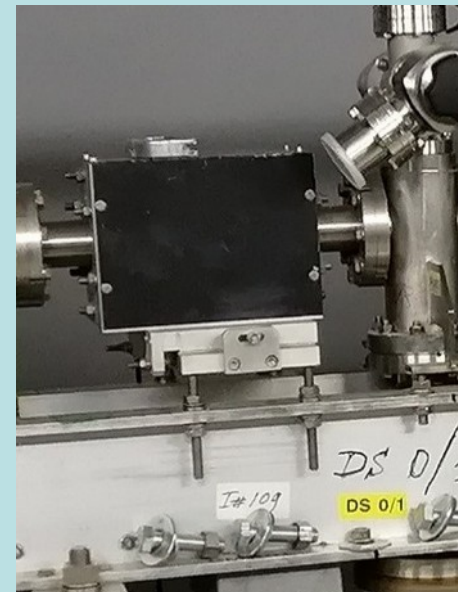
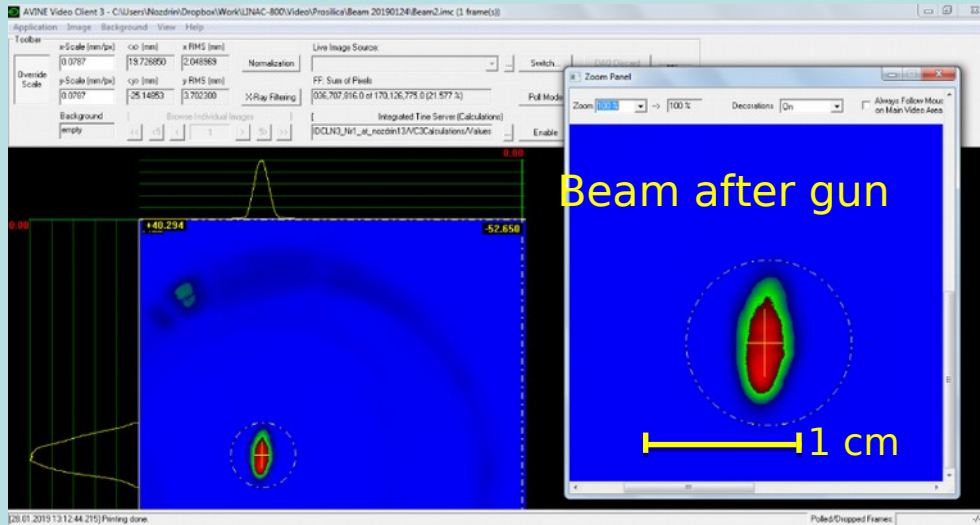
# Diagnostics



Cavity monitor

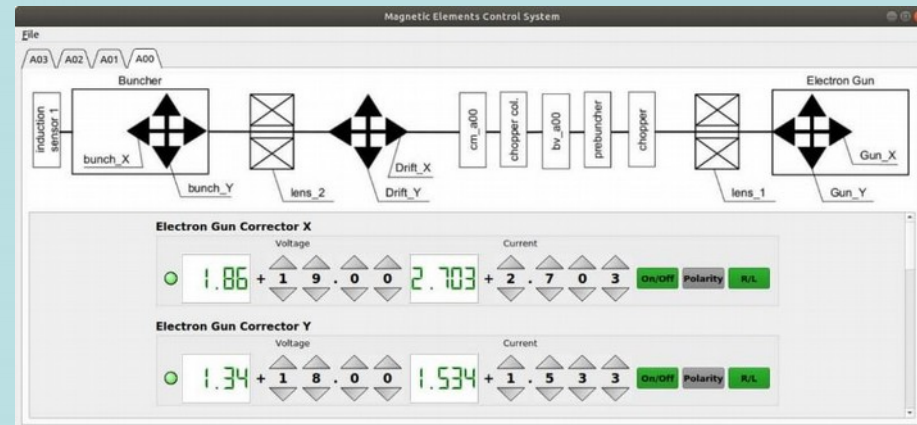
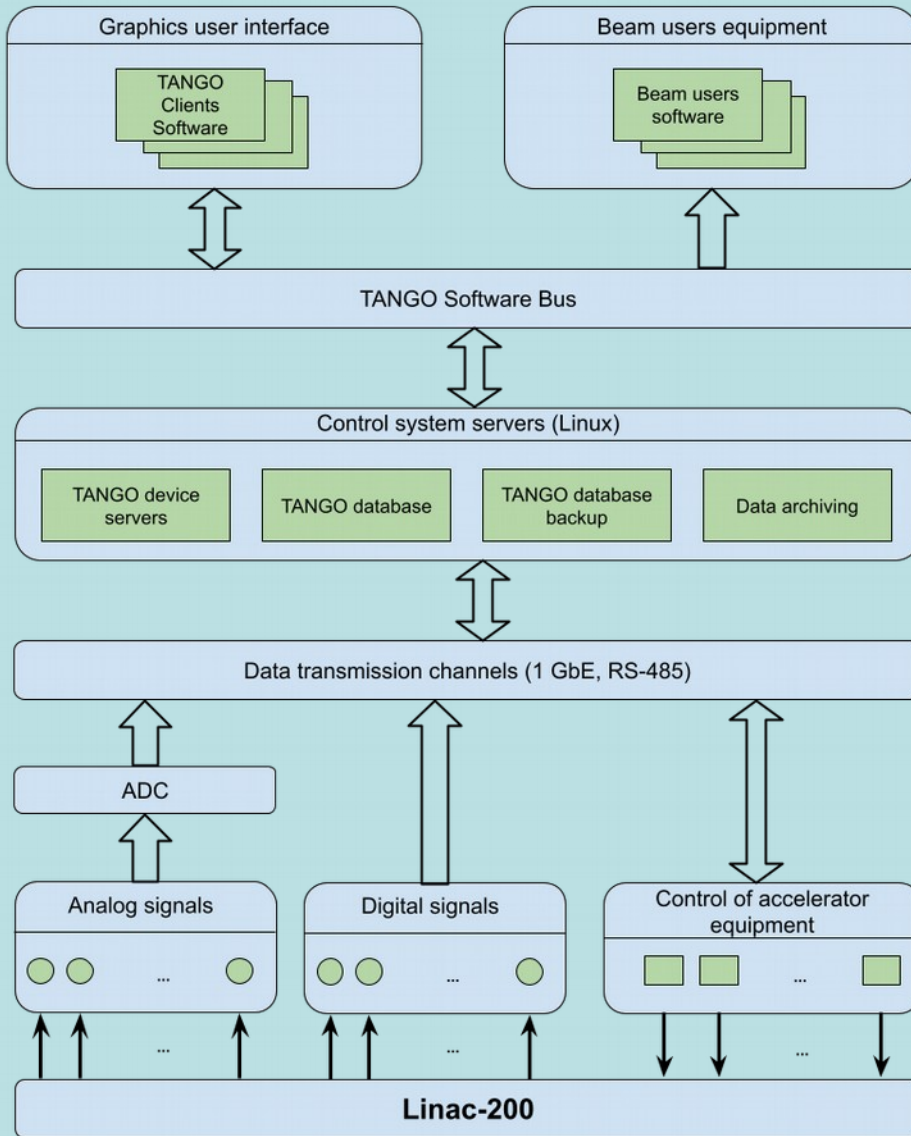


Traveling wave monitor



Current monitor

# Controls





# Education program: Training section

- Vacuum technology
- Accelerator equipment (magnets, diagnostics, ...)
- Beam dynamics
- Advanced electronics (preamplifiers etc.)
- Controls & automation
- Particle detectors
- Dosimetry
- and much more...



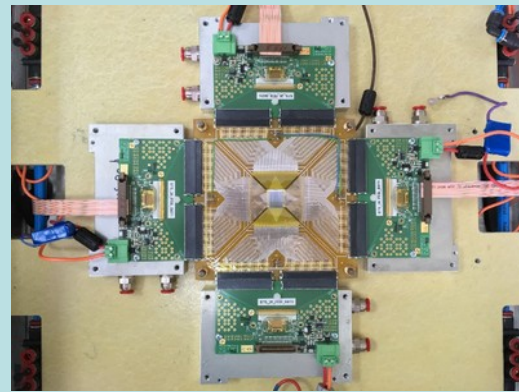
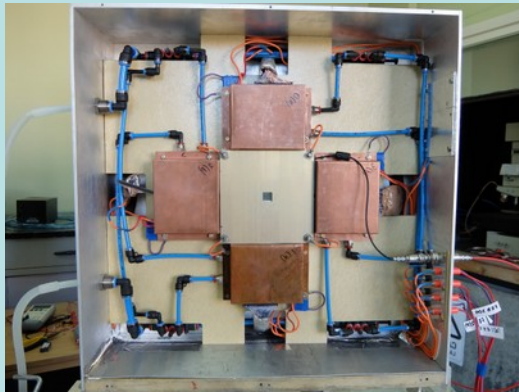


## Схема тестового стенда



Ст1, Ст2: Тестовые станции с  
двусторонними кремниевыми  
микростриповыми сенсорами  
 $1.5 \times 1.5 \text{ см}^2$

Монитор пучка: сцинтиллятор  $20 \times 20 \text{ см}^2$



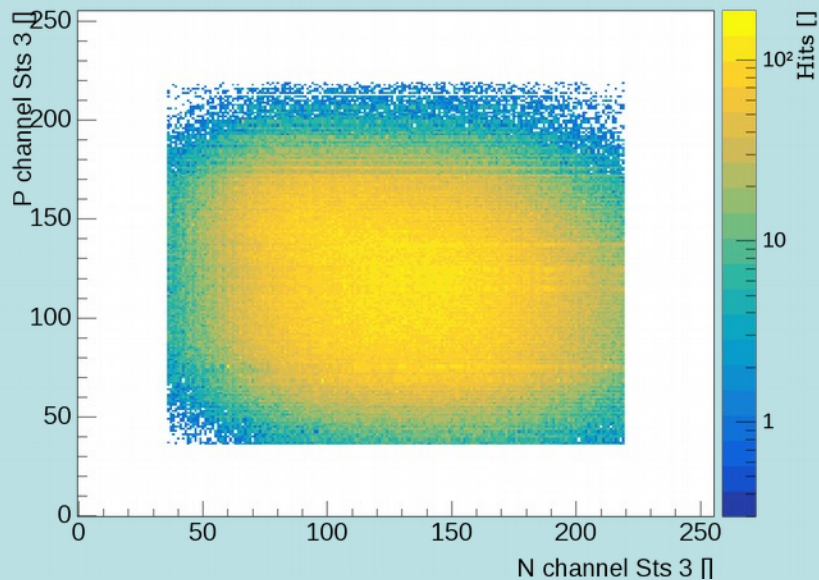
### Параметры сенсоров:

Толщина 300 мк

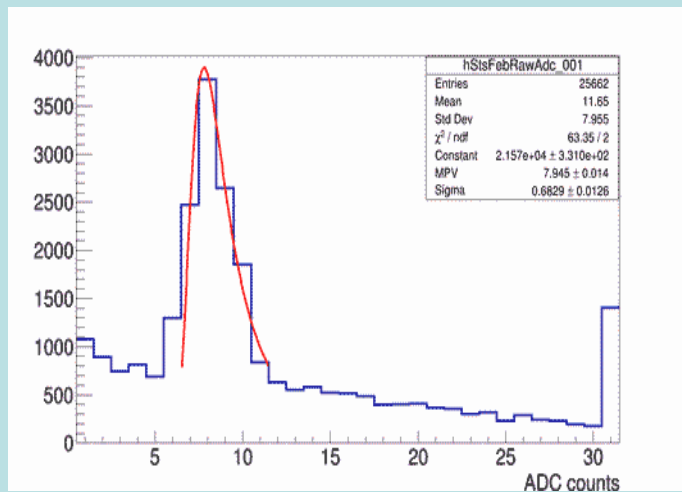
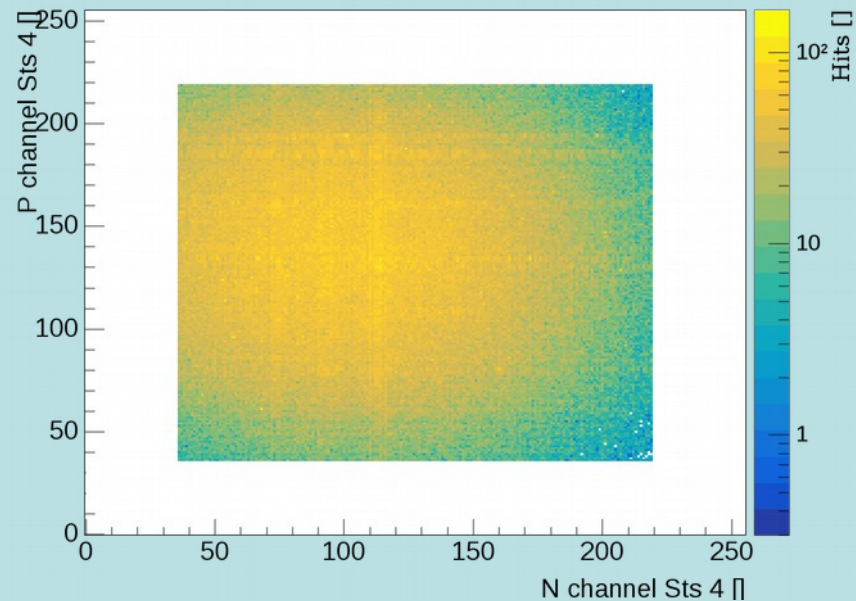
Ширина стрипа 58 мк

Угол между стрипами  $90^\circ$

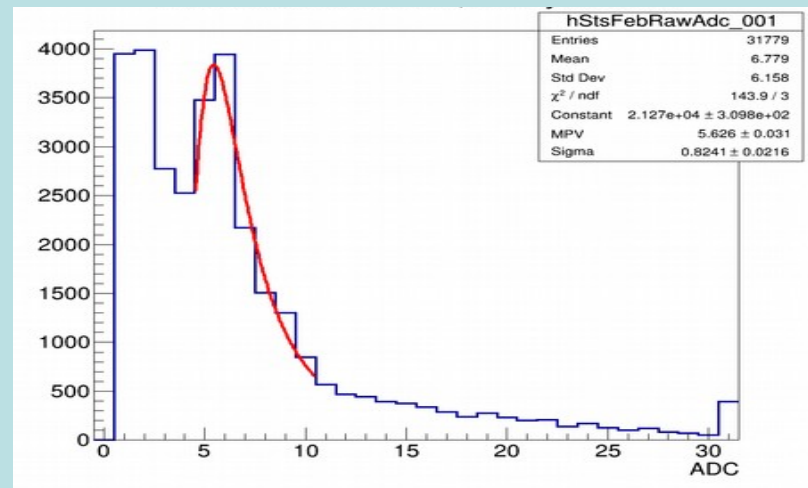
Sorted hits in coincidence for Sts 3 axis N and P



Sorted hits in coincidence for Sts 4 axis N and P



Профиль пучка в первой станции  
Энергия 150 МэВ



Профиль пучка во второй станции  
Энергия 150 МэВ





**Thank you for attention**