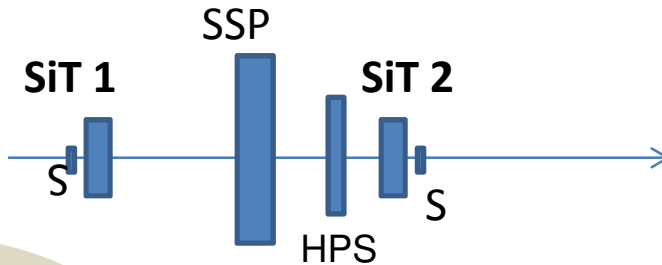


Testing of the straw prototypes with use Si-tracker EUDET

Participants:

CERN
DESY
Bonn University
Geneva
University
GSI
Rossendorf, FZR
P.N. Lebedev
Institute
JINR



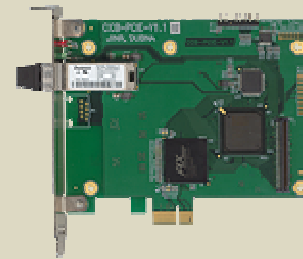
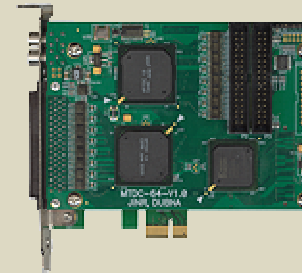
EUDET:

SiT1/S + SiT2/S + DAQ

trigger

SSP – segmented straw prototype
HPS – high pressure straws prototype

MTDC-64:



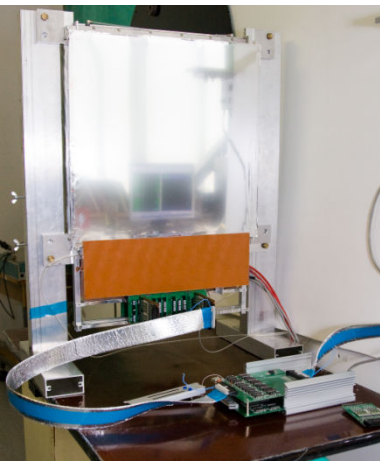
CERN, SPS H6, π , 400 GeV/c

Inputs: 64, 100 Ohm ECL/LVDS
100, 200, 800 ps time bin

Interface PCIe

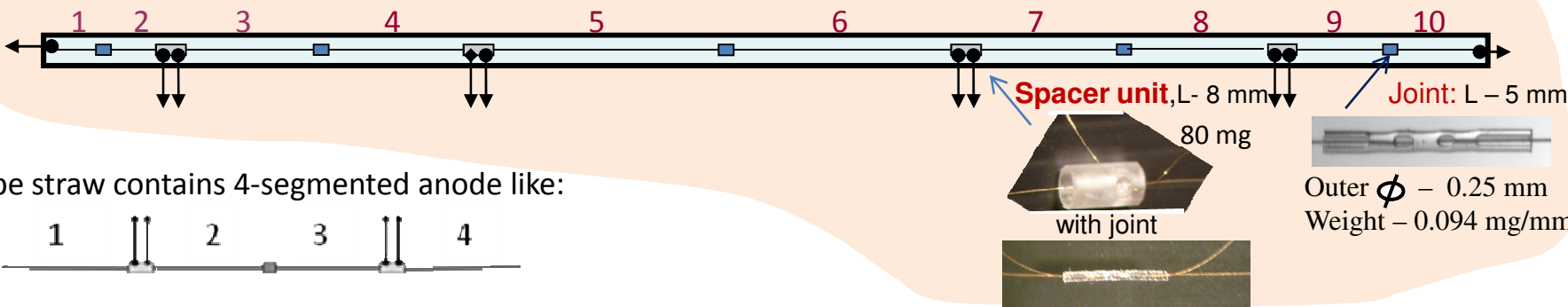
Double layer segmented straw prototype

consists of 96 straws (4 mm in diameter, 40 cm long), and 360 readout channels.



Straw – thin wall drift tube for the coordinate measurements.
Main **disadvantage** – small granularity ($S = \text{length} * \text{diameter}$)
Main **advantage**: – least material budget,
ability to operated with different pressure of its gas mixture,
large sensitive area of the chambers.

Sample of the segmented straw with 10 segments (straw length – 1.6 m; diameter – 4 mm; spacer length – 8 mm, granularity of the segment is $2 \text{ cm}^2 - 10 \text{ cm}^2$):



Prototype straw contains 4-segmented anode like:



HV anodes. Readout - from segment's contact wires by low-mass transmission lines. Density of the FEE: 1ch/1 mm.

TASKS:

- Check of reading by means of the TLs;
- measurement of the spatial resolution;
- study of the Joint and Spacer Unit zones

Double layer prototype:

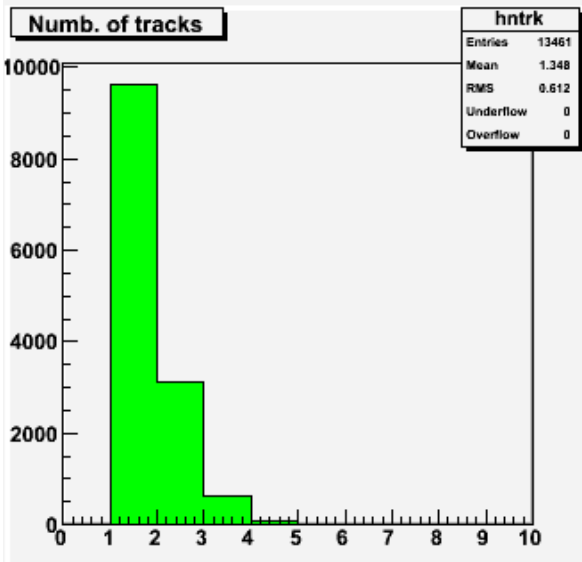
5 straws with the inner diameter - 9.53 mm (NTP)

Pressure of the gas mixture – from 1 bar till 5 bars

TASK:

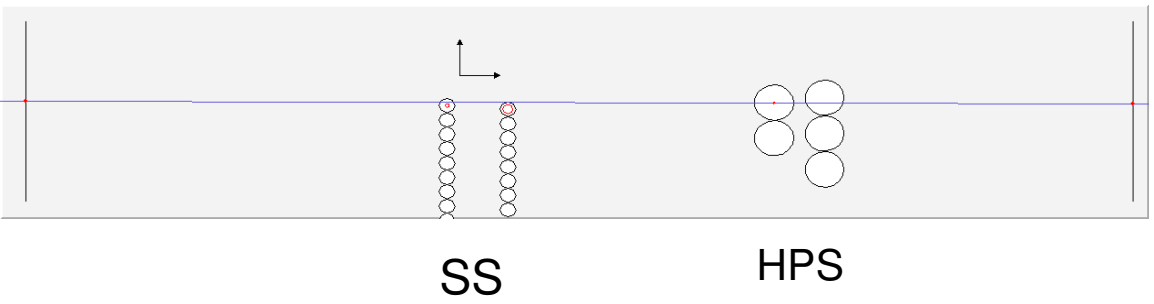
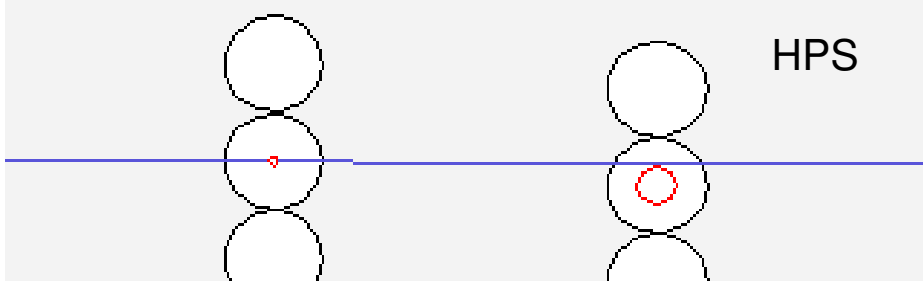
to study the spatial resolution for different the gas mixture pressure.

Beam tests

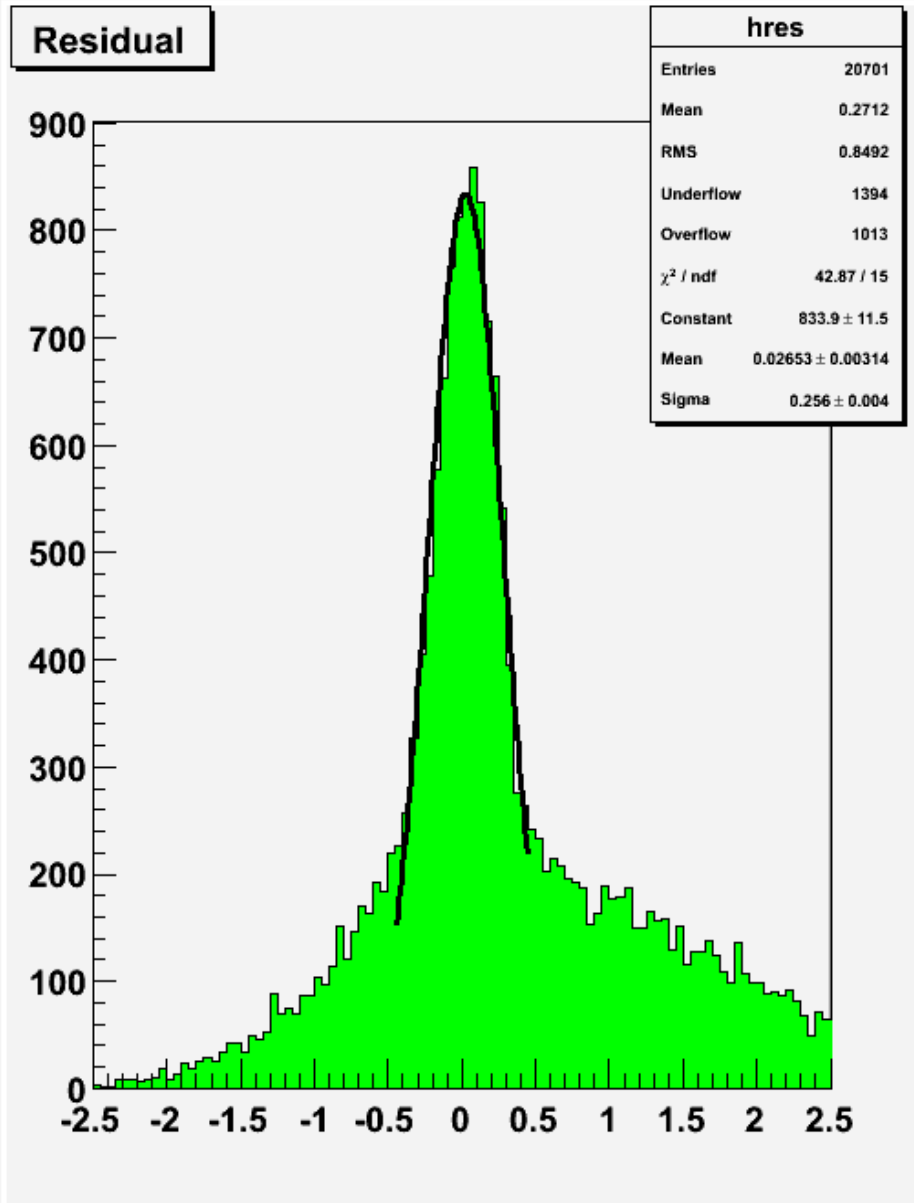
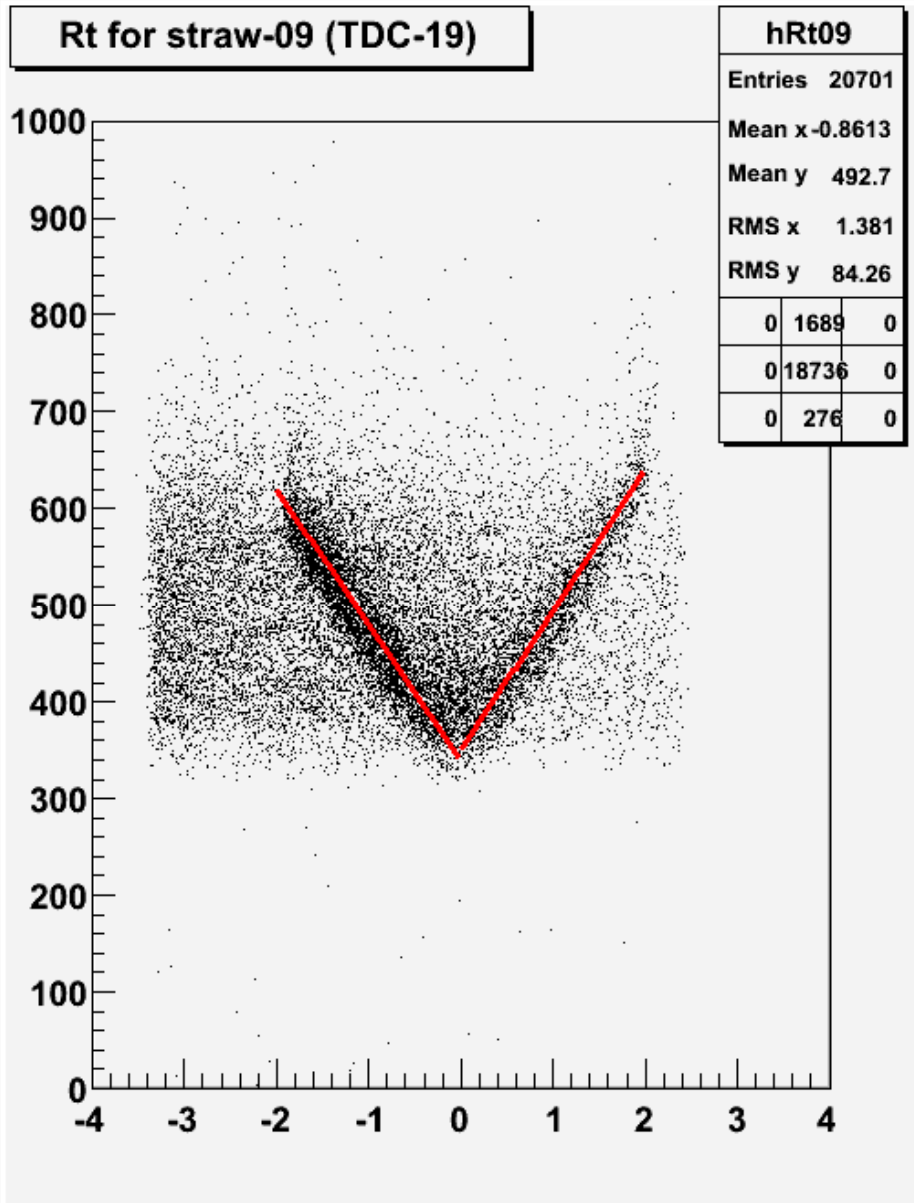


Track multiplicity of the EUDET.
Run 6118-6123.

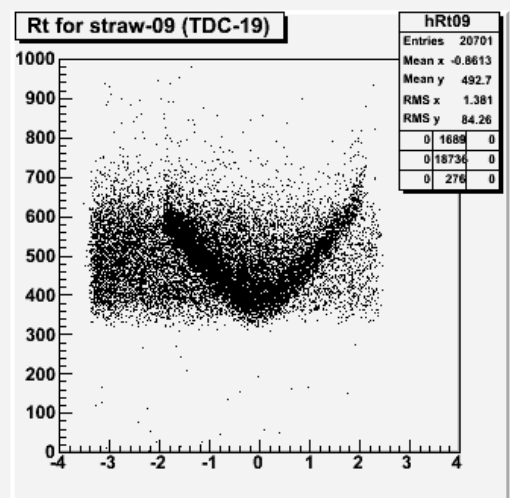
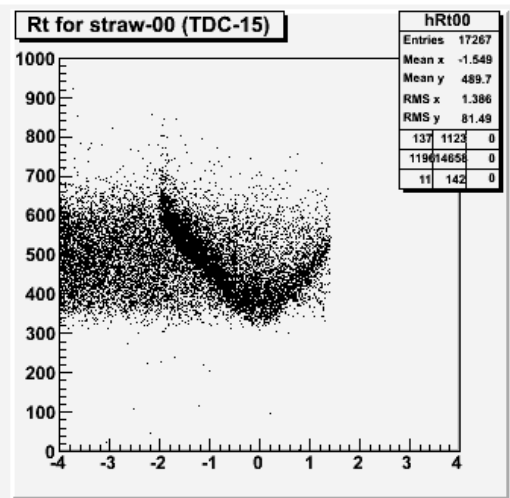
Fragments of the event display



Beam tests



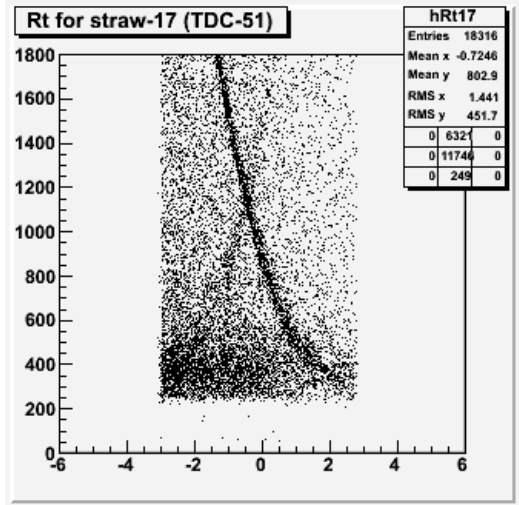
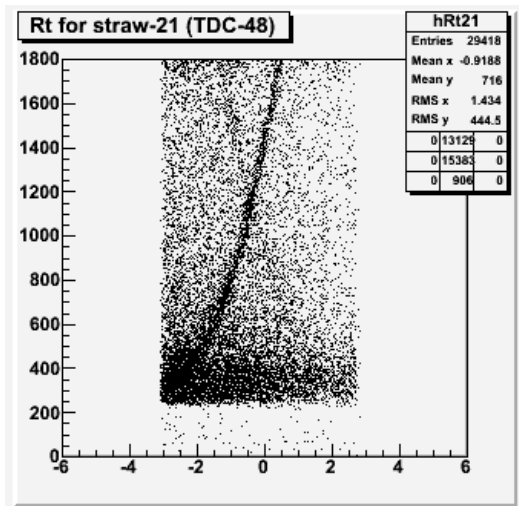
Beam tests



t - r dependences
for the SS



t - r dependences
for the HPS



SUMMARY

1. To produce the multi segmented straw chambers by mass-production is possible
2. Signals from HV anode segments can be transmitted to the remote FEE
3. Time-amplitude parameters and spatial resolution are kept
4. Exact values of the insensitive zones will be received later
5. Time-amplitude parameters and spatial resolution for the HPChamber are under study

Thanks for the attention