



Contribution ID: 239

Type: Poster

## New capabilities of coordinate detectors on the basis of the straws

The necessity of providing high track reconstruction efficiency in high multiplicity processes requires highly granulated track detectors with good spatial resolution. The development of gas coordinate detectors (GEM, Micromegas, etc) promises good results. Straw track detectors possesses some advantages: the least material budget in comparison with any other detector types, the good ratio of the detector area to its cost. The executed researches have shown possibilities to create the detectors on the basis of granulated straws, and also to increase their gas mixture pressure till up 5 bars. The segmented straws and the high pressure straws were studied in JINR earlier, the length of these straws was till up to 1.6 m. Beam tests of the prototypes of the granulated straws and the high pressure straws have been executed on H6 SPS beam channel in CERN. Each granulated straw of first prototype contained 4 segments with the area of 4 sm<sup>2</sup>, and the prototype contains 360 segments. The straw length were 40 cm and diameter was 4 mm. The spatial resolution of the prototype was 160÷180  $\mu\text{m}$  for the ArCO<sub>2</sub> (80/20) mixture, the insensitive area of the straw plane was < 5%, and material budget has been almost kept. Diameter of the second prototype straws was 10 mm. The spatial resolution at pressure 3 bars was less than 50  $\mu\text{m}$  for the ArCO<sub>2</sub> (80/20) gas mixture. Development of the detectors on the basis of the granulated high pressure straws should allow to keep all straw detector advantages and to increase their spatial resolution till 30-50  $\mu\text{m}$ .

**Primary author:** Dr PESHEKHONOV, Vladimir (Joint Institute for Nuclear Research (JINR))

**Presenter:** Dr PESHEKHONOV, Vladimir (Joint Institute for Nuclear Research (JINR))

**Track Classification:** 13 - Advances in Instrumentation and Computing for HEP