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Tracking modules with DSSD sensors for the BM@N experiment

Modules with a double-sided silicon microstrip sensors are the back-bone components of the future wide-aperture Silicon Tracking System of BM@N experiment. The main features of this module are the fast readout electronics based on STS-XYTER ASIC and the usage of low mass (0.23% X0) aluminum micro-cables for the transfer of analog signals from the sensor strips to the input channels of the readout electronics. The results of tests of the tracking modules with 1 GeV proton beams at the SC-1000 accelerator at PNPI are presented. Stable operation of the readout electronics at occupancies, which are close to the maximum values - 360 kHz sec^-1 cm^-2 was demonstrated. The Signal-to-Noise ratio for the module is more than 23. The measured coordinate resolution of the modules within the beam telescope is 17±0.4 μm, and the detector registration efficiency for protons with energy of 1 GeV is more than 99%.

Section

Heavy ion collisions at Intermediate and high energies

Primary authors: SHEREMETEV, Aleksie (Joint Institute for Nuclear Research); DEMENTEV, Dmitrii (JINR LHEP); RUFANOV, Igor (JINR); SHITENKOV, Mikhail (JINR); LEONTYEV, Vladimir (MSU); MURIN, Yuri

Presenter: DEMENTEV, Dmitrii (JINR LHEP)

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