**Position sensitive fast neutron detector based on the double-sided silicon strip detectors**

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A two-coordinate position-sensitive silicon detector of fast neutrons [1] was developed at Joint Institute for Nuclear Research (JINR), Dubna, Russia within the framework of the TANGRA (TAgged Neutron and Gamma RAys) project [2].

The detector is composed of four double-sided 300 µm thick silicon plates with the dimensions of 60×60 mm2 divided into 32x32 strips on both sides with strip's pitch of 1.81 mm. The X and Y strips of neighboring detectors are connected to each other, forming a single detector unit with 64x64 strips and 120x120 mm2 size.

To reduce the number of readout channels a special multiplexor electronics has been developed reducing the total number of readout channels to 6: one fast common start signal; four slow position channels (2 for each side) and one clock synchronization channel. The data from the detector are read out and analyzed by a multichannel 100 Mhz digitizer.

The performance of the detector was tested with a 256-pixel ING-27 generator of 14.1 MeV tagged neutrons, which made it possible to reconstruct a 2-dimensional map of the tagged neutron beams. It was also used for measuring the neutron beam profile with the energies of ~4 MeV generated in d-d reaction at the EG-5 accelerator.

1. N.I. Zamyatin, V.M. Bystritsky, Y.N. Kopach et al., Nuclear Inst. and Methods in Physics Research, A898 (2018), P. 46.
2. Ruskov I.N., Kopatch Yu.N., Bystritsky V.M. et al. Phys. Proc. V. 64. (2015) P. 163.