

## 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  $\mu\text{m}$  thick silicon plates with the dimensions of 60×60 mm<sup>2</sup> divided into 32×32 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 64×64 strips and 120×120 mm<sup>2</sup> 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  $\sim 4$  MeV generated in d-d reaction at the EG-5 accelerator.

### The speaker is a student or young scientist

Yes

### Section

1. Applications of nuclear methods in science and technology

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