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RING DETECTOR FOR MEASURING OF SMALL-ANGLE SCATTERING OF THERMAL NEUTRONS BY REAL-TIME DIFFRACTOMETER (RTD).

The development of the detector is based on the design and experience of working with a one-dimensional coordinate-sensitive ring detector for thermal neutron, which allows measurements of the spatial distribution of neutrons in 8 discrete coaxial rings in close proximity to the samples.
The new detector is designed to measure small-angle scattering of thermal neutrons at the IBR-2 reactor, DN-2 diffractometer (channel No. 6a).
Structurally the detector is divided into 9 independent equidistant coaxial rings. The cathodes of each of the rings are divided into 16 independent sectors, the same for each ring. The cathodes are located with inner side of rings and have a rectangular shape, their length being a function of the radius of the corresponding ring. Thus, each separate cathode segment takes position ~ 1/16 of the total angle 2π of any ring counter.
This innovation made it possible to introduce a new coordinate as a measurement parameter.
Due to its feature in design, the detector is a suitable tool for any researches in which angular or axial anisotropy of the scattering of slow neutrons can be observed.

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