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Position sensitive x-ray detector OD-3

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A one coordinate X-ray detector of a new design aimed for angular measurements in diffraction experiments was developed in BINP. The detector is based on a multiwire proportional chamber with X-ray absorption drift volume.

It allows accepting photons in the energy range from 6 to 20 keV with a maximum rate of 10 MHz/detector and coordinate resolution about 100 μm (r.m.s.) in linear scale.

The first OD-3 chamber has a 0.4 mm thickness Be inlet window 200 mm x 10 mm, a photoabsorption length of 50 mm and a parallax-free cathode structure for the angles up to ± 15 degrees at variable focal length (from 300 mm to 450 mm without any modification and to infinite at cathode plane replacement).

The first test of the detector at synchrotron radiation beam line 5-b VEPP-3 shows a good performance.

The detector construction specifics and the beam test results will be discussed in the report.