

Neutron Imaging at IBR-2 Pulsed Reactor: First Results and Neutron Imaging Instrument Project

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The method of neutron imaging is considered as an important technique for non-destructive testing and as research tool in physics, material science, geology, archaeology, etc. Therefore shortly after the launch of the IBR-2 pulsed reactor after modernization the first test experiments were performed on beamline Nr. 12 of the reactor. The first obtained results confirmed the good perspectives of this method at the IBR-2 reactor. For further development of neutron imaging (including radiography and tomography techniques) in Dubna a project for construction of "conventional" thermal neutron imaging station at FLNP JINR was started. The instrument will be installed on the beamline Nr. 14 of the IBR-2 pulsed reactor and it will be equipped with common neutron radiography components like aperture wheel, shutter, collimation tubes, goniometer for sample positioning, CCD-camera based detector and beam dump with adequate shielding around. The IBR-2 reactor as an existing long pulsed neutron source can provide energy selection option combined with high neutron flux which gives unique opportunities in many scientific and industrial applications.

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