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Development of two-dimensional gaseous detector for energy-selective neutron radiography

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The energy-selective neutron radiography is a new field to study fine structure of heavy material using pulse neutron sources. In order to perform such radiography, two-dimensional position and precise temporal measurement are essential. Therefore, we are developing a gaseous neutron detector with a gas electron multiplier (GEM). For neutron detection, aluminum cathode surface is coated with boron-10. Two GEM foils are stacked in a chamber for the gas amplification. An anode plate with two-dimensional strips (0.8 mm pitch) is mounted for the readout. A compact readout system with new ASIC and FPGA is developed for the high data transfer. The beam test was carried out with the pulse neutron sources. The results will be presented in the conference.

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