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Status of the μ PIC-based Neutron Imaging Detector (μ NID) at J-PARC

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The μ PIC-based Neutron Imaging Detector (μ NID) is one of the main imaging detectors in use at the energy-resolved neutron imaging instrument RADEN at the J-PARC Materials and Life Science Experiment Facility (MLF). The μ NID takes advantage of the pulsed neutron beam of the MLF for accurate determination of neutron energy via time-of-flight to measure the energy-dependent neutron transmission of samples. This allows the extraction of quantitative information on the microscopic structure of the sample, such as crystal structure and strain, internal temperature, or magnetic field information. In this presentation, we will discuss our ongoing development efforts, including studies of μ PIC aging under intense neutron irradiation and recent on-beam tests of the triaxial μ PIC (for improved rate) and a 5.5 cm x 5.5 cm area, 215 μ m-pitch μ PIC (for improved spatial resolution).

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