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Recent progress of Nuclear Data Production System at RAON

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A fast neutron facility, called Nuclear Data Production System (NDPS), was constructed for nuclear science and applications at RAON (Rare Isotope Accelerator complex for ON-line experiments) in Korea. NDPS provides neutron beams not only for nuclear data measurements but also for other applications. NDPS is designed to provide both white and mono-energetic neutrons, using 98 MeV deuteron and 20 –83 MeV proton beams with a thick graphite and thin lithium targets, respectively. Neutron energy is determined by employing the time-of-flight (TOF) technique, along with a pulsed deuteron (or proton) beam with a repetition rate of less than 200 kHz. Fast neutrons are produced in the target room and are guided to the TOF room through a 4 m long neutron collimator consisting of iron and 5 % borated polyethylene. In the TOF room, a gas-filled Parallel Plate Avalanche Counter (PPAC) with a Th-232 layer and EJ-301 liquid scintillation detectors are installed to measure the neutron flux. The beam commissioning for NDPS is scheduled for 2024. The recent progress of NDPS will be reported, together with our plan.

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