

Physical Characteristics of Neutron Radiography Facility in HANARO

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Abstract

General characteristics of Neutron Radiography Facility in HANARO were discussed and its physical properties were investigated. Neutron flux and cross-sectional distribution at 1st and 2nd exposure room of the NRF was measured and analyzed, respectively. Neutron flux is estimated from counting 0.411MeV γ -rays emitted from the gold wires, which were activated by neutrons. The flux measurements were carried out as a function of position on the effective area where neutron exposure was taken into consideration. Neutron beam purity and sensitivity was evaluated to make international standard evaluation of the NRF at HANARO by using the BPI and the SI, which is supplied by American Society of Testing Materials. Imaging data obtained from film method and from imaging process system were compared with each other.

Pyrolytic graphite의 모자이크 폭 측정 및 중성자빔 집속 효과 Measurement of the Mosaic Spread of Pyrolytic Graphite Crystals and Focusing Effect of Neutron Beam

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요 약

즉발 감마 중성자 방사화 분석 장치에서 열중성자 인출에 사용될 pyrolytic graphite 결정의 모자이크 폭을 측정하고, 결정을 수평 방향으로 휨으로써 얻어지는 중성자빔 집속 효과를 평가하였다. 모자이크 폭 측정에는 2축 분광계를 이용한 투과법이 사용되었다. Pyrolytic graphite의 휨 반경은 sample 위치에서의 최대 중성자속 조건과 균일한 중성자속 조건을 절충하여 결정하였다. 집속 효과는 sample 위치에서 계산된 중성자속 분포를 비교하여 평가되었으며, 2배의 이득이 기대된다.