

HPGe 고정밀 분광에서 Pile-up 보정법의 유용성 평가

Validity Test of Pile-up Correction Methods on HPGe High-precision Spectrometry

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요 약

HPGe 를 이용한 감마선 분광에 대해 pile-up 보정을 수행하고 보정의 신뢰성에 대하여 평가하였다. Pile-up 보정에는 pulse generator method[1]와 fixed source method[1]를 사용하였고, IAEA[2]에서 수행한 연구 결과와의 비교를 통해 보정의 신뢰성을 평가하였다. 연구 결과 실질적인 pile-up 보정방법으로서 pulse generator method 가 적합한 것으로 평가하였다.

Accelerator-Based Epithermal Neutron Beam Design and Characteristic Analysis for Boron Neutron Capture Therapy

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Abstract

An epithermal neutron beam design study using  ${}^7\text{Li}(p,n){}^7\text{Be}$  reaction as an accelerator-driven neutron source has been carried out for boron neutron capture therapy (BNCT). To find an useful moderator material for the generation of epithermal neutron, moderation capabilities of  $\text{H}_2\text{O}$ ,  $\text{D}_2\text{O}$ ,  ${}^7\text{LiF}$ , and  $\text{Al}$  (40%)/ $\text{AlF}_3$  (60%) were investigated, and several moderator assembly structures consisted of these materials were modeled and evaluated by using MCNP code. The neutron beam characteristics were compared with other reported assemblies. The assembly constructed with two materials,  ${}^7\text{LiF}$  and  $\text{Al}/\text{AlF}_3$ , was found to be a good material structure for epithermal (4 eV ~ 40 keV) neutron beam. The neutron beam produced from this design is more useful for BNCT than from others reported.