

D-D 중성자 발생장치 중성자 수율 계산
Calculation of Neutron Yield for a D-D Neutron Generator

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요약

D-D 중성자 발생장치에서의 Ti 표적에 대한 중성자 수율 계산을 수행하였다. Ti 표적 내 중수소의 깊이 분포에 의한 영향과 중수소 이온빔의 단일 원자빔 분율에 의한 영향을 고찰하였다.

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Investigation of the Plasma Focus Device as a Pulsed Neutron Source

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Abstract

A Dense Plasma Focus (DPF) device is studied as a radiation sources such as X-ray, proton, electron and neutron, as the most powerful laboratory neutron source. DPF-device is investigated as a neutron source with pure deuterium gas in the electric Probe Applications Laboratory (ePAL) of Hanyang University. This device is composed of a capacitor bank (32 μ F), a spark gap switch, and two electrodes along with electrical circuits. Charging voltage is 16kV and the typical discharge peak current is about 183kA. The generated neutrons with different deuterium filling pressure are measured with the different electrode lengths by means of the bubble neutron dosimeter (BD-PND: Bubble Technology Industry). The maximum neutron yield is estimated about 6.4×10^8 n/shot with pressure of ~ 3 Torr.