

物理

## 厚铍靶<sup>9</sup>Be(d,n)反应中子产额测量

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**摘要** 能量在3 MeV以下厚靶D-Be反应的中子产额实验数据至关重要, 但较为缺乏。本工作在北京大学4.5 MV静电加速器上对氘束轰击厚铍靶的中子产额进行测量。对入射氘核能量在0.35~2 MeV之间的若干能量点用长中子计数管进行了0°方向中子产额、中子角分布及中子总产额的测量。与已有的测量结果和经验公式进行了比较, 并拟合出氘束轰击厚铍靶中子总产额的经验公式。

**关键词** [中子产额](#); [<sup>9</sup>Be \(d, n\) 反应](#); [厚铍靶](#); [角分布](#)

分类号

## Measurement of Neutron Yield of <sup>9</sup>Be(d, n) Reaction With Thick Target

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**Abstract** The experimental data of neutron yield for deuteron of several hundreds keV to a few MeV bombarding thick beryllium target are very important for small accelerator based neutron generation, and those data are not fully available so far. Neutron yield, angular distribution and total yield of D-Be reaction with thick target were measured on the 4.5 MV Van de Graaff accelerator at Peking University with deuterons at the energies from 0.35 MeV to 2 MeV. Two BF<sub>3</sub> long counters were employed to measure neutron fluxes. One was set to the different directions and another at a fixed position for the normalization. The scattering backgrounds were corrected, and the usable ranges of experimental data and formula were extended to 0.2 MeV at the low energy side. The results were compared with existing data and empirical formula. The data of this experiment and existing data coincide well in the comparable range.

**Key words** [neutron yield](#) [<sup>9</sup>Be \(d, n\) reaction](#) [thick Be target](#) [angular distribution](#)

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