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核物理

逆运动学弹性共振散射方法在非束缚核结构研究中的应用

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摘要

简要介绍了近几年发展起来的厚靶逆运动学弹性共振散射方法在非稳定核结构测量中的应用。它是研究非束缚态核结构的实验方法之一。通过测量反冲轻核的激发函数，提取共振态的能量、自旋宇称和衰变宽度等。主要用于研究非稳定核素的结构、核天体物理中相关核的阈能共振态的能级参数测量等。

The method of elastic resonance scattering in inverse kinematics, which was progressed in recent years, is briefly introduced. It is a novel experimental technique to perform meaningful experiments under conditions of the very short-lived nuclides and the beam intensities only 1 000 atoms/s. The excitation function of recoil proton has been measured in experiment; the shape of proton energy spectrum can be also used to uniquely deter- mine the energy of resonant states, spin-parity, partial decay width and spectroscopic factors of the states. This method is mainly used in the investigation of unstable nuclei and the level parameters measurement of near threshold resonant state of the nuclear astrophysics related nuclei.

关键词 厚靶逆运动学 放射性核束 非束缚核 核结构

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