原子能科学技术 2008 42 (z1): 242-245 ISSN: 1000-6931 CN: 11-2044/TL

技术及应用

EN串列静电加速器的维护运行

任晓堂，华景山，蒋正元，巩玲华，付东坡

北京大学 重离子物理研究所和核物理与核技术国家重点实验室，北京 100871

收稿日期 2008-7-3 修回日期 2008-7-20 网络版发布日期: 2008-9-20

摘要 介绍了北京大学EN串列静电加速器近两年来的维护运行情况。包括加速器工作在较高端电压时的稳定运行条件，其中分压电阻阻值的稳定性及绝缘可靠性和绝缘气体的干燥程度是影响加速器在较高的端电压下稳定运行的非常重要的两个因素；气体剥离压缩循环系统对束流电荷态分布及束流传输的影响，它的使用使得中、高电荷态的离子束成倍增加，提高了束流的传输效率。另外，对小流强离子束进行积分测量的实验研究表明，PIN半导体探测器可用于流强小于0.01 nA的离子束的测量。

关键词 串列静电加速器；气体剥离压缩循环系统；PIN探测器

分类号 TL52

Status of Operating and Maintaining for EN Tandem Accelerator

REN Xiao-tang, HUA Jing-shan, JIANG Zheng-yuan, GONG Ling-hua, FU Dong-po

Institute of Heavy Ion Physics & State Key Labarotary of Nuclear Physics and Technology, Peking University, Beijing 100871, China

Abstract The status of operating and maintaining for EN tandem accelerator at Peking University between 2006 and 2007 was introduced. It includes the conditions for the accelerator running stability with higher terminal voltage, the effect of gas stripper recirculation assembly on the beam species and the transmission of ion beams. It has been demonstrated that the character of voltage divider resistances and the humidity of insulating gases are two very important factors to the accelerator running stability, and the gas stripper recirculation assembly makes the ions of medium and high electronic state increasing much more, at the same time, improves the transmission of ion beams. The primary experimental study on the measurement of weak beam current shows that the PIN detector can be used to measure the beam less than 0.01 nA.

Key words tandem accelerator _ gas stripper recirculation assembly _ PIN detector

DOI

通讯作者