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技术及应用

兰州重离子加速器冷却储存环高频加速系统

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摘要 文章介绍兰州重离子加速器冷却储存环主环用于加速粒子的高频加速系统。加速系统的频率范围为0.25~1.7 MHz，最高峰值电压为8.0 kV。高频腔体的固有谐振频率通过调节绕在腔体加载的铁[JP2]氧体材料上的偏磁电流来改变，所加载的铁氧体材料为 600HH 。高频腔体内的真空度达到3×10^{-9}Pa，高频发射机的最大输出功率为30 kW，高频系统的控制采用基于PCI总线技术，它提供所有高频系统控制及监测功能。

关键词 铁氧体 高频腔 束流加速

分类号 TL503.2

RF Accelerating Station for Heavy Ion Research Facility at Lanzhou Cooling Storage Ring

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Abstract The RF accelerating station for the multipurpose cooling storage ring(CSR) system, constructed at Institute of Modern Physics(IMP) is described. The RF station was tested at IMP and now is installed into the main ring of the facilities. The RF station is operated in the frequency range of 0 25 1 7 MHz, and maximum accelerating voltage is 8 kV. The resonance frequency of the RF cavity is tuned in the whole frequency range by biasing of ferrites, which are used in the cavity. Ferrites of 600HH type were used in the cavity. The pressure in the cavity vacuum chamber is lower than 3×10^{-9} Pa. RF cavity, RF generator, and power supplies are made in one module. Maximum output power of the RF generator is 30 kW. Low level control electronics are placed separately in a rack. The RF station control is based on the compact PCI bus and provides

Key words ferrite _ RF cavity _ beam acceleration

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