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小型无损探伤电子直线加速器BP神经网络稳频系统

@王南之$南京大学物理系!江苏南京210093 @赵红$南京大学物理系!江苏南京210093

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摘要 作为小型探伤电子直线加速器功率源的磁控管 (工作频率为 93 70MHz) ,其主要缺点是自身振荡频率的稳定性差 ,且磁控管在工作中由于各种原因会产生打火、跳谱和散谱现象 ,从而造成加速器工作不稳定 ,因此 ,必须采用频率稳定系统。为了更好地解决上述问题 ,应用BP神经网络方法 ,以保证工作频率稳定。

关键词 直线加速器 跳谱和散谱 BP神经网络

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BP Neural Network Method on the Frequency Stabilization System of the Portable Electron Linear Accelerator for Nondestructive Inspection

WANG Nan zhi, ZHAO Hong (Physics Department, Nanjing University, Nanjing 210093, China)

Abstract As the power source of portable electron linear accelerator for nondestructive inspection, the magnetron with the operating frequency at 9 730 MHz has the main disadvantage of bad oscillating frequency stabilization by itself, the phenomena of striking and the dispersion and the slight jump of the spectrum by any cause during the operating process. As a result, the accelerator will be unstable. In order to solve the above problems efficiently a frequency stabilization system, based on the BP neural network method is presented in the paper.

Key words linear accelerator dispersion and slight jump BP neural network

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