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技术及应用

基于CMAC神经网络的ECRH负高压脉冲电源自适应控制策略研究

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摘要 为解决因四极管造成系统非线性和敏感性而导致ECRH系统中负高压脉冲电源控制效果不够理想的问题，利用CMAC神经网络设计了直接逆模型控制系统，并对CMAC跟踪动态给定的情况进行了仿真实验。结果表明，该学习控制策略改善了ECRH负高压脉冲电源的控制效果，具有较强的自学习和自适应能力且易于实现。

关键词 ECRH负高压脉冲电源 神经网络 逆模型 自适应 控制

分类号

Adaptive Control Strategy for ECRH Negative High-Voltage Power Supply Based on CMAC Neural Network

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Abstract In order to solve the problem that the negative high-voltage power supply in an electron cyclotron resonance heating (ECRH) system can not satisfy the requirements because of the nonlinearity and sensitivity, the direct inverse model control strategy was proposed by using cerebellar model articulation controller (CMAC) for better control, and experiments were carried out to study the system performances with CMAC tracing dynamic signals. The results show that this strategy is strong in self-learning and self-adaptation and easy to be realized.

Key words ECRH negative high-voltage power supply neural network inverse model self-adaptation control

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