电力系统

智能控制方法应用于APF的综述与展望

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摘要

随着计算机技术和芯片技术的发展，智能控制方法将逐步进入实用化阶段。将智能控制方法用于控制有源电力滤波器(active power filter，APF)可大大提高APF的各项性能。文章对模糊控制、人工神经网络、遗传算法等智能控制方法及其与其它方法结合构成的复合控制方法在APF中的应用现状进行了综述，比较和总结了上述控制方法的优缺点及存在的问题，并对智能控制方法应用于APF的发展方向进行了展望，指出将智能控制方法和非线性控制方法相结合，实现对APF的控制会是一个较有前途的发展方向。

Overview and Prospect on Application of Intelligent Control Methods to Active Power Filters

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Abstract

With the development of computer and chip technologies, intelligent control is becoming more and more practical. Application of intelligent control to active power filter (APF) can enhance the performances of APF evidently. In this paper, an overview of present situation of applying intelligent control methods, such as fuzzy control, artificial neural network (ANN), genetic algorithm (GA) and so on, as well as the compound control methods consisting of intelligent control technologies with other control approaches, in the control of APF is given; the advantages and disadvantages of these control methods as well as the existing problems in them are compared and summarized. The prospect of applying intelligent control in APF is presented and it is pointed out that the control of APF based on the combination of intelligent control with nonlinear control will be an up-and-coming development direction.

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