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核动力蒸汽发生器水位控制方法分析

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摘要 核动力蒸汽发生器(SG)是一个高度复杂的非线性时变系统。SG在瞬态、启动和低功率运行工况下的"收缩"与"膨胀"现象引起的逆动力学效应使SG的水位控制变得复杂。文章分析了SG水位控制方法的特点,重点分析了SG水位模糊控制方法与神经网络控制方法。指出了传统的PI(D)水位控制方法存在的问题,就SG水位控制发展趋势提出了看法。

关键词 蒸汽发生器 水位 模糊控制 神经网络

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Analysis of Water Level Control Methodsfor Nuclear Steam Generator

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Abstract Nuclear steam generator(SG) is a highly complex nonlinear time-changed (system). The inverse dynamics effects, which are caused by shrink and swell under transient, startup and lower power operation, make the water level difficult to control. Methods of SG water level control are analyzed in the paper. The shortcoming of conventional PI(D) control for SG level is pointed out. It emphatically expounds the fuzzy logic control and the neural network control to nuclear steam generator level. Finally, the author brings forward his opinion upon the advance tendency of SG water level control.

Key words steam generator water level fuzzy control neural network

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