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核反应堆中子通量密度的一种非线性控制方法

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摘要 针对核反应堆点堆动态非线性模型,提出了一种非线性状态反馈的中子通量密度恒值控制的新方法。与传统的古典控制方法相比,此方法不必对模型进行近似线性化处理,因而,控制精度较高,适用的时域范围较广,控制律也不太复杂。仿真结果验证了这种非线性控制律的有效性和优越性

关键词 [核反应堆](#) [中子通量密度](#) [非线性控制](#)

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Nonlinear Control of Neutron Flux Density of the Nuclear Reactor

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Abstract According to the nonlinear dynamic model of a nuclear reactor, a new constant neutron flux density control method based on nonlinear state feedback is presented. This new method has high accuracy and fits in wide time domain in contrast to the classical control methods because of no approximation of the reactor model. The nonlinear control law is not too complicated. The simulation results verify the effectiveness and the advantage of the presented control law.

Key words [nuclear reactor](#) [neutron flux density](#) [nonlinear control](#)

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