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反应堆工程

套管式双面加热蒸汽发生器的热工水力分析

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摘要 为研究套管式双面加热蒸汽发生器在稳态和瞬态过程中的热工水力特性，建立了描述蒸汽发生器物理现象的一维均匀流数学模型。应用该模型，开发了可计算稳态和瞬态工况下一回路和二回路冷却剂温度场、焓场的直流蒸汽发生器热工水力程序。计算结果对直流蒸汽发生器结构设计、运行具有指导意义。

关键词 蒸汽发生器 _ 热工水力特性 _ 瞬态 _ 两相流

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Thermal Hydraulics Analysis of Steam Generator Heated Bilaterally

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Abstract In order to investigate the thermal hydraulic characteristics of the steam generator heated bilaterally during steady state and transient process, a mathematical model to formulate the physical phenomena in the steam generator is established. It is a one-dimension , homogenous flow model. According to the established model, the code to predict the thermal hydraulics characteristics of steam generator was developed. It can calculate the steady state and transient enthalpy fields, temperature fields of primary coolant and secondary fluid, wall temperature of inner and outer tube etc. The calculation results are analyzed and the results have important meanings to the structure design， steady-state and transient state safe operation of steam generator.

Key words steam generator _ thermal hydraulics _ transient _ two-phase flow

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