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反应堆工程

强迫循环并联通道流量漂移现象研究

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摘要 使用RELAP5程序对垂直并联环隙窄缝通道流量漂移现象进行研究，分析了强迫循环并联通道流量漂移现象的形成过程及其原因，研究了主要运行参数对垂直并联环隙窄缝通道流量漂移现象的影响。结果表明：增大窄缝间隙，降低入口欠热度，增大系统压力，减小热流密度，增加入口单相阻力，减小出口两相阻力均可减小通道压降 流量特性曲线的斜率，从而提高系统的稳定性，避免流量漂移现象的发生。

关键词 并行通道 流量漂移 RELAP5程序

分类号

Flow Excursion Instability in Forced Circulation Parallel Channels

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Abstract The flow excursion instability in vertical parallel narrow channels under different flow conditions was performed by the best estimate system computer code RELAP5. The process and inherent reason of flow excursion in forced circulation parallel channel system were analyzed in detail. The effects of main operating parameters on the system behavior were studied. The results show that decreasing the inlet subcooling, the heat flux or outlet resistance, and increasing the system pressure, the hydraulic diameter or inlet resistance can depress the slope of the pressure drop-mass flux curve and avoid the flow excursion phenomenon.

Key words parallel channel flow excursion RELAP5 code

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