

反应堆工程

RELAP5与CFX程序耦合研究

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摘要 以RELAP5与CFX程序为基础, 利用并行虚拟机技术和CFX用户函数进行编程, 开发了 RELAP5 /CFX耦合程序。在单相范围内, 首先利用水平圆管喷放问题验证了程序间耦合的正确性。然后, 针对双T型接管混合实验进行了模拟, 相对于单独的RELAP5程序, 耦合程序能更好地揭示真实的物理现象。通过后续的开发完善, 耦合程序可用于反应堆安全分析中存在着显著三维混合现象的问题。

关键词 [RELAP5程序](#) [CFX程序](#) [RELAP5/CFX耦合程序](#)

分类号

Research on Coupling Between RELAP5 and CFX Codes

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Abstract Based on system code RELAP5 and computational fluid dynamics code CFX, the RELAP5/CFX coupled code was developed by means of parallel virtual machines technique and CFX USER FORTRAN. Under the single phase state, verification of coupling between the two codes was performed with horizontal pipe blowdown problem firstly. Then a double T junction mixing experiment was simulated. Compared with RELAP5 stand alone calculations, the coupled code reveals three dimensional mixing phenomena more clearly. Through more researches and development, the coupled code will be used for mixing problems in the nuclear reactor safety analysis.

Key words [RELAP5 code](#) [CFX code](#) [RELAP5/CFX coupled code](#)

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