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## 自然循环系统热工水力学特性的均相模型分析

@贾海军\$清华大学核能技术设计研究院!北京100084 @SONGJinho\$韩国原子能研究所!韩国大田

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**摘要** 在低压低干度汽水两相流稳定性实验研究的基础上,建立了对 200MW核供热堆热工水力学实验回路HRTL 200进行分析计算的均相模型。稳态流动特性和密度波振荡特性的分析结果表明:均相模型获得的稳态流量分析结果大于实验结果,且均相模型能预测出原本很窄的低干度不稳定区域及两条稳定边界,但在低干度区域,不考虑过冷沸腾区时,均相模型给出的结果不能清楚显示出原本很窄的低干度不稳定区域及两条稳定边界。

**关键词** [低含汽量](#) [均相模型](#) [密度波不稳定性](#)

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## Analysis of Thermalhydraulic Characteristics of Natural Circulation System With Homogeneous Model

JIA Hai jun 1, SONG Jinho 2 (1 Institute of Nuclear Energy Technology, Tsinghua University, Beijing 100084, China; 2. Korea Atomic Energy Research Institute, Daejeon, Korea)

**Abstract** Based on the experimental investigation of low pressure and low quality vapour water two phase flow density wave oscillation carried out at Institute of Nuclear Energy Technology of Tsinghua University, an analysis model for the thermalhydraulic test loop of 200 MW heating reactor(HRTL 200) is presented. The analysis results of steady state and density wave oscillation show that the calculated mass flow rate is larger than the experimental one, and the homogeneous model neglected the subcooled boiling region can not predict both of small and large subcooling stability boundaries in the narrow low quality unstable region, although it can predict two density wave oscillation regions in low quality and high quality regions.

**Key words** [low quality](#) [homogeneous model](#) [density wave oscillation](#)

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