论文与报告

水发汗温度场控制

杨学实

北京142信箱206分箱

摘要
在文献[1,2]研究氢气发汗的基础上,本文探讨了水发汗剂.水在沸点会汽化,热层内存在热漏,对此采用"假想节点"思想,导出了差分公式,建立了三对角方程组,并进行了数字仿真.当给定控制参数mL的函数形式为级数时,闭合回路控制数字仿真结果表明,该级数能够有效地控制热层温度.
关键词　　发汗　传热　数字仿真
分类号

Transpiration Control with Water for Temperature Field

Yang Xueshi

P.O.Box3924,Beijing

Abstract
On the basis of references [1,2], in which helium was used as the coolant, this paper investigates the problem of transpiration control using water as the coolant. At its boiling point, water will be vaporized and absorb heat, so there exists heat sink in protection layer. By means of the method of imaginary node, the difference equitions with inner discontinuity are derived and the tridiagonal system of equations are obtained. When the control parameter mL is given as the series type of temperature, the result of the closed-loop control simulations show that it can control the temperature of the heat protection layer very effectively.

Key words　　Transpiration　heat transfer　digital simulation

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通讯作者
作者个人主页　杨学实

扩展功能

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