

目 次

特约稿

热管冷却反应堆的兴起和发展.....余红星 马誉高 张卓华 等 (001)

堆芯物理与热工水力

高压条件下燃料组件内过冷沸腾过程传热不均匀性研究

.....杜利鹏 陈晓龙 张鹏飞 等 (009)

非能动安全壳中降膜流动与波动特性数值模拟研究

.....邱庆刚 龙黄祥 邓 坚 等 (015)

压力容器外部冷却可视化图像分析研究.....薛艳芳 张 祥 田道贵 (021)

船用核动力装置止回阀的流固热耦合研究.....余 航 赵新文 傅晟威 (025)

³He 辐照考验装置反应性引入事故分析.....徐涛忠 邓才玉 马立勇 等 (029)

超临界压力区域失压瞬态传热特性数值研究

.....李永亮 曾小康 文 彦 等 (032)

DBA 条件下安全壳非能动余热导出系统的载热特性缩比试验分析

.....孟现珂 费立凯 高 彬 等 (039)

安全壳过滤排放系统长期运行热工水力特性分析

.....董世昌 杨 军 邓程程 等 (044)

适用于 ADS 组件计算的 HELIOS 程序多群数据库制作研究

.....包利红 江新标 张信一 等 (050)

能谱变化对活化法中子注量测量的影响.....邹 鹏 操节宝 王云波 等 (056)

核燃料及反应堆结构材料

铅基快堆 RBEC-M 燃耗库制作方法研究及验证

.....刘佳芝 马续波 仇若萌 等 (060)

等离子喷涂制备 FeCrAl 涂层的 ATF 锆包壳性能研究

.....李 锐 刘 彤 (065)

铀燃料元件制造设施 UF₆ 泄漏后室内行为初步分析

.....阙 骥 何 玮 张 敏 等 (070)

安全与控制

核电厂数字化仪表控制系统商品级物项适用性确认方法研究与应用

.....孙洪涛 李红霞 刘静波 等 (076)

M310 堆型及其改进型核电厂中压移动电源设置的有效性分析

.....张 奇 曹光辉 耿 艳 等 (081)

核电厂仪表与控制系统设计在英国 GDA 过程中的若干问题分析

.....郑伟智 柏祥基 孙洪涛 等 (085)

核电厂数字化主控室操纵员界面管理任务特征的研究

.....张 力 刘建桥 邹衍华 等 (091)

核电厂集成系统确认情境选取方法.....	孙 茜 楚济如 王雨琪	(096)
重水堆核电厂在线测氘系统抽气方式的改进	苏国权	(100)
数字化主控室操纵员人因可靠性研究.....	陈青青 张 力 胡 鸿 等	(104)
基于奇异值谱熵复杂度的 CRDM 滚轮磨损程度识别研究	张黎明 李 琳 洪力阳 等	(108)
模块式小型核反应堆稳压器波动管破口事故分析研究	尹莎莎 罗涵禹 秋穗正 等	(113)
浮动核电站抑压水池液舱晃荡研究.....	郑亚雄 郭 健 符壮志 等	(117)
数字化核电厂主控室操纵员班组行为研究	陈青青 张 力 胡 鸿 等	(123)
回路及设备		
基于核主泵性能预测的数值模拟精度研究	胡晓东 王秀勇 刘在伦 等	(127)
铯自给能探测器延迟信号数字处理算法与实验研究	徐小恒 莫华均 李东仓 等	(134)
核电厂人员闸门数字样机应用技术研究.....	谢洪虎 马文勤 张 峰 等	(139)
核电厂屏蔽主泵 Canopy 密封环钻孔疏流装置设计与研究	闫国华 文 忠 李 玮 等	(145)
核电厂严重事故工况下氢气浓度监测装置研制	王宏庆 唐 敏 唐月明 等	(149)
基于三代核电技术的电气贯穿件导体组件研制	周 缘 王广金 周 天 等	(153)
MJTR 硅单晶辐照技术改进研究.....	杨 斌 王红阳 王云波 等	(157)
核反应堆系统设计技术重点实验室专栏		
CORCA-3D 软件调硼临界燃耗功能的开发和初步验证	安 萍 马永强 郭凤晨 等	(161)
基于智能预测的反应堆功率调节研究.....	赵梦薇 陈 智 廖龙涛 等	(166)
UMo-Zr 单片式燃料板结构改进研究.....	殷明阳 庞 华 唐昌兵 等	(172)
单相 4×4 棒束流动试验的 CFD 方法验证	刘卢果 江光明 李松蔚 等	(177)
核动力技术创新中心专栏		
某三代核电设备安全壳喷淋泵力学分析和试验研究	李 松 许 余 汤华鹏 等	(183)
中央空调减振降噪技术在船用冷却水泵中的应用	王晨光 汤雁翔	(189)
船用核动力装置辐射安全技术研究.....	刘绍强 张宏越 谭 怡 等	(193)
小型核电源传热及热电特性实验研究.....	唐思邈 王成龙 苏光辉 等	(200)

编委会主任：周永茂
编委会副主任：彭士禄 黄国俊 管云龙 李玉嵩 王大中
王乃彦 潘自强 赵 华 杨 岐
主 编：罗 琦
副 主 编：孙玉发 黄士鉴 卜永熙 崔广余 汪胜国

编辑部副主任：黄可东
编 辑：马 蓉 张明军 刘 君 张祚豪
杨灵芳 孙 凯 杨洁蕾 王中强
周 茂 尚作燕

Initiation and Development of Heat Pipe Cooled Reactor	Yu Hongxing Ma Yugao Zhang Zhuohua et al (001)
Study on Non-Uniformity of Sub-Cooled Boiling Heat Transfer of High Pressure Water in Fuel Assembly	Du Lipeng Chen Xiaolong Zhang Pengfei et al (009)
Numerical Study of Falling Film Flow and Wave Characteristics in Passive Containment	Qiu Qinggang Long Huangxiang Deng Jian et al (015)
Visualization Study on Boiling Flow by Image Processing under External Reactor Vessel Cooling	Xue Yanfang Zhang Xiang Tian Daogui (021)
Research on Fluid-Solid-Heat Coupling for Check Valves in Marine Nuclear Power Plants	Yu Hang Zhao Xinwen Fu Shengwei (025)
Analysis of Reactivity Introducing Accident in ³ He Irradiation Rig	Xu Taozhong Deng Caiyu Ma Liyong et al (029)
Computational Fluid Dynamic Simulation on Heat Transfer Characteristics of Water Flowing in Heated Tube during Depressurization Transient under Supercritical Pressure	Li Yongliang Zeng Xiaokang Wen Yan et al (032)
Scaled Experimental Study on Heat Transfer Characteristics of PCCS under DBA Conditions	Meng Xianke Fei Likai Gao Bin et al (039)
Thermal-Hydraulic Characteristics of Filtered Containment Venting System for Long-Term Operation	Dong Shichang Yang Jun Deng Chengcheng et al (044)
Study on Processing Methods of HELIOS Format Multi-Group Library Applicable for ADS Assembly Calculation.....	Bao Lihong Jiang Xinbiao Zhang Xinyi et al (050)
Effect of Spectrum Variation on Activation Measurement for Neutron Fluence	Zou Peng Cao Jiebao Wang Yunbo et al (056)
Research and Validation of Burnup Library Processing for Lead Based Fast Reactor RBEC-M	Liu Jiayi Ma Xubo Qiu Ruomeng et al (060)
Study on Properties of FeCrAl Coated ATF Zirconium Cladding Prepared by Plasma Spry	Li Rui Liu Tong (065)
Preliminary Analysis on Indoor Behaviors of Leaked UF ₆ in Uranium Fuel Fabrication Facilities	Que Ji He Wei Zhang Min et al (070)
Study and Application of Commercial Grade Dedication in Digital Instrument Control System in Nuclear Power Plants.....	Sun Hongtao Li Hongxia Liu Jingbo et al (076)
Analysis of Effectiveness of Medium Voltage Mobile Power Supplies in M310 and Modified Nuclear Power Plants	Zhang Qi Cao Guanghui Geng Yan et al (081)
Analysis of Several Issues of Instrumentation and Control System of Nuclear Power Plant Design in UK GDA Process	Zheng Weizhi Bai Xiangji Sun Hongtao et al (085)
Characteristics of Operator Interface Management Tasks in Digital Main Control Room of Nuclear Power Plants	Zhang Li Liu Jianqiao Zou Yanhua et al (091)
Method of Scenario Selection for Integrated System Validation	Sun Qian Chu Jiru Wang Yuqi (096)
Improvement of Online Tritium-in-Air Monitoring System in Heavy Water Reactor Power Plants	Su Guoquan (100)
Study on Human Reliability of Operator in Digital Main Control Room	Chen Qingqing Zhang Li Hu Hong et al (104)
Roller Wear Degree Recognition of Control Rod Drive Mechanism Based on the Complexity of Singular Spectrum Entropy.....	Zhang Liming Li Lin Hong Liyang et al (108)

Study on Severe Accident Initiated by Surge Line Break for Small Modular Reactors	Yin Shasha Luo Hanyu Qiu Suizheng et al (113)
Research on Tank Sloshing of Pressure Suppression Pool in Floating Nuclear Power Plants	Zheng Yaxiong Guo Jian Fu Zhuangzhi et al (117)
Study on Behavior of Work Teams in Digital Main Control Room of Nuclear Power Plants	Chen Qingqing Zhang Li Hu Hong et al (123)
Research of Numerical Simulation Accuracy Based on Performance Prediction of Nuclear Main Pump	Hu Xiaodong Wang Xiuyong Liu Zailun et al (127)
Experimental Research on Digital Processing Algorithm for RSPND Delay Signal	Xu Xiaoheng Mo Huajun Li Dongcang et al (134)
Research on Digital Prototype Technologies of Personnel Airlock for Nuclear Power Plants	Xie Honghu Ma Wenqin Zhang Feng et al (139)
Design and Research of Drilling and Draining Equipment for Canopy Seal Weld on CAP1400/AP1000 Canned Reactor Coolant Pump	Yan Guohua Wen Zhong Li Wei et al (145)
Development of Hydrogen Concentration On-line Monitoring Devices under Severe Accidents in NPPs	Wang Hongqing Tang Min Tang Yueming et al (149)
Development of Feedthrough Assembly for Electrical Penetration Assembly Based on Third-Generation Nuclear Power Technology	Zhou Yuan Wang Guangjin Zhou Tian et al (153)
Improvement of Irradiation Technology for Mono-Crystalline Silicon in MJTR	Yang Bin Wang Hongyang Wang Yunbo et al (157)
Development and Validation of Critical Boron Concentration and Burnup Calculation of Software CORCA-3D	An Ping Ma Yongqiang Guo Fengchen et al (161)
Research on Integrated Reactor Power Control System Based on Intelligent Prediction	Zhao Mengwei Chen Zhi Liao Longtao et al (166)
Structural Improvement of UMo-Zr Monolithic Fuel Plates	Yin Mingyang Pang Hua Tang Changbing et al (172)
Validation of CFD Method for Benchmark Experiment of Single-Phase 4×4 Rod Bundle Flow	Liu Luguo Jiang Guangming Li Songwei et al (177)
Mechanical Analysis and Experimental Research on Containment Spray Pump in Third Generation Nuclear Power Plant	Li Song Xu Yu Tang Huapeng et al (183)
Application of Vibration Reduction Technologies for Central Air Conditioning in Cooling Water Pumps	Wang Chenguang Tang Yanxiang (189)
Study on Technology of Radiation Safety in Marine Nuclear Power Plants	Liu Shaoqiang Zhang Hongyue Tan Yi et al (193)
Experimental Research on Heat Transfer and Thermoelectric Characteristics of Small Nuclear Power Supply Facilities	Tang Simiao Wang Chenglong Su Guanghui et al (200)