

ISSN 0258-0918
CODEN:HYGODG

中国核学会学报

核科学与工程

NUCLEAR SCIENCE AND ENGINEERING

HEKEXUE YU GONGCHENG

第39卷第5期Vol.39 No.5

第5期
2019

ISSN 0258-0918



9 770258 091198



中国核学会
中国原子能出版社
CHINESE NUCLEAR SOCIETY
CHINA ATOMIC ENERGY PRESS

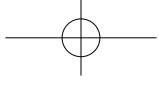
万方数据

核科学与工程

第三十九卷第五期

二〇一九年十月

中国核学会
中国原子能出版社



Contents

目 录

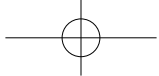
● 反应堆工程

喷淋冷却条件下压水堆乏燃料换热特性研究.....	
..... 曹 琼, 李鸿源, 衣聪慧, 等 (673)	
碎片对燃料组件流动阻力影响的试验研究.....	
..... 王 达, 牛风雷, 卓卫乾, 等 (678)	
基于扩散界面法的 ADS 无窗散裂靶自由界面数值研究	
..... 林显斌, 蔡杰进, 王 烨 (687)	
不同尺寸管道中细颗粒的沉积运动规律研究.....	
..... 朱亮宇, 周 涛, 秦雪猛, 等 (695)	
CPY 核电厂低温超压保护改进的研究.....	张亚奇, 唐 祥 (701)
稳态条件下稳压器喷淋降压模型及数值分析.....	
..... 邓 丰, 黄 燕, 李焕鸣, 等 (708)	
芯块侧偏状态下的燃料棒温度场数值计算分析.....	
..... 张钧波, 张功伟, 张 敏 (715)	
小型铅基堆自然转强迫循环热工水力瞬态特性分析.....	
..... 刘文斌, 张光雨, 王 磊, 等 (722)	

● 核电厂

采用化学方法分析和计算压水堆核电厂调试阶段蒸汽发生器的泄漏量.....	
..... 刘 勇, 叶 明, 吴 慧, 等 (730)	
水蒸气—氮气清洗方法在小型粘钠设备清洗中的应用.....	
..... 刘绩伟, 李君瑜, 李 煦, 等 (735)	
320 MW 核电机组热功率计算与主给水流量低的研究	
..... 夏中朝, 孙 磊 (743)	
一回路剩余空气体积对核岛隔离阀密封性定期试验的影响研究.....	
..... 孙开宝, 张 钊, 张铁坚, 等 (750)	
ACPR1000 核电厂 SG 水位控制调试方法研究.....	
..... 项洪一, 陈坚才, 黄振广, 等 (758)	
基于 CDF 的核电厂可靠性指标分配方法研究	
..... 李朝君, 宋 维, 陈 妍, 等 (765)	

期刊基本参数: CN11—1861/TL*1981*B*A4*168*zh*P*Y40.00
*1000*27*2019—10



Contents

目 录

● 核电厂

- 基于 BP 神经网络的核电站温度传感器检测装置的设计开发研究
..... 杜晓光, 李 楠, 刘燕芳, 等 (771)
- 放射性废树脂热态超级压缩堆积密度探讨.....
..... 马小强, 杨 洋, 商佩海, 等 (778)

● 核安全

- 核电站冷却用电机抗震性能鉴定及裕度分析..... 周年强, 施卫星 (782)
- 基于 MAAP4 的百万千瓦级核电站大破口事故分析
..... 袁显宝, 林 钦, 张彬航, 等 (789)
- M310 机组应对全厂断电事故的优化研究
..... 张博平, 初永越, 张 适, 等 (796)
- 核电厂安全系统维修活动风险评价过程中的共因失效研究.....
..... 堵树宏, 孙金龙, 吴立村 (804)

● 核技术

- 三种核燃料循环方案的综合效益比较... 曹殿鹏, 邹树梁, 唐德文, 等 (809)
- 新建核电厂数字化仪控系统变更控制研究... 朱高斌, 穆海洋, 段 鹏 (821)
- 乏燃料铁路运输路线选择模型研究.... 李中阳, 陈春花, 吴 斌, 等 (826)
- 有缓发中子的均匀弥散型反应堆内热中子有效增殖系数的求解方法的介绍...
..... 裴德强 (833)
- 核电厂设备闸门提升装置关键失效模式分析.....
..... 谢洪虎, 邓海青, 张 峰, 等 (841)
- 滨海核电厂址大型模块海运交付技术方案可行性探讨.....
..... 晏桂珍, 汤传乐, 王成才, 等 (849)

● 辐射防护

- 基于 ISPRA-Fe 实验的 SuperMC 3.2 屏蔽深穿透验证.....
..... 杨金合, 龙鹏程, 何 鹏, 等 (860)

CONTENTS

Study on Heat Transfer Characteristics of PWR Spent Fuel under Spray Cooling Condition	CAO Qiong ,LI Hongyuan ,YI Conghui ,LU Daogang (673)
Experimental study of Flow Resistance through Debris Bed Deposited on A Fuel Assembly	WANG Da , NIU Fenglei , ZHUO Weiqian ,et al (678)
Numerical Study of Free Interface of ADS Windowless Spallation Target Based on Diffusion Interface Method	LIN XianBin , CAI JieJin , WANG Ye (687)
Study on sedimentation movement of fine particles in pipelines of different sizes	ZHU Liangyu , ZHOU Tao ,QIN Xueming ,et al (695)
Study of on Site LTOP Update for CPY Nuclear Power Plant	ZHANG Yaqi ,TANG Xiang (701)
The Research of the Model and Numerical Analysis on Spraying and Depressurizing in Pressurizer under Steady Conditions	DENG Feng , HUANG Yan , LI Huanming ,et al (708)
Numerical Calculation and Analysis of Fuel Rod Temperature Field Under Pellet Side Deviation	ZHANG Junbo ,ZHANG Gongwei ,ZHANG Min (715)
Thermal-hydraulic Transient Characteristics Analysis of Small Lead-based Reactor from Natural Circulation to Forced Circulation	LIU Wenbin ,ZHANG Guangyu , WANG Lei ,et al (722)
Analysis and Calculate the Leakage of Steam Generator for PWR by Using the Chemical Method During the Commissioning Stage	LIU Yong ,YE Ming ,WU Hui ,et al (730)
The Application of Water Vapor-Nitrogen Process in Cleaning Small Sodium Wetted Devices	LIU Jiwei , LI Junyu , LI Xu ,et al (735)
Calculation of Thermal Power and Low Flow Rate of Main Feedwater in 320 MW Nuclear Power Unit	XIA Zhongchao ,SUN Lei (743)
Study on the Influence of the Residual Air in the Primary Loop on the Leak Tightness Periodic Tests of Check Valves in Nuclear Island	SUN Kaibao ,ZHANG Zhao ,ZHANG Tiejian ,et al (750)
Adjustment for ACPR1000 Nuclear Plant SG level control	XIANG Hong-yi , CHEN Jian-cai , HUANG Zhen-guang ,et al (758)
Research on Reliability Index Allocation Method for the Nuclear Power Plant Based on CDF	LI Chao-jun , SONG Wei , CHEN Yan ,et al (765)
The Development of Test Equipment by the BP Neural Network for the Temperature Sensor in the Nuclear Power Plant	DU Xiaoguang ,LI Nan ,LIU Yanfang ,et al (771)
Discussion on Packing Density of Radioactive Spent Resins after Hot Super-Compaction	MA Xiaoqiang , YANG Yang , SHANG Peihai ,et al (778)
Study on Seismic Qualification and seismic margin assessment of the Electromotor of Nuclear Power Plant	ZHOU Nianqiang ,SHI Weixing (782)
Analysis of Large Breaks Accidents in 1000 MW NPP Based on MAAP4	YUAN Xianbao ,LIN Qin , ZHANG Binhang ,et al (789)

Optimization Research on the Ability of M310 Units to Deal with Station Blackout ZHANG Boping ,CHU Yongyue ,ZHANG Shi ,et al(796)

Research on Common Cause Failure in Risk Assessment of Maintenance Activities in Nuclear Power Plant DU Shuhong , SUN Jinlong , WU Licun(804)

Comparison of the Comprehensive Benefits of Three Nuclear Fuel Cycle Schemes CAO Dianpeng ,ZOU Shuliang ,TANG Dewen ,et al(809)

Research on Change Control of Digital I&C System in Newly-built Nuclear Power Plants ZHU Gaobin , MU Haiyang , DUAN Peng(821)

Spent Fuel Railway Transportation Route Selection Model LI Zhongyang ,CHEN Chunhua ,et al(826)

Solving Method of Thermal Neutrons Effective Proliferation Coefficient in Uniformity Dispersion Reactor with Delayed Release Neutrons PEI Deqiang(833)

Assessment of Key Failure Modes of Equipment Access Hatch Lifting Device for Nuclear Power Plant XIE Honghu , DENG Haiqing , ZHANG Feng ,et al(841)

Feasibility Study on Technical Plan for Shipping Delivery of Large Modules for Coastal Nuclear Power Plant Sites ... YAN Guizhen ,TANG Chuanle ,WANG Chengcai ,et al(849)

Validation of Super MC3. 2 for Deep Penetration Problems with ISPRA-Fe Experiment YANG Jinhe ,LONG Pengcheng ,HE Peng ,et al(860)