



ISSN 1000-6931

CN 11-2044/TL

原子能科学技术

中国原子能科学研究院

2017

7

(第51卷)

ATOMIC ENERGY SCIENCE
AND TECHNOLOGY

ATOMIC ENERGY SCIENCE
AND TECHNOLOGY

ISSN 1000-6931



万方数据

目 次

物理

强中子场裂变产物中子核反应网络方程研究 钱 晶,刘廷进,舒能川,孙正军(1153)

化学

紫花苜蓿绿色合成纳米铁及其对 U(VI)去除性能的研究 刘 清,李 超,招国栋(1160)

反应堆工程

小型化气冷球床堆方案设计与应用研究 游尔胜,余 顶,陈福冰,石 磊(1167)

空间反应堆布雷顿循环热力学优化分析 李 智,杨小勇,王 捷,张作义(1173)

雷诺数关系式对膜状凝结湍流区传热计算的影响 彭银波,张亚军,李卫华,肖 秀,吴 磊(1181)

自然循环与强迫循环条件下阻力及换热特性对比 伍振兴,阎昌琪,田春平,田旺盛,秋穗正(1188)

矩形通道轴向非均匀加热条件下的 CHF 研究 王 玮,黄慧剑,陈宝文,陈 曦(1195)

非能动安全壳冷却系统膜状冷凝强化换热设计 刘家磊,蔡 琦,陈玉清(1202)

面向冷却剂温度控制的铅基冷却反应堆热工水力系统传递函数建模方法
..... 裴建华,汪建业,徐 鹏,杨明翰,赵柱民(1208)

压水堆严重事故下封头热斑计算 周 涛,王尧新,杨 旭(1214)

钠冷快堆直流式蒸汽发生器固定网格与滑移网格模型对比分析
..... 叶尚尚,杨红义,刘一哲,杨晓燕,王晓坤,齐少璞,王利霞(1219)

基于 TRACE 程序的大破口 BEPU 分析方法在独立审核计算中的应用 ... 孙 微,庄少欣,安婕铷,靖剑平(1225)

RMC 均匀裂变源方法及其在堆用蒙特卡罗计算不对称性问题中的应用
..... 吴 屈,范 潇,王 刚,王 侃(1232)

基于基准题的中子扩散程序蜕变测试验证方法
..... 阳小华,闫仕宇,李 萌,于 涛,谢金森,刘朝晖,刘 华(1239)

SORA 原型装置临界实验的基准化分析 刘晓波,John D. Bess,Margaret A. Marshall(1244)

无铍钍基熔盐堆堆芯设计与安全研究 陈其昌,司胜义,赵金坤,卑 华(1252)

基于动态差分法的压水堆一回路放射性核素浓度分析 常 建,蔡杰进,董梦锦,唐智洪(1260)

基于 AST 方法的核电厂 LOCA 释放源项计算分析 陈海英,王韶伟,兰 兵,陈 妍,韩向臻(1268)

核电主设备分析法设计中应力线性化路径可靠性及优化分析
..... 何 铮,常华健,杨培勇,刚 直,张 锴,谢永诚,梁星筠(1273)

321-52M-690 异种金属焊接接头的应力腐蚀开裂行为研究 何 琨,汪家梅,张乐福(1279)

技术及应用

串道现象对测量结果的影响 李 周,李鹏翔,张 静,高泽全,李 园,易武静,宋沁楠,韩玉虎(1286)

用于在线测量反应堆内热中子相对通量密度分布的闪烁体光纤探测器研究
..... 李严严,张雪荧,张艳斌,刘 锋,马 飞,万 波,葛红林,张宏斌,陈 亮(1290)

混合场 β/γ 能谱探测器的研制 陈 立,张庆利,程建平(1296)

基于模极大值法的 γ 能谱数据处理与分析 曾晨浩,冯孝杰,段中山,秦 冰,武 艺,敖 漉(1305)

脉冲 X 光机的光源特性参数研究 司粉妮,李名加,王文川,朱学彬,王 栋,徐荣昆,张传飞(1311)

基于粗糙集理论和 PSpice 仿真的脉冲功率装置故障诊断方法..... 胡 杨,杨海亮,张鹏飞,孙 江,孙剑锋(1316)

应急设施可居留性分析的严重事故源项初步探讨 孙大威,付亚茹,梅其良,张姗姗,潘 楠(1322)

基于蒙特卡罗方法的环氧树脂基屏蔽腻子优化设计及应用研究
..... 许 浒,李晓玲,吴荣俊,左亮周,陈五星(1328)

预辐照对铍在 EDM-1 中冲刷腐蚀的影响 郑莉芳,李 帅,钱 讯,王 立(1336)

铀离心浓缩厂分离功率在线监测技术研究 吕学升,刘国荣,梁庆雷,郝学元,赵永刚,李井怀,应 斌(1342)

期刊基本参数: CN 11-2044/TL * 1959 * m * A4 * 192 * zh * P * ¥40.00 * 1200 * 30 * 2017-07

本期责任编辑 韩翠娥 马英霞 王宝金 王调霞 侯翠梅 汤晓浩 张秀平

CONTENTS

PHYSICS

Research on Nuclear Reaction Network Equation for Fission Product Nuclides in Strong Neutron Field	QIAN Jing, LIU Ting-jin, SHU Neng-chuan, SUN Zheng-jun(1153)
--	--

CHEMISTRY

Green Synthesis of Iron Nanoparticles Using <i>Medicago sativa L.</i> for Removal of U(VI)	LIU Qing, LI Chao, ZHAO Guo-dong(1160)
--	--

REACTOR ENGINEERING

Conceptual Design and Application Research on Small Gas-cooled Pebble Bed Reactor	YOU Er-sheng, SHE Ding, CHEN Fu-bing, SHI Lei(1167)
Thermodynamic Optimization and Analysis of Brayton-cycle System for Space Power Reactor	LI Zhi, YANG Xiao-yong, WANG Jie, ZHANG Zuo-yi(1173)
Effect of Reynolds Correlations on Heat Transfer Calculation of Film Condensation in Turbulent Flow	PENG Yin-bo, ZHANG Ya-jun, LI Wei-hua, XIAO Xiu, WU Lei(1181)
Comparison of Flow Resistance and Heat Transfer Characteristics under Natural and Forced Circulations	WU Zhen-xing, YAN Chang-qi, TIAN Chun-ping, TIAN Wang-sheng, QIU Sui-zheng(1188)
Study of CHF under Non-uniform Heating Condition in Rectangular Channel	WANG Wei, HUANG Hui-jian, CHEN Bao-wen, CHEN Xi(1195)
Design on Film Condensation Heat Transfer Enhancement in PCCS	LIU Jia-lei, CAI Qi, CHEN Yu-qing(1202)
Coolant Temperature Control Oriented Transfer Function Modeling of Lead-based Cooled Fast Reactor Thermal-hydraulic System	PEI Jian-hua, WANG Jian-ye, XU Peng, YANG Ming-han, ZHAO Zhu-min(1208)
Calculation on Hot Spot of Bottom Head under Severe Accident of PWR	ZHOU Tao, WANG Yao-xin, YANG Xu(1214)
Analysis of Fixed and Movable Boundary Models for Once-through Steam Generator of Sodium-cooled Fast Reactor	YE Shang-shang, YANG Hong-yi, LIU Yi-zhe, YANG Xiao-yan, WANG Xiao-kun, QI Shao-pu, WANG Li-xia(1219)
Application of LBLOCA BEPU Analysis in Independent Review Calculation Based on TRACE Code	SUN Wei, ZHUANG Shao-xin, AN Jie-ru, JING Jian-ping(1225)
RMC Uniform-fission-site Method and Its Application to Asymmetry of Reactor Core Monte-Carlo Computation	WU Qu, FAN Xiao, WANG Gang, WANG Kan(1232)
Verification Method of Metamorphic Test on Neutron Diffusion Program Based on Benchmark Problem	YANG Xiao-hua, YAN Shi-yu, LI Meng, YU Tao, XIE Jin-sen, LIU Zhao-hui, LIU Hua(1239)
Benchmarking Critical Experiment of SORA Mockup	LIU Xiao-bo, John D. Bess, Margaret A. Marshall(1244)

Core Design and Safety Study of TMSR with BeF ₂ -free Fuel Salt	CHEN Qi-chang, SI Sheng-yi, ZHAO Jin-kun, BEI Hua(1252)
Analysis of Radionuclide Concentration in Primary Loop of PWR Based on Dynamic Differential Equation	CHANG Jian, CAI Jie-jin, DONG Meng-jin, TANG Zhi-hong(1260)
Analysis of Release Source Term in LOCA for NPP Based on AST Method	CHEN Hai-ying, WANG Shao-wei, LAN Bing, CHEN Yan, HAN Xiang-zhen(1268)
Reliability and Optimal Analysis for Design by Analysis of Stress Linearization Path in Nuclear Power Equipment	HE Zheng, CHANG Hua-jian, YANG Pei-yong, GANG Zhi, ZHANG Kai, XIE Yong-cheng, LIANG Xing-yun(1273)
Stress Corrosion Cracking Behavior of 321-52M-690 Dissimilar Weld Joint	HE Kun, WANG Jia-mei, ZHANG Le-fu(1279)

TECHNIQUES AND APPLICATIONS

Influence of Crosstalk Phenomenon on Measurement Result	LI Zhou, LI Peng-xiang, ZHANG Jing, GAO Ze-quan, LI Yuan, YI Wu-jing, SONG Qin-nan, HAN Yu-hu(1286)
Study on Scintillator Fiber Detector for Online Measurement of Thermal Neutron Relative Flux Density Distribution in Reactor	LI Yan-yan, ZHANG Xue-ying, ZHANG Yan-bin, LIU Feng, MA Fei, WAN Bo, GE Hong-lin, ZHANG Hong-bin, CHEN Liang(1290)
Development of Prototype Detector for β and γ Spectra in β/γ Mixed Field	CHEN Li, ZHANG Qing-li, CHENG Jian-ping(1296)
Processing and Analysis of γ Energy Spectrum Data Based on Modulus Maximum Method	ZENG Chen-hao, FENG Xiao-jie, DUAN Zhong-shan, QIN Bing, WU Yi, AO Lu(1305)
Study on Characteristic Parameter of Pulsed X-ray Generator	SI Fen-ni, LI Ming-jia, WANG Wen-chuan, ZHU Xue-bin, WANG Dong, XU Rong-kun, ZHANG Chuan-fei(1311)
Fault Diagnosis of Pulsed Power Device Based on Rough Set Theory and PSpice Simulation	HU Yang, YANG Hai-liang, ZHANG Peng-fei, SUN Jiang, SUN Jian-feng(1316)
Preliminary Study of Severe Accident Source Term for Emergency Facility Habitability	SUN Da-wei, FU Ya-ru, MEI Qi-liang, ZHANG Shan-shan, PAN Nan(1322)
Optimization Design and Application Study of Epoxy Resin Shielding Putty Based on Monte Carlo Method	XU Hu, LI Xiao-ling, WU Rong-jun, ZUO Liang-zhou, CHEN Wu-xing(1328)
Pre-irradiation Effect on Corrosion of Be in EDM-1	ZHENG Li-fang, LI Shuai, QIAN Xun, WANG Li(1336)
Study on On-line Monitor Technique of Separative Power at Uranium Centrifuge Enrichment Plant	LYU Xue-sheng, LIU Guo-rong, LIANG Qing-lei, HAO Xue-yuan, ZHAO Yong-gang, LI Jing-huai, YING Bin(1342)
Editors	HAN Cui-e, MA Ying-xia, WANG Bao-jin, WANG Tiao-xia, HOU Cui-mei, TANG Xiao-hao, ZHANG Xiu-ping