

YUANZINENG KEXUE JISHU

ISSN 1000-6931

CN 11-2044/TL

原子能科学技术

中国原子能科学研究院

2013

1

(第47卷)

ATOMIC ENERGY SCIENCE

AND TECHNOLOGY

ATOMIC ENERGY SCIENCE

AND TECHNOLOGY

ISSN 1000-6931



9 771000 693134

万方数据

目 次

物理

混合压片型²⁴¹AmO₂-Be 中子源物理特性研究…………… 李永明,陈金象,张国辉,樊铁栓(1)

化学

甲醛改性多壁碳纳米管吸附铀的性能研究…………… 刘淑娟,李金英,罗明标,花 榕,林海禄,马建国(7)

Eu(III)在针铁矿及磷酸根改性针铁矿上的吸附…………… 李 琰,吴王锁(14)

高频燃烧-红外法测定氯化锂中的碳量…………… 纪新华,李英秋,赵蕴晖,王 林,吴 梅,罗学明(21)

氨基羧基脲在 Purex 流程铀钚分离中的应用…………… 肖松涛,叶国安,潘永军,罗方祥,杨 贺,兰 天(27)

溶胶-凝胶法制备二氧化铀核芯的 U₃O₈ 欠酸溶解工艺……………
…………… 郝少昌,周湘文,赵兴宇,马景陶,王 阳,邓长生,唐亚平(34)

反应堆工程

铅铋冷却快堆子通道热工水力初步数值分析…………… 王 俊,田文喜,田永红,苏光辉,秋穗正(38)

高宽比对矩形窄通道内单相水流动特性的影响机理…………… 幸奠川,阎昌琪,曹夏昕,刘传成,孙 波(43)

平板过冷流体降膜流动传热特性的数值研究…………… 于意奇,杨燕华,程 旭(48)

圆管内层流脉动流动相位差分析…………… 王 畅,高璞珍,许 超,谭思超(54)

超临界水堆的瞬态分析程序开发…………… 朱大欢,苏亚丽,赵 皓,田文喜,苏光辉,秋穗正(58)

自然循环蒸汽发生器倒 U 型管内倒流现象影响因素研究…………… 郝建立,陈文振,王少明(65)

小宽高比矩形通道两相阻力特性研究…………… 秦胜杰,陈炳德,闫 晓,张 震,肖泽军,黄彦平(70)

应用比例分析方法分析安全壳内液滴传热传质特性…………… 徐 珍,王国栋(75)

船用堆 SGTR 事故下舱室放射性活度分析…………… 商学利,张 帆,陈文振,杨洪立(80)

船用堆预计运行事件下放射性源项计算研究…………… 张 帆,郑映峰,商学利,王 伟(85)

龙格库塔方法在求解瞬态中子扩散方程中的应用…………… 赵文博,姚 栋,王 侃,胡永明(89)

混装堆芯下 300[#] 池式反应堆瞬发中子衰减常数 α 实验研究…………… 曾和荣,段世林,王冠博,刘汉刚,钱达志(97)

临界外推中对控制棒价值非线性的修正…………… 郭海兵,李润东,牛伟力(101)

一种核安全级数字化仪控系统现场控制站的冗余设计…………… 王 鼎,王晓伟,徐晓冬(105)

半衰期为数天的惰性气体和卤素裂变产物在 UO₂ 颗粒中的扩散与释放…………… 房 超(109)

基于威布尔过程的核电厂设备寿期管理决策…………… 王大林,赵 博(114)

技术及应用

闪光照相 X 源光斑编码孔成像诊断可行性研究…………… 杨 波,应阳君,许海波,李金鸿(120)

中子单色器姿态调整台	刘蕴韬,高建波,李峻宏,刘晓龙,李际周,陈东风(125)
半数字读出式玻璃板阻抗室	韩 然(129)
S波段高功率微波测试台架的研制	朱志斌,王修龙,吴青峰,步顺福(133)
高精度工业CT三维图像的标的挖掘与分析	王秉欣,丛 鹏(137)
ITER 10 kA 高温超导电流引线试验件设计与测试 周挺志,毕延芳,丁开忠,冯汉升,黄雄一,刘承连,倪 清,沈 光,宋云涛(141)
Nb ₃ Sn 超导磁体低温冷却设计	许少峰,刘旭峰,宋云涛(147)
瓶装放射性液体自动取样装置的研制 刘国平,席治国,聂诗良,徐卫东,罗顺忠,陈 静,张华明,蹇 源,李卫民,刘 放,李军格,崔元萍,赵 俊(151)
SRAM型FPGA瞬时电离辐射功能错误实验研究 齐 超,林东生,陈 伟,杨善潮,王桂珍,龚建成,马 强(157)

期刊基本参数: CN 11-2044/TL * 1959 * m * A4 * 160 * zh * P * ¥40.00 * 1200 * 31 * 2013-01

本期责任编辑 王调霞 侯翠梅 汤晓浩 马英霞 王宝金 张秀平 韩翠娥

CONTENTS

PHYSICS

- Study of Physical Characteristics for Compressed-Mixture Type $^{241}\text{AmO}_2$ -Be Neutron Source
 LI Yong-ming, CHEN Jin-xiang, ZHANG Guo-hui, FAN Tie-shuan(1)

CHEMISTRY

- Adsorption of Uranium With Multiwall Carbon Nanotubes Modified by Formaldehyde
 LIU Shu-juan, LI Jin-ying, LUO Ming-biao, HUA Rong, LIN Hai-lu, MA Jian-guo(7)
- Sorption of Eu(III) on Goethite and P-Goethite LI Yan, WU Wang-suo(14)
- Determination of Carbon Content in LiH With High-Frequency Heated IR Absorption Method
 JI Xin-hua, LI Ying-qiu, ZHAO Yun-hui, WANG Lin, WU Mei, LUO Xue-ming(21)
- Application of Hydroxysemicarbazide in Separation of Pu From U in Purex Process
 XIAO Song-tao, YE Guo-an, PAN Yong-jun, LUO Fang-xiang, YANG He, LAN Tian(27)
- U_3O_8 Acid-Deficient Dissolution Process for Preparation of UO_2 Kernels by Sol-Gel Method HAO Shao-chang,
 ZHOU Xiang-wen, ZHAO Xing-yu, MA Jing-tao, WANG Yang, DENG Chang-sheng, TANG Ya-ping(34)

REACTOR ENGINEERING

- Thermal-Hydraulic Primary Numerical Analysis for Pb-Bi Fast Reactor Sub-channel
 WANG Jun, TIAN Wen-xi, TIAN Yong-hong, SU Guang-hui, QIU Sui-zheng(38)
- Mechanism of Effect of Aspect Ratios on Single-Phase Water Flow Behaviors in Narrow Rectangular Ducts
 XING Dian-chuan, YAN Chang-qi, CAO Xia-xin, LIU Chuan-cheng, SUN Bo(43)
- Numerical Simulation on Heat-Transfer Character of Subcooled Falling Film on Flat Plate
 YU Yi-qi, YANG Yan-hua, CHENG Xu(48)
- Phase Lag in Laminar Pulsating Flow in Circular Pipe
 WANG Chang, GAO Pu-zhen, XU Chao, TAN Si-chao(54)
- Development of Transient Analysis Code for SCWR
 ZHU Da-huan, SU Ya-li, ZHAO Hao, TIAN Wen-xi, SU Guang-hui, QIU Sui-zheng(58)
- Investigation on Factors Affecting Reverse Flow in Inverted U-Tubes of Steam Generator Under Natural Circulation
 HAO Jian-li, CHEN Wen-zhen, WANG Shao-ming(65)
- Two Phase Pressure Drop Characteristics in Rectangular Channel With Low Aspect Ratio
 QIN Sheng-jie, CHEN Bing-de, YAN Xiao, ZHANG Zhen, XIAO Ze-jun, HUANG Yan-ping(70)
- Liquid Drop Heat and Mass Transfer Characteristic Analysis by Using Scaling Analysis Method in Containment
 XU Zhen, WANG Guo-dong(75)
- Analysis of Cabin Radioactivity During SGTR Accident of Marine Nuclear Reactor
 SHANG Xue-li, ZHANG Fan, CHEN Wen-zhen, YANG Hong-li(80)
- Source Term Research for Ship Reactor Anticipated Operational Events
 ZHANG Fan, ZHENG Ying-feng, SHANG Xue-li, WANG Wei(85)
- Application of Runge-Kutta Method to Solve Transient Neutron Diffusion Equation
 ZHAO Wen-bo, YAO Dong, WANG Kan, HU Yong-ming(89)

Experimental Study of Prompt Neutron Decay Constant α for 300# Pool Reactor Under Mixed Core	ZENG He-rong, DUAN Shi-lin, WANG Guan-bo, LIU Han-gang, QIAN Da-zhi(97)
Non-linearity Correction of Control Rods Worth for Critical Extrapolation During Start-Up	GUO Hai-bing, LI Run-dong, NIU Wei-li(101)
Redundant Design of Control Station in Digital Safety I&C System for Nuclear Power Plant	WANG Ding, WANG Xiao-wei, XU Xiao-dong(105)
Diffusion and Release of Noble Gas and Halogen Fission Products With Several Days Half-Life in UO ₂ Particle	FANG Chao(109)
Life Cycle Management for Components in Nuclear Power Plant Based on Weibull Process	WANG Da-lin, ZHAO Bo(114)

TECHNIQUES AND APPLICATIONS

Feasibility Study on Coded Imaging of Radiography X Source Spot	YANG Bo, YING Yang-jun, XU Hai-bo, LI Jin-hong(120)
Attitude-Adjusting Table for Neutron Monochromator	LIU Yun-tao, GAO Jian-bo, LI Jun-hong, LIU Xiao-long, LI Ji-zhou, CHEN Dong-feng(125)
Introduction of GRPC Detectors With Semi-digital Read-Out	HAN Ran(129)
Research of S-Band High Power Microwave Test Bench	ZHU Zhi-bin, WANG Xiu-long, WU Qing-feng, BU Shun-fu(133)
Object Data Mining and Analysis on 3D Images of High Precision Industrial CT	WANG Bing-xin, CONG Peng(137)
Design and Test of 10 kA HTSCL for ITER	ZHOU Ting-zhi, BI Yan-fang, DING Kai-zhong, FENG Han-sheng, HUANG Xiong-yi, LIU Cheng-lian, NI Qing, SHEN Guang, SONG Yun-tao(141)
Cryogenic Cooling Design of Nb ₃ Sn Superconducting Magnet	XU Shao-feng, LIU Xu-feng, SONG Yun-tao(147)
Development of Auto-Sampling Device for Quantifying Radioactive Liquid in Sealed Bottle	LIU Guo-ping, XI Zhi-guo, NIE Shi-liang, XU Wei-dong, LUO Shun-zhong, CHEN Jing, ZHANG Hua-ming, JIAN Yuan, LI Wei-min, LIU Fang, LI Jun-ge, CUI Yuan-ping, ZHAO Jun(151)
Experimental Investigations on Transient Ionizing Radiation Induced Function Errors of SRAM Based FPGA	QI Chao, LIN Dong-sheng, CHEN Wei, YANG Shan-chao, WANG Gui-zhen, GONG Jian-cheng, MA Qiang(157)
Editors WANG Tiao-xia, HOU Cui-mei, TANG Xiao-hao, et al	