

# 核聚变与等离子体物理

2010年

第30卷第2期

## 目 次

### 等离子体物理学

- HL-2A 装置 SDD 软 X 射线 PHA 阵列实验结果 ..... 张轶波, 刘 仪, 杨进蔚,  
宋先瑛, 李 旭, 袁国梁, 潘传红 (97)  
双色滤波器在远红外激光干涉仪上的应用 ..... 郑 灵, 周 艳, 邓中朝, 易 江, 李永高, 李连才 (103)  
SAS 系统在 HL-2A 能量约束数据分析中的应用 ..... 徐 媛, 崔正英, O J W F Kardaun,  
季小全, 董春凤, 杨青巍 (108)  
HT-7 装置线积分信号的快速空间反演方法 ..... 杨建华, 高 翔, 胡立群, 吴振伟 (115)  
FCI 结构及其电导率对 MHD 效应影响实验研究 ..... 许增裕, 潘传杰, 张秀杰,  
赵 丽, 张 键, 杨国骥 (122)  
Compton 散射对固体中激光能量与光声信号强度关系的影响 ..... 郝晓飞, 姚巧鸽, 郝东山 (127)  
N<sub>2</sub>空心阴极放电向微空心阴极放电转变的 PIC/MC 模拟 ..... 张连珠, 孟秀兰, 田中涛,  
高书霞, 赵书霞 (131)  
渐近保持 PIC 算法在等离子体粒子模拟中的应用 ..... 孙安邦, 毛根旺, Degond P,  
Deluzet F, Navoret L, Vignal M-H (138)

### 核聚变工程技术

- HL-2A 装置低杂波天线 3-dB 功分器设计 ..... 曾 浩, 白兴宇, 陈罡宇, 卢 波 (143)  
ITER 超导股线的力学性能测试 ..... 刘 勃, 武 玉, 刘 方, 龙 风 (148)  
ITER 纵场磁体超导母线电磁结构分析 ..... 王志滨, 宋云涛, 王忠伟, 李长春, 戴 翔 (152)  
EAST 装置低杂波电流驱动效率分析 ..... 李文科, 丁伯江, 李妙辉, 查文清, 胡怀传 (157)  
FAIR 收集环二极超导磁体电流引线的概念设计 ..... 朱银锋, 吴维越, 刘常乐 (162)  
EAST 外杜瓦泄放保护装置中爆破片的分析研究 ..... 盛道林, 武松涛, 朱银锋 (166)

### 等离子体应用

- 非平衡磁控溅射等离子体频谱特征 ..... 牟宗信, 牟晓东, 贾 莉, 张鹏云, 刘升光, 董 闻 (169)  
纳秒脉冲等离子体射流的产生及其特征研究 ..... 朱海龙, 任春生, 吕晓桂,  
聂秋月, 王德真, 马腾才 (173)  
射频等离子体制备球形钨粉研究 ..... 古忠涛, 叶高英, 刘川东, 童洪辉 (178)  
旋转喷嘴鼓泡法提取液态锂铅合金中的氢 ..... 谢 波, 杨通在, 官 锐, 翁葵平 (183)  
脉冲偏压占空比对多孔氧化硅薄膜性质的影响 ..... 杨沁玉, 刘 磊, 丁 可, 张 菁, 王庆瑞 (189)

编辑部成员：张 利 肖成馨 李 爽 孙晓芳

期刊基本参数：CN51-1151/TL \* 1980 \* q \* 16 \* 96 \* zh \* P \* ¥8.00 \* 1000 \* 19 \* 2010-02

编辑部电话：028-82850364； E-mail: bjb@swip.ac.cn

期刊网址：<http://www.hjby.org/>

## Contents

### Plasma Physics

- Experimental results from SDD soft X-ray PHA array on the HL-2A tokamak ..... ZHANG Yi-po, LIU Yi,  
YANG Jin-wei, SONG Xian-ying, LI Xu, YUAN Guo-liang, PAN Chan-hong (97)  
Primary experimental results of the dichroic filters on FIR laser interferometer ..... ZHENG Ling, ZHOU Yan,  
DENG Zhong-chao, YI Jiang, LI Yong-gao, LI Lian-cai (103)  
Preliminary study of energy confinement data with a statistical analysis system in HL-2A tokamak .....  
..... XU Yuan, CUI Zheng-ying, O J W F Kardaun, JI Xiao-quan, DONG Chun-feng, YANG Qing-wei (108)  
A real-time algorithm of spatial inversion for the line- integral signals and its application in HT-7 Tokamak .....  
..... YANG Jian-hua, GAO Xiang, HU Li-qun, WU Zhen-wei (115)  
Experimental investigation on MHD effects due to different FCI's structures and conductivities .....  
..... XU Zeng-yu, PAN Chuan-jie, ZHANG Xiu-jie, ZHAO Li, ZHANG Jian, YANG Guo-ji (122)  
Influence of Compton scattering on the relation between laser energy and photo-acoustic signal intensity in solid .....  
..... HAO Xiao-fei, YAO Qiao-ge, HAO Dong-shan (127)  
PIC/MC simulations of transition between conventional and micro hollow cathode discharge in nitrogen .....  
..... ZHANG Lian-zhu, MENG Xiu-lan, TIAN Zhong-tao, GAO Shu-xia, ZHAO Shu-xia (131)  
Application of asymptotic preserving PIC method in the plasma particle simulation ..... SUN An-bang, MAO Gen-wang,  
Degond P, Deluzet F, Navoret L, Vignal M-H (138)

### Nuclear Fusion Engineering and Technology

- Design of the 3-dB power splitter for LHCD antenna on HL-2A ..... ZENG Hao, BAI Xing-yu, CHEN Gang-yu, LU Bo (143)  
Test of ITER superconduct strand's mechanical properties ..... LIU Bo, WU Yu, LIU Fang, LONG Feng (148)  
Electromagnetic and mechanical analysis of ITER TF superconducting busbar ..... WANG Zhi-bin, SONG Yun-tao,  
WANG Zhong-wei, LI Chang-chun, JI Xiang (152)  
Lower hybrid wave current drive efficiency study on EAST tokamak ..... LI Wen-ke, DING Bo-jiang, LI Miao-hui,  
ZHA Wen-qing, HU Huai-chuan (157)  
Conceptual design of current leads for dipole superconducting magnet for collector ring of FAIR .....  
..... ZHU Yin-feng, WU Wei-Yue, LIU Chang-Le (162)  
Analysis study on the bursting disc of overpressure venting device for vacuum vessel of EAST .....  
..... SHENG Dao-lin, WU Song-tao, ZHU Yin-feng (166)

### Non-Fusion Plasma Applications

- Properties of plasma frequency spectrum of the unbalanced magnetron sputtering ..... MU Zong-xin, MU Xiao-dong,  
JIA Li, ZHANG Peng-yun, LIU Sheng-guang, DONG Chuang (169)  
Study of generation and investigation of nanosecond pulsed plasma jet ..... ZHU Hai-long, REN Chun-sheng,  
LÜ Xiao-gui, NIE Qiu-yue, WANG De-zhen, MA Teng-cai (173)  
Study on the techniques with using of RF induction plasma for tungsten powders spheroidization .....  
..... GU ZHONG-tao, YE GAO-ying, LIU CHUAN-dong, TONG HONG-hui (178)  
Hydrogen extraction from liquid lithium-lead alloy by bubbling with rotational jet nozzle .....  
..... XIE Bo, YANG Tong-zai, GUAN Rui, WENG Kui-ping (183)  
The effect of pulsed plasma duty cycle on the characters of porous silica films ..... YANG Qin-yu, LIU Lei, DING Ke,  
ZHANG Jing, WANG Qing-rui (189)