

实验室概况/ Overview of the Laboratory of Optical Physics

光物理实验室最早是经中国科学院组织专家论证并批准成立的部门实验室，于 1994 年 12 月正式对国内外开放，2001 年 11 月按中科院的统一要求更名为中国科学院物理研究所光物理重点实验室。实验室为从事光物理基础研究及应用基础研究研究的实体，主要研究方向是光与物质相互作用的基础研究，同时开展新材料在光学，尤其是在光子学领域的应用基础研究，即一方面重视光物理本身的研究，另一方面将现代光学的方法和技术引入凝聚态物理和材料科学中去，开拓几种新材料在高技术产业中的可能应用。实验室瞄准国际科学前沿，在激光物理、光子晶体、非线性光学、量子光学、强场物理及超快过程研究等方面开展了在国内外有相当影响的基础和应用研究工作。在激光器件和新型薄膜材料研究上也有较强的力量，能够研制并提供多种超短脉冲激光器件和全固态激光器件，并取得了具有国际先进水平的成果。此外将光学和物理学的方法、手段应用于生物系统也是目前正在发展的重点学科方向。与凝聚态物理与材料科学紧密结合是光物理实验室研究的重要特点。

光物理实验室拥有门类齐全的先进激光系统，如纳秒、皮秒、飞秒脉冲激光器，可调谐激光器，准分子激光器等，以及数字示波器、锁相放大器、Boxcar 积分器、单光子计数设备及工作在红外、可见和紫外波段的各类光谱仪等现代测量仪器，可以开展各类光物理的前沿研究工作。

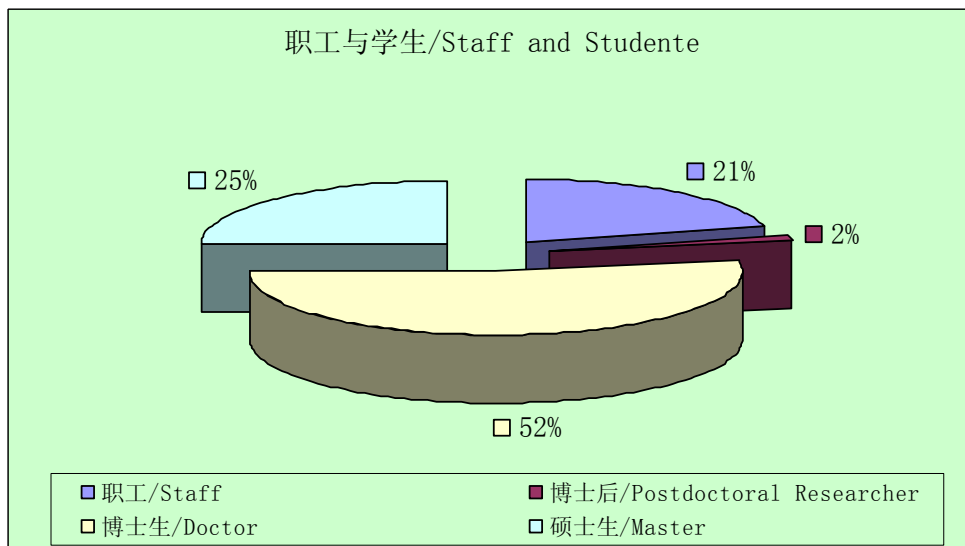
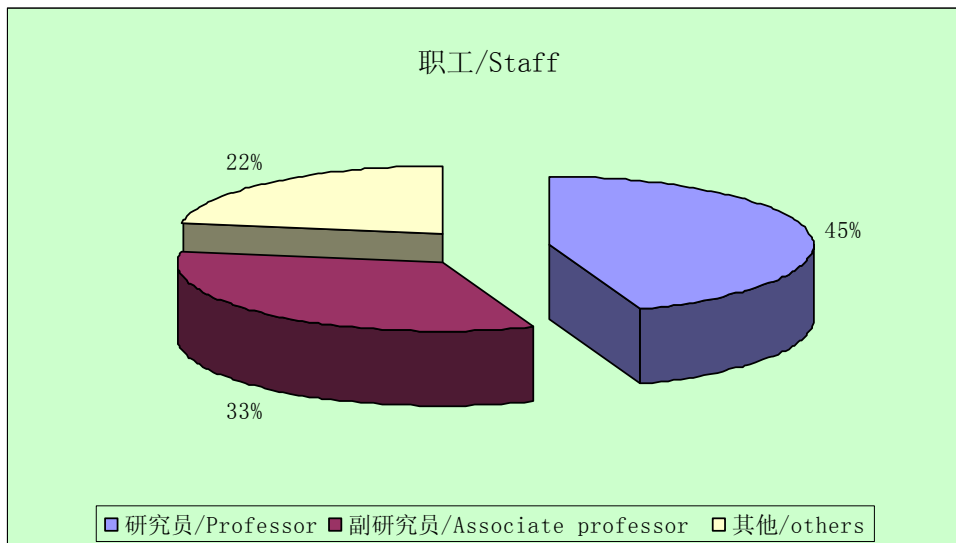
光物理实验室目前拥有二十七位研究人员，是一支具有一定综合实力的研究队伍，现为全国光学学科博士、硕士学位点和博士后流动站，有一百零一名在读研究生。目前实验室的研究工作大多数已进入国际竞争的前沿，承担多项国家和省部委的重大和重点研究课题。几年来，光物理实验室在光物理及其相关领域的研究中发挥了应有的作用。光物理实验室现与国内外十几个大学和研究所建立了良好的学术合作关系，对国内外科学家提出的优秀研究项目给予资助并开展合作研究。

Optical physics was one of the earliest disciplines established in the Institute of Physics, Chinese Academy of Sciences (CAS). In December 1994 the Laboratory of Optical Physics was authorized as an Open Laboratory of CAS, and then renamed a CAS Key Laboratory in 2001. Its main focus is on the fundamental studies of laser interactions with matter, as well as applied basic research on novel materials in optics and photonics. That is, while emphasizing the physics of optics, at the same time modern optical methods and techniques are applied to condensed matter physics and material science for potential applications of new materials in high-tech industry. Current research topics include pure and applied studies in laser physics, photonic crystals, nonlinear optics, quantum optics, high laser field physics and ultrafast processes. Through persistent efforts the Laboratory is becoming more and more competitive academically, with a considerable number of publications in the major international journals. Important progress has also been achieved in the fabrication of advanced laser devices and thin film materials, and many kinds of ultrashort pulsed lasers and all-solid-state lasers have been developed in-house, reaping in several national awards in science and technology. Meanwhile, the application of optical methods to biological systems has become an increasingly active research field, further demonstrating the close association of optics with condensed matter and material science in the Lab.

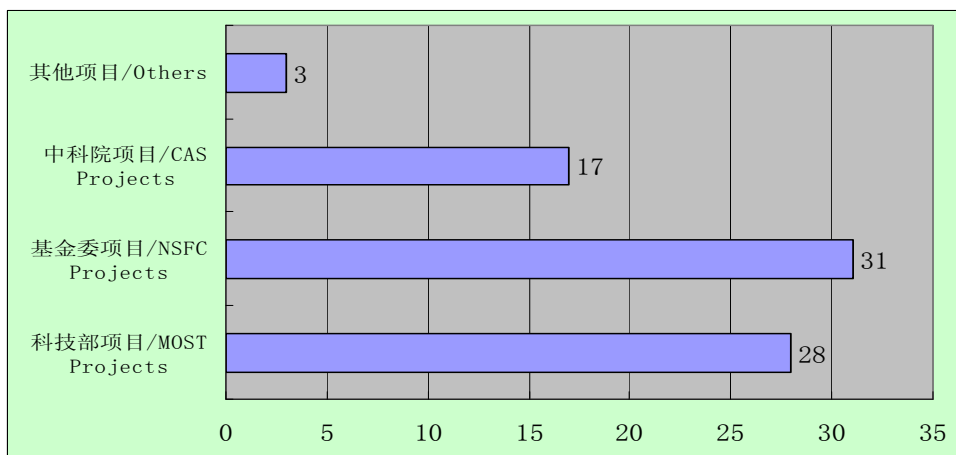
At present we have a whole range of advanced laser systems, such as pulsed lasers with nanosecond, picosecond and femtosecond pulse durations, as well as a tunable ring laser, excimer laser and widely tunable optical parametric amplifier (OPA). Modern detection instruments such as fast oscilloscopes, lock-in amplifiers, boxcars, single-photon detection counters, all types of autocorrelators, and different kinds of spectrometers covering the infrared, visible and ultraviolet regions are also available.

With a total of 27 research and administrative staff and 100 graduate students the Laboratory has emerged as a dynamic force at the forefront of research in optics, undertaking many major national programs. Successful collective projects are in progress with over a dozen external research groups both in China and abroad, and the Laboratory will continue to encourage and support such highly fruitful collaboration.

人事概况/General View of Personnel



在研项目概况/General View on Projects under Researching



人员结构/Organization

实验室主任/Director

张杰 院士 Zhang Jie, Academician

实验室副主任/Deputy Directors

魏志义 研究员 Wei Zhi-yi, Professor

李志远 研究员 Li Zhi-yuan, Professor

学术秘书/ Academical Secretary

金奎娟 研究员 Jin Kui-juan, Professor

研究组长/Research Group Leaders

李志远 研究员 Li Zhi-yuan, Professor

金奎娟 研究员 Jin Kui-juan, Professor

汪力 研究员 Wang Li, Professor

张杰 院士 Zhang Jie, Academician

魏志义 研究员 Wei Zhi-yi, Professor

学术委员会/Academic Committee

名誉主任/ Honour Chairmen

沈元壤 院士 Shen Yuen-Ron, Academician (美国加州大学, University of California, Berkeley)

杨国桢 院士 Yang Guo-zhen, Academician (中科院物理研究所, Institute of Physics, CAS)

主任/ Chairman

张道中 研究员 Zhang Dao-zhong, Professor (中科院物理研究所, Institute of Physics, CAS)

副主任/ Deputy Chairmen

龚旗煌 教授 Gong Qi-huang, Professor (北京大学, Peking University)

李师群 教授 Li Shi-qun, Professor (清华大学, Tsinghua University)

委员/Committee Members

夏宇兴 教授 Xia Yu-xing, Professor (上海交通大学, Shanghai Jiao Tong University)

祝世宁 教授 Zhu Shi-ning, Professor (南京大学, Nanjing University)

徐雷 教授 Xu Lei, Professor (复旦大学, Fudan University)

张希成 教授 Zhang Xi-cheng Professor (Rensselaer Polytechnic Institute, USA)

聂玉昕 研究员 Nie Yu-xin, Professor (中国科学院物理研究所, Institute of Physics, CAS)

王清月 教授 Wang Qing-yue, Professor (天津大学, Tianjin University)

汪河洲 教授 Wang He-zhou, Professor (中山大学, Zhongshan University)

汪力 研究员 Wang Li, Professor (中国科学院物理研究所, Institute of Physics, CAS)

陈润生 研究员 Chen Run-sheng, Professor (中国科学院生物物理所,
Institute of Biophysics, CAS)

常铁强 研究员 Chang Tie-Qiang, Professor (北京应用物理与计算数学研究所,
Beijing Institute of Applied Physics and Computational Mathematics)

明海 教授 Ming Hai, Professor (中国科大, University of Science & Technology of China)

杰出人才/Intelligent Staff**中国科学院院士/Academician, CAS**

1999 杨国桢 Yang Guozhen
2003 张杰 Zhang Jie

国家杰出青年基金获得者/National Science Fund for Distinguished Young Scholars

1997 李晓峰 Li Xiaofeng
1998 张杰 Zhang Jie
2002 魏志义 Wei Zhiyi
2004 盛政明 Sheng Zhengming
2006 李志远 Li Zhiyuan
2008 金奎娟 Jin Kuijuan

国家海外青年学者合作研究基金获得者/Laureates of the 'Joint Research Fund for Overseas Chinese Young Scholars'

2000 朱湘东/吕惠宾 Zhu Xiang-dong/Lu Hui-bin
2001 张希成/张杰 Zhang Xi-cheng/Zhang Jie
2007 曹建明/张杰 Cao Jian-ming/Zhang Jie

中科院“百人计划”入选者

1998 张杰 Zhang Jie
1999 翁羽翔 Weng Yuxiang
2000 程波林 Cheng Bolin
2000 盛政明 Sheng Zhengming
2000 邹炳锁 Zou Binsuo
2004 李志远 Li Zhiyuan

国家自然科学基金优秀创新研究群体/National Science Fund for Creative Research Groups

超强超短激光物理研究/Some forefront of high field physics and ultrafast process (60621063, 2007-2009)

张杰	Zhang Jie	激光等离子体物理、强场物理/Laser plasma, High field physics
魏志义	Wei Zhiyi	超快激光技术/Ultrafast laser technology
汪力	Wang Li	超快激光物理/Ultrafast laser physics
翁羽翔	Weng Yuxiang	超快激光光谱及激光化学/Ultrafast laser spectroscopy and laser chemistry
盛政明	Sheng Zhengming	强场激光物理/High field laser physics
金奎娟	Jin Kuijuan	激光物理理论/Laser physics
鲁欣	Lu Xin	强场激光物理理论模拟、流体力学模型
李玉同	Li Yutong	强场激光物理实验、光物理实验

光物理重点实验室人员名录/Name List

研究人员/Scientific Staff

张道中	Zhang Dao-zhong	张 杰	Zhang Jie
李志远	Li Zhi-yuan	盛政明	Sheng Zheng-ming
郭红莲	Guo Hong-lian	李玉同	Li Yu-tong
刘荣娟	Liu Rong-juan	鲁 欣	Lu Xin
金奎娟	Jin Kui-juan	董全力	Dong Quan-li
杨国桢	Yang Guo-zhen	陈黎明	Chen Li-ming
吕惠宾	Lü Hui-bin	马景龙	Ma Jing-long
王 灿	Wang Can	魏志义	Wei Zhi-yi
何 萌	He Meng	李德华	Li De-hua
汪 力	Wang Li	滕 浩	Teng Hao
傅盘铭	Fu Pan-ming	王兆华	Wang Zhao-hua
吴令安	Wu Ling-an	韩海年	Han Hai-nian
王兵兵	Wang Bing-bing		

技术人员/Technical Staff

冯宝华	Feng Bao-hua	张东香	Zhang Dong-xiang
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博士后/Post-doctoral Fellows

杜 强	Du Qiang	吴 涛	Wu Tao
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博士生/Ph. D Students

车 明	Che Ming	孙毅民	Sun Yi-ming
刘娅钊	Liu Ya-zhao	赵建领	Zhao Jian-ling
李江艳	Li Jiang-yan	冯 辉	Feng hui
刘 晔	Liu Ye	吴忠安	Wu Zhong-an
华一磊	Hua Yi-lei	陈希浩	Chen Xi-hao
秦 飞	Qin Fei	牛金艳	Niu Jin-yan
周长柱	Zhou Chang-zhu	刘 骞	Liu Qian
傅晋新	Fu Jin-xin	罗开红	Lou Kai-hong
甘 霖	Gan Lin	潘学聪	Pan Xue-cong
马冬莉	Mang Dong-li	张 喆	Zhang Zhe
周 飞	Zhou Fei	梁文锡	Liang Wen-xi
廖 棱	Liao Leng	翁苏明	Weng Su-ming
宁廷银	Ning Ting-yin	张 翼	Zhang Yi
温 娟	Wen Juan	刘 峰	Liu Feng
杨 芳	Yang Fang	董晓刚	Dong Xiao-gang
胡春莲	Hu Chun-lian	王伟民	Wang Wei-min
张莉莉	Zhang Li-li	李 春	Li Chun
陆 珩	Lu Heng	朱鹏飞	Zhu Peng-fei
王 聪	Wang Cong	王首钧	Wang Shou-jun

丁文君	Ding Wen-jun	李芳琴	Li Fang-qin
林晓宣	Lin Xiao-xuan	赵研英	Zhao Yan-ying
刘 峰	Liu Feng	周斌斌	Zhou Bin-bin
张 蕾	Zhang Lei	张 炜	Zhang Wei
周木林	Zhou Mu-lin	钟 欣	Zhong Xin
郝 彪	Hao Biao	许长文	Xu Chang-wen
刘 勋	Liu Xun	运晨霞	Yun Chen-xia
杨 杰	Yang Jie	张 青	Zhang Qing
崔前进	Cui Qian-jin	张永东	Zhang Yong-dong
鲁远甫	Lu Yuan-fu	刘 成	Liu Cheng
周 勇	Zhou Yong	玄洪文	Xuan Hong-wen
张小富	Zhang Xiao-fu	李奇楠	Li Qi-nan
宗 楠	Zong Nan	杜仕峰	Du Shi-feng
杨 峰	Yang Feng	施玉显	Shi Yu-xian
谢仕永	Xie Shi-yong	Muhanmmad Abbas Bari	
徐一汀	Xu Yi-ting		

硕士生/Master Students

任明亮	Ren Ming-liang	毛婧一	Mao Jing-yi
凌 林	Ling Lin	张 璐	Zhang Lu
刘思耘	Liu Si-yun	刘晓龙	Liu Xiao-long
王 晨	Wang Chen	杜 飞	Du Fei
陈宇辉	Chen Yu-hui	於陆勒	Yu Lu-le
王京义	Wang Jing-yi	江 淼	Jiang Miao
徐中堂	Xu Zhong-tang	贾倩倩	Jia Qian-qian
葛 琛	Ge Chen	马庆磊	Ma Qing-lei
原 昆	Yuan Kun	杨 晶	Yang Jing
郭尔佳	Guo Er-jia	曹 栋	Cao Dong
金昱伶	Jin Yu-ling	王 楠	Wang Nan
王 乐	Wang Le	邹育婉	Zou Yu-wan
赵瑞强	Zhao Rui-qiang	詹敏杰	Zhan Min-jie
戴 俊	Dai Jun	叶 蓬	Ye Peng
裴丽娅	Pei Li-ya	郭淑艳	Guo Shu-yan
彭 典	Peng Dian	王 庆	Wang Qin

仪器设备/Facilities

一、激光器设备 (Lasers)

1. 飞秒激光器 (Femtosecond Lasers)

性能参数 Specifications	钛宝石激光振荡器 I Ti:sapphire Oscillator I	钛宝石激光振荡器 II Ti:sapphire Oscillator II	钛宝石激光振荡器 III Ti:sapphire Oscillator III
生产厂家 Manufacturer	美国 Spectra-Physics	本室研制 Home-made	本室研制 Home-made
型号 Model	Tsunami		
输出波长 Output Wavelength	750 ~ 850nm	750 ~ 850nm	600~ 1000nm
平均功率 Average Power	1W (790nm)	1W (790nm)	400mW
脉冲宽度 Pulse width	80 ~ 120fs	~ 30fs	5~ 8fs
重复频率 Repetition Rate	82MHz	82MHz	100~300MHz
联系部门 Contact Department	技术组	技术组或 L07 组	L07 组

性能参数 Specifications	钛宝石激光放大器 I Ti:sapphire Amplifier I	钛宝石激光放大器 II Ti:sapphire Amplifier II	钛宝石激光放大器 III Ti:sapphire Amplifier III
生产厂家 Manufacturer	美国 Spectra-Physics	奥地利 Femtolasers Inc	本室研制 Home-made
型号 Model	TSA-10	FemtoPower-Pro	极光 II (Xlite II)
输出波长 Output Wavelength	790nm	~790nm	790nm
单脉冲能量 Pulse energy	5mJ	0.8mJ	640mJ
脉冲宽度 Pulse width	200fs	~ 25fs(自加压缩后 5fs)	30fs
重复频率 Repetition Rate	10Hz	1kHz	10Hz (20TW)
联系部门 Contact Department	技术组	L07 组	L05 或 L07 组

性能参数 Specifications	飞秒镁橄榄石激光振荡器 femtosecond Cr:forsterite laser	同步飞秒钛宝石激光器 Synchronized fs Ti:sapphire Laser
生产厂家 Manufacturer	本室研制 Home-made	本室研制 Home-made
型号 Model		
输出波长 Output Wavelength	1250 ~1350nm	750~ 850nm
平均功率 Average Power	150mW (1280nm)	>1W
脉冲宽度 Pulse width	29fs	30~80fs
同步精度 Timing jitter		<1fs
重复频率 Repetition Rate	82MHz	82MHz
联系部门 Contact Department	L07 组	L07 组

2. 皮秒激光器 (Picosecond lasers)

性能参数 Specifications	皮秒 Nd:YAG 激光器 psNd:YAG laser	皮秒光参量放大器 ps Optical Parametrial Oscillator
生产厂家 Manufacturer	立陶宛 EKSPLA 公司	本室研制 Home-made
型号 Model	PL2143B	
输出波长 Output Wavelength	1064 532 355nm	430 ~ 2000nm
单脉冲能量 Pulse energy	80 40 20mJ	3mJ
脉冲宽度 Pulse width	25 ps (1064nm)	30ps
重复频率 Repetition Rate	10Hz	10Hz
联系部门 Contact Department	技术组	技术组

3. 纳秒激光器 (Nanosecond laser)

性能参数 Specifications	倍频 Nd:YAG 激光器 SHG Nd:YAG laser	倍频 Nd:YAG 激光器 SHG Nd:YAG laser	倍频钕玻璃激光器 SHG Nd:glass laser
生产厂家 Manufacturer	美国 Positive Light	美国 Spectra-Physics	
型号 Model	Evolution 30	Pro-230	Powelite-100
输出波长 Output Wavelength	527nm	532nm	527nm
单脉冲能量 Pulse energy	~20mJ (2W)	~1.4J	100J
脉冲宽度 Pulse width	>100ns	~7ns	~25ns
重复频率 Repetition Rate	1kHz	10Hz	3pph
联系部门 Contact Department	L07 组	L05 或 L07 组	L05 或 L07 组

性能参数 Specifications	准分子激光器 Excimer Laser	Nd:YAG 激光器 Nd:YAG laser	光参量振荡器 OPO
生产厂家 Manufacturer	德国 Lambda Physik	立陶宛 EKSPLA 公司	本室研制 Home-made
型号 Model	LEXTRA200	NL303 型	
输出波长 Output Wavelength	308nm	1064 532 355nm	430 ~ 2000nm
单脉冲能量 Pulse energy	400mJ	500 210 135mJ	10mJ
脉冲宽度 Pulse width	~ 28ns	3 ~ 6 ns (1064nm)	3 ~ 6 ns
重复频率 Repetition Rate	30Hz	10Hz	10Hz
联系部门 Contact Department	技术组	技术组	技术组

4. 连续激光器 (CW lasers)

性能参数 Specifications	钛宝石激光器 Ti:sapphire laser	倍频 Nd:YVO ₄ 激光器 SHG Nd:YVO ₄ laser	倍频 Nd:YVO ₄ 激光器 SHG Nd:YVO ₄ laser
生产厂家 Manufacturer	美国 Spectra-Physics	美国 Spectra-Physics	美国 Coherent Inc
型号 Model	3900	Millennia X	Verdi 10
输出波长 Output Wavelength	700 ~ 950nm	532nm	532nm
平均功率 Average Power	750mW (790nm)	10W	10W
线宽 Linewidth	< 40GHz		<5MHz
联系部门 Contact Department	技术组	L07 组	L07 组

二、分析测试仪器

光栅光谱仪/Spectrometer	型微型光纤光谱仪/Mini-Spectrometer
美国 Acton Research Corporation 公司	美国 Ocean Optics 公司
型号 Model: SpectraPro-500i	型号 Model: HR-2000
波长扫描范围 Scan range: 200 ~ 1400nm	波长测量范围 Measured range: 200 ~ 1100nm
分辨率 Resolution: 0.05nm	分辨率 Resolution: 0.05nm
用于材料透射谱、吸收谱, 光波长测量等	用于光波长测量、荧光测量等
联系部门 Contact Department: 技术组	联系部门 Contact Department: 技术组

FR-103 型自相关仪/Autocorrelator	脉冲干涉自相关仪/Interferometer autocorrelator
美国 Femtochrome Research 公司	本室研制 Home-made
测量波长范围 Wavelength range: 460~900nm	测量波长范围 Wavelength range: 600~1000nm
测量脉宽范围 Measurable range: 50fs	测量脉宽范围 Measurable range: 3fs ~ 100fs
用于高重复频率超短激光脉冲脉宽测量	用于低重复频率超短激光脉冲脉宽测量

信号平均器/Signal average	SPIDER
美国 EG&G 公司	本室研制 Home-made
型号 Model: 4400	
输入信号 Input signal: $\pm 2\text{mV} \sim \pm 5\text{V}$	测量波长范围: Wavelength range: 600~1000nm
门宽选择 Gate : 2ns, 5ns, 10ns, 12ns, 15ns	测量脉宽范围: Measurable range: 3fs ~ 100fs
20ns 到 2ms 连续可选	

SPM100 型近场扫描光学显微镜	DG535 脉冲延时器/Delay generator
美国 RHK 公司	美国 EG&G 公司
扫描范围 Scan range: 30um \times 30um	延时范围 Delay range: 0 ~ 999s
激光源 Laser sources: 465, 488, 514nm	延时通道 Delay Channel: A, B, C, D
工作模式 Modes: 接触和敲打透射模式	延时输出 Delay output: A, B, C, D, AB,
近场探针 Near filed Probe: 悬臂式光纤 Fiber	-AB, CD, -CD
分辨率 Resolution: < 100 nm	分辨率 Resolution: 5ps
联系部门 Contact Department: 技术组	联系部门 Contact Department: 技术组

注: 除开放基金外, 所有仪器设备均为有偿使用

获奖情况/Award

获奖研究生 /Award for excellent graduate students

2008 蔡诗东等离子体物理奖：奚婷婷，翁苏明

中科院物理所所长奖学金优秀奖：车明，胡春莲，王伟民，周斌斌，李奇楠，孙毅民

中科院物理所所长奖学金表彰奖：刘娅钊，周飞，宁廷银，赵建领，张翼，刘峰，李春，崔前进，
鲁元辅，宗楠，张炜，许长文，杜仕峰

三好学生标兵：翁苏明

三好学生：李景娟，刘荣鹃，车明，邢杰，仇杰，刘国珍，王旭，曹宁，孙毅民，赵静，
朱江峰，张炜

优秀学生干部：牛金艳，运晨霞，张璐

研究报告/Scientific Report

光子晶体及其应用/ Photonic crystal and its applications

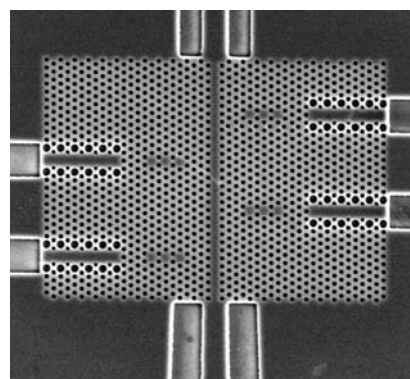
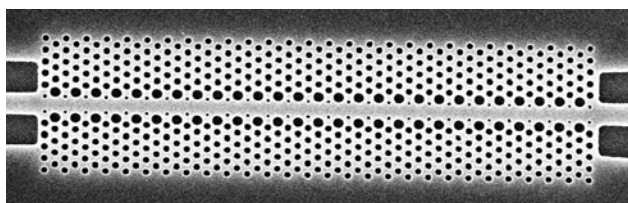
组长: 李志远

Group Leader: Li Zhi-yuan

成员: 张道中 郭红莲 刘荣娟

Members: Zhang Dao-zhong, Guo Hong-lian, Liu Rong-juan

- ◆设计、制作和测试了硅基红外二维平板光子晶体新型光波导和滤波器。
- ◆设计和制作了具有负折射效应的硅基二维平板光子晶体，用扫描近场光学显微镜技术观察到了红外光学负折射传播的高分辨率轨迹。
- ◆在微波波段的三维木堆光子晶体平台上构建了共振滤波器和方向耦合器，通过透射光谱和近场扫描技术观测了电磁波传播的性质。
- ◆发展了平面波传递矩阵方法，成功计算了二维和三维光子晶体转弯波导的透射率以及光子晶体的表面态能带。
- ◆发展了多光镊技术，利用空间光调制器构建了聚焦光束光镊阵列，单个光镊可独立调控和移动。
- ◆发展了基于皮秒光学参量放大的超微弱相干和非相干光脉冲信号的放大和检测技术，成功地用于微弱拉曼和荧光信号的探测。实验研究了 Nd: CNGG 运转于准三能级输出波长 935nm 的激光特性。



在二维三角晶格硅基平板光子晶体上设计的具有宽透射光谱带的新型 Γ -M 波导的 SEM 照片（左图）。该波导和传统的 Γ -K 波导一起可以构建多种波导互连网络和多通道信号下载滤波器（右图的 SEM 照片）。

The upper SEM picture is the structure of a designed Γ -M waveguide that exhibits a wide transmission band in a triangular-lattice silicon photonic crystal slab. Together with the conventional Γ -K waveguide, the Γ -M waveguide can build a flexible interconnection waveguide network and multiple-channel channel-drop filters as shown in the lower SEM picture.

- ◆ We design, fabricate and characterize novel waveguides and channel-drop filters in infrared silicon photonic crystal slab.
- ◆ We design and fabricate infrared silicon photonic crystal slabs that exhibit negative refraction, and observe high-resolution negative refraction transport trace of infrared ray by means of scanning near-field optical microscopy.
- ◆ We design and realize channel-drop filters and directional couplers in microwave 3D woodpile photonic crystals and observe electromagnetic wave propagation by means of near-field scanning technique.
- ◆ We develop plane-wave transfer-matrix method and successfully evaluate the transmission efficiency of light through 2D and 3D photonic crystal waveguide bends and the band diagrams for surface states localized at photonic crystal surfaces.
- ◆ We develop the multiple optical tweezers array technology by means of spatial optical modulators. Each optical tweezers can be controlled to move separately.
- ◆ We develop a technique based on picosecond optical parametric amplification to amplify and detect ultraweak coherent and incoherent pulse signals such as Raman and fluorescence signals and realize Nd: CNGG lasers at 935 nm.

低维氧化物体系的设计、激光法制备及其物理研究/ Designing and manufacturing low dimension Oxide materials by Laser and studying their properties

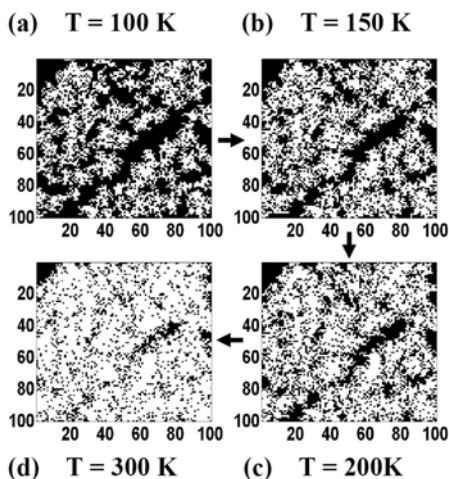
组长: 金奎娟

Group Leader: Jin Kui-juan

成员: 杨国桢 吕惠宾 何萌 王灿

Members: Yang Guo-zhen, Lü Hui-bin, He Meng, Wang Can

- ◆系统地研究了氧化物低维体系中界面的引入、薄膜厚度的减小、氧空位浓度的改变对光电响应的增强和调制作用, 同时在理论上揭示了其物理规律的内在机制。
- ◆理论上进一步深入研究了氧化物低维体系正磁电阻与温度的各种依赖关系的内禀物理根源, 发现相分离机制起着重要作用。
- ◆开展了几种新的金属纳米团簇非线性光学材料的研究, 提出了一种减少金属纳米团簇体质量密度并增加金属团簇颗粒锐度的方法来提高三阶非线性优值比的方法; 研制出一种新的金属掺杂的钛酸钙铜 (CCTO) 材料, 所测得的三阶非线性系数比文献其它材料高约一个量级, 成为新的所见文献报导的最高值。
- ◆建立了适用于生命科学无标记检测的光反射差法实验装置, 可同时获取 4 路信号, 并已实验证明用光反射差法无标记、高通量检测生物大分子的相互作用是可行的。
- ◆本年度课题组发表 SCI 收录论文 38 篇, 其中影响因子 >3 的论文 8 篇, 国际国内邀请报告 10 次。



在温度范围 100-300K 之间的 $\text{La}_{0.9}\text{Sr}_{0.1}\text{MnO}_3$ 薄膜的相转变过程。黑色代表铁磁相, 白色是顺磁相。

Simulated process of cluster percolation from 100 K to 300 K for $\text{La}_{0.9}\text{Sr}_{0.1}\text{MnO}_3$ film. The ferromagnetic and paramagnetic phase are denoted by black and white, respectively.

- ◆Systematically studied the interface effect, the film thickness, and the oxygen vacancy concentration on the enhancement and modulation of photovoltaic effect in the low dimensional oxide and revealing the intrinsic mechanism of the photovoltaic effect.
- ◆Theoretically revealed that the phase separation plays an important role in the positive magnetoresistance dependence on temperature in the low dimensional oxide heterojunction.
- ◆Studied several new kinds of nonlinear optical material doped with metal nanoparticles and proposing a method to improve the third-order of nonlinear figure of merit by decreasing the concentration of metal nanoparticles and increasing the acutance of nanoparticles. Developing a new material of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ doped metal nanoparticles and finding that the third-order of nonlinear susceptibility is one order larger than that of other nonlinear material, being the highest value in all reported literature.
- ◆Set up the Oblique Incidence Reflectivity Differences technique (OIRD), which can obtain four channels, and proving that in the experiment the interaction of biomolecules is feasible by the OIRD, which is label-free and high-throughput.
- ◆Published 38 SCI papers, including 8 papers with the impact factor larger than 3, had 10 invited talks in international and national conference meetings.

太赫兹和超快光谱学/ Terahertz and ultrafast spectroscopy

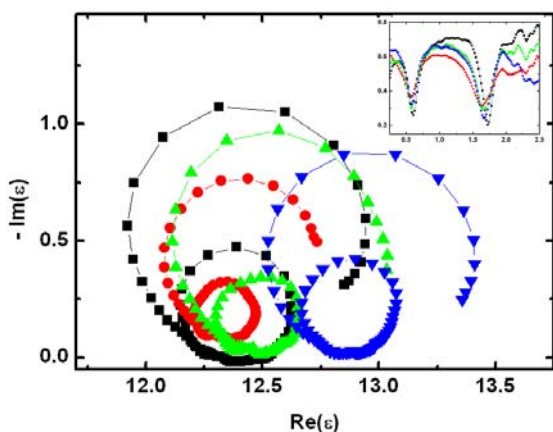
组长: 汪 力

Group Leader: Wang Li

成员: 傅盘铭 吴令安 王兵兵

Members: Fu Pan-ming, Wu Ling-an, Wang Bing-bing

- ◆在对 metamaterial 的太赫兹频率响应和亚波长金属结构周边介电环境关系的实验和理论研究中, 发现介电环境因子以复杂的方式影响表面近场波的激发、传播以及和自由空间太赫兹场的耦合, 其中类法布里-珀罗效应和表面等离子波模型下的共振特性反映了这一过程中重要的相干位相迭加效应。
- ◆利用飞秒泵浦-探测技术揭示了 $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{CuO}_{8+\delta}$ 和 $\text{La}_{2-x}\text{Ce}_x\text{CuO}_4$ 高温超导体的非平衡动力学过程; 提出了采用超紫外阿秒脉冲来控制高次谐波产生的一种方案; 提出了多普勒增宽四能级系统中基于电磁感应透明的六波混频技术; 在超短脉冲激发的多电子原子非序列双电离过程中, 发现离子动量分布随激光场载波相位和场强的变化规律以及激光辅助下的重碰电离; 推导了分子在强激光场中高阶阈值上电离的 QED 理论, 计算得到不同分子的阈值上电离谱。
- ◆首次实现真热光的无透镜二阶关联鬼成像, 及赝热光的无透镜高对比度高阶关联鬼成像; 深入探讨了相关理论, 提出多光子聚束的模型; 提出一种极稳定又简单的即插即用量子密钥分发方案; 实验演示了每分钟加密 150 个字符的安全即时聊天通信; 提出新的产生真随机数方法。



Cole-Cole plots of the extracted effective permittivities for the bare SRR array and those with 50 nm liquid films added on the Si substrate in the SRR interspaces, which shows perfect but different Lorentz profiles for both the magnetic and electric responses. Insert is the THz transmission spectra. (Black: bare SRR; red, green and blue: with water, ethanol and chloroform added respectively)

在硅基底上加了 50 纳米厚度不同液体膜后共振劈裂环列在太赫兹频率的介电响应变化。从基于等效介质模型的 Cole-Cole 图可见, 调制后的电磁共振仍然保持了洛仑兹线型。插图为几种情况下的透射谱。(黑色为没有液体膜的数据, 红色、绿色和蓝色分别为加了水、乙醇和氯仿后的数据)

- ◆In the study of the spectral responses of metamaterials on the dielectric surroundings of subwavelength metallic structures, it is found that the dielectric properties strongly affect the behavior of the excited near-field waves and their coupling with the free-space THz fields. Important coherent interactions are observed in the resonant frequencies expressed by the fabry-Perot-like effect and surface plasmon model.
- ◆Femtosecond pump-probe spectroscopy has been used to study the nonequilibrium carrier dynamics in cuprate superconductor $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{CuO}_{8+\delta}$ and $\text{La}_{2-x}\text{Ce}_x\text{CuO}_4$; A method is proposed to control the high-order harmonic generation by exposing atoms to an extreme-ultraviolet attosecond laser pulse; Based on electromagnetically induced transparency, six-wave mixing spectroscopy in a Doppler-broadened four-level system has been investigated. Attosecond pulse-controlled high-order harmonic generation in an ultrashort laser field; Carrier-envelope phase dependence of non-sequential double ionization in few-cycle pulses; Intensity dependence of non-sequential double ionization of helium in a few-cycle laser pulse; HATI spectra for different molecular structures with high frequency laser field.
- ◆Demonstrated lensless ghost imaging with true thermal light for the first time, and lensless high-visibility high-order imaging with pseudothermal light; extended the theory using a multiphoton bunching model; Designed a simple but extremely stable plug-and-play quantum key distribution system; demonstrated a safe internet chat system capable of encoding 150 characters/min; proposed a new method to generate true random numbers.

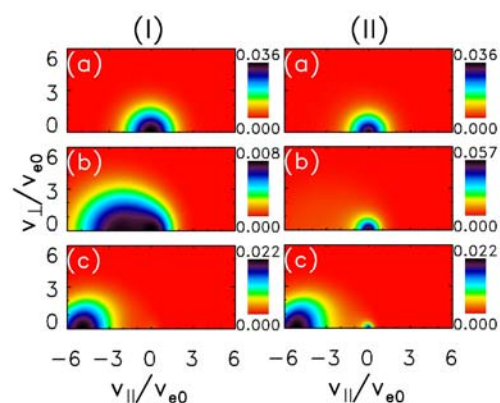
超强激光与物质相互作用/ Ultra-Intense Laser Interaction with Matter

组长: 张杰

Group Leader: Zhang Jie

成员: 盛政明 李玉同 鲁欣 董全力 Members: Sheng Zheng-ming, Li Yu-tong, Lu Xin, Dong Quan-li.
陈黎明 马景龙 Chen Li-ming, Ma Jing-long

- ◆发现了高对比激光脉冲对 $K\alpha$ x 射线的增强, 转换效率达到了 10^{-4} , 为目前最高值[Phys. Rev. Lett. 100, 045004(2008)]。
- ◆发展了二维的 Fokker-Planck 程序, 并利用此程序研究了强电场下的等离子体电导。发现电流与电场不再满足线性的 Spitzer-Harm 模型, 并给出了新的理论模型 [Phys. Rev. Lett. 100, 185001 (2008)]。
- ◆在强激光驱动新型粒子加速方面, 发现了新的质子加速机制——稳相加速, 它揭示了产生高质量强流质子束的条件, 为将来的台面加速器提供了理论基础[Phys. Rev. Lett. 100, 135003 (2008)]。
- ◆通过实验和数值模拟相结合, 揭示了亚波长光栅靶对超短强激光脉冲的近全吸收现象[Phys. Rev. Lett. 101, 145001(2008)]。



Figure_L05_2008

Snapshots of the electric distribution functions under dc electric fields of different strengths: (a) $0.01E_c$ after $500\tau_{ei}$, (b) $0.1E_c$ after $50\tau_{ei}$, and (c) $1.0E_c$ after $5\tau_{ei}$. Column (I) is for plasmas with ion charge state $Z_i=1$ and column (II) for $Z_i=\infty$, and the electric distribution functions is in units of n_e/v_{e0}^3 .

不同强度的直流电场中的电子分布函数图: (a) $0.01E_c$ 的直流电场作用 $500\tau_{ei}$ 后, (b) $0.1E_c$ 的直流电场作用 $50\tau_{ei}$ 后, (c) $1.0E_c$ 的直流电场作用 $5\tau_{ei}$ 后。其中第(I)列中等离子体的电离度 $Z_i=1$, 第(II)列中 $Z_i=\infty$, 电子分布函数归一化到 n_e/v_{e0}^3 。

- ◆It is found experimentally that high contrast laser pulses enable the enhancement of the $K\alpha$ x-ray intensity. The conversion efficiency reaches up to the world-recording level at 10^{-4} [Phys. Rev. Lett. 100, 045004(2008)].
- ◆A 2D Fokker-Planck code is developed, which is used to study the plasma conductivity at a high DC field. It is found that the well-known Spitzer-Harm is no longer held under field strength. A new theoretical model is proposed, which can describe the relation between the current and the field strength [Phys. Rev. Lett. 100, 185001 (2008)].
- ◆On laser-driven ion acceleration, a new scheme called phase-stable acceleration is proposed, which enables the production of high quality ion beams on table-top [Phys. Rev. Lett. 100, 135003 (2008)].
- ◆By experimental and theoretical studies, it is found that there is nearly complete absorption of laser energy by a solid target with sub-wavelength grating structures at the surface [Phys. Rev. Lett. 101, 145001(2008)].

超短脉冲激光与精密测量物理研究/ Ultrafast Laser Technology and Precision Measurement Physics

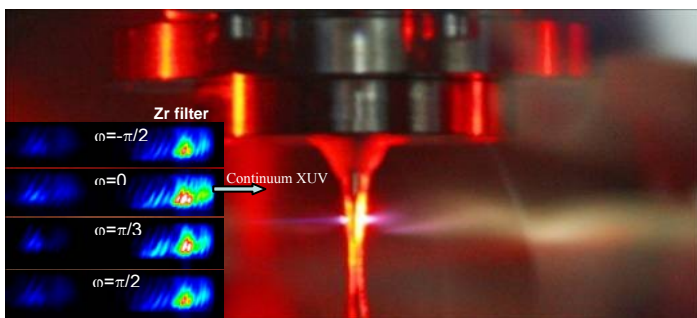
组长: 魏志义

Group Leader: Wei Zhi-yi

成员: 李德华 滕浩 王兆华 韩海年

Members: Li De-hua, Teng Hao, Wang Zhao-hua, Han Hai-nian

- ◆通过优化放大效率, 将极光 III 装置的峰值功率从 350TW 提高到了 720TW, 开展了提高脉冲对比度、精密化控制等前沿内容的研究
- ◆利用已建立的 CEP 精密控制的 5fs 激光装置, 开展了与气体相互作用产生 XUV 高次谐波阿秒激光的实验研究, 成功得到了波长到 7nm 的软 X 射线连续谐波谱, 理论上支持小于 100as 的脉冲, 据知这是国内首次产生的连续谱 X 射线谐波。
- ◆研制成功高稳定的单块光学频率梳, 与武汉物理数学所合作, 成功测得 729nm 稳频激光及 Ca 离子跃迁的精确频率, 精度与国际水平相当。
- ◆建成国际最高能量的皮秒可调谐激光及四倍频钛宝石激光, 在 460nm~750nm 内的能量达 30mJ、三倍频 200nm 的能量达 16mJ, 通过鉴定。
- ◆将飞秒 OPO 的波长扩展到了 1053nm 的重要波长, 首次在国际上实现飞秒 Yb:GYSO 激光, 开展了新型热助推全固态激光的研究, 将飞秒镁橄榄石激光的输出功率, 从常规的 200mW 提高到了 760mW。



相位控制的 5fs 激光脉冲聚焦到氖气喷流产生阿秒激光高次谐波的实验照片, 左面插图不同相位下的 X 射线谱, 铪滤光片用来截止驱动激光, 产生的连续 X 射线谱的最短波长到 7nm。

Picture of high order harmonic generation with attosecond pulse by focusing the CEP controlled 5fs laser into the Ne jet. The inset figure shows the XUV spectra with CEP, the shortest wavelength is extended to 7nm in the continuum XUV. Zr filter is used to stop the driving laser.

We successfully upgraded the laser peak power from 350TW to 720TW by improved the efficiency, cutting edge researches on high contrast ratio and fine control technology are carried out. Base on the developed platform of CEP controlled 5fs laser, we obtained continuum X-ray High Order Harmonic wave up to 7nm by focused the driver laser into the Noble gas jet. Further, we established a novel monolithic frequency comb with an ultalong-term stability, by collaborating with WIPM, we successfully measured the absolute frequencies of the 729nm frequency stablized laser and transition in Ca^+ clock, domenstrated a precision in the world level. One research activity and the results of 30mJ tunable picosecond laser within 460nm to 750nm and 16mJ ps laser at 200nm was identified by scientist reviewers, which were accepted as the even highest energy in the world at those wavelengh range. In addition, we extended the femtosecond OPO laser to 1053nm, an important wavelength in laser research. For the first time realized the femtosecond Yb:GYSO laser in the world, the novel technology on all-solid state laser with direct pumping scheme to reduce thermal absorb effect was developed. Compare to the 200mW output power from conventional femtosecond Cr:forsterite laser, we increased the laser power to 760mW.

专利/Patents

申请专利/Patents Applied

- [1] 200810227104.0; 一种实时标定四象限探测器的方法; 发明; 郭红莲、屈娥、凌林、黄璐、李兆霖、张道中、李志远
- [2] 200820080575.9; 光纤与波导元件的有源对准及固定装置; 实用新型; 刘娅钊、李志远、张道中
- [3] 200810057538.0; 一种无标记检测生物芯片的方法和装置; 发明; 陆珩、宁廷银、周岳亮、吕惠宾、金奎娟、杨国桢
- [4] 200810101699.5; 光反射差法检测生物芯片装置中的小孔部件与检测方法; 发明; 吕惠宾、温娟、陆衡、金奎娟、周岳亮、杨国桢
- [5] 200810101700.4; 一种采用光反射差法探测生物样品的方法; 发明; 吕惠宾、温娟、陆衡、金奎娟、周岳亮、杨国桢
- [6] 200810102868.7; 一种三阶非线性光学材料及其制备方法; 发明; 宁廷银、周岳亮、陆珩、陈聪、沈鸿、张东香、金奎娟、杨国桢
- [7] 200810103191.9; 一种三阶非线性光学材料及其制备方法; 发明; 宁廷银 周岳亮 陆珩 陈聪 沈鸿 张东香 金奎娟 杨国桢
- [8] 200810118113.6; 一种全氧化物异质结场效应管; 发明; 吕惠宾 杨芳 何萌 金奎娟 杨国桢
- [9] 200810118114.0; 一种具有功能特性的异质结场效应管; 发明; 吕惠宾 杨芳 何萌 金奎娟 杨国桢
- [10] 200810117775.1; 一种异地共享真随机数序列的光学系统; 发明; 赵建领、吴令安
- [11] 200810117776.6; 一种安全即时通信系统; 发明; 赵建领、吴令安
- [12] 200810117961.5; 真随机数发生器; 发明; 赵建领、吴令安
- [13] 200810117962.X; 真随机数源及生成真随机数的方法; 发明; 赵建领、吴令安
- [14] 200810222553.6; 一种产生强太赫兹辐射的装置和方法; 发明; 王伟民、盛政明、张杰
- [15] 200810225519.4; 激光推进装置; 发明; 鲁欣、张翼、张杰
- [16] 200810114410.3; 一种高光束质量的脉冲掺钛蓝宝石激光器; 发明; 魏志义、赵环、腾浩、王兆华、朱江峰
- [17] 200810114575.0; 和频不同超短脉冲产生新波长激光的装置; 发明; 魏志义, 王鹏, 赵环, 杜强
- [18] 200810114576.5; 不同超短脉冲激光的精密主动同步装置; 发明; 魏志义, 王鹏, 赵环, 杜强
- [19] 200810114586.9; 用于飞秒激光放大装置中的电子同步时序控制系统; 发明; 王鹏, 魏志义,

王兆华, 赵环

- [20] 200810115910.9; 产生高重复频率周期量级飞秒脉冲的线性腔掺钛蓝宝石激光器; 发明; 魏志义、赵研英、张青、韩海年、张炜、滕浩
- [21] 200810222628.0; 载波相位自稳定的中红外飞秒激光脉冲产生方法及装置; 发明; 魏志义、韩海年、赵研英、张青、吴晓丽
- [22] 200820079434.5; 一种电动启动锁模装置; 实用新型; 刘成、滕浩、杜强、朱江锋、赵研英、魏志义

授权专利/Patents Approved

- [1] ZL200510135498.3; 单模透镜光纤与平板脊形波导的有源对准固定装置及方法; 发明; 陶海华、程丙英、田洁、任承、李志远、张道中
- [2] ZL02116324.3; 采用电泳技术制备大面积高温超导钡钕铜氧厚膜的方法; 发明; 朱亚彬、熊季午、周岳亮
- [3] ZL200410068866.2; 在硅片上外延生长掺杂锰酸镧薄膜异质结构材料及制备方法; 发明; 吕惠宾、何萌、黄延红、相文峰、陈正豪、周岳亮、程波林、金奎娟、杨国桢
- [4] ZL200410069052.0; 利用异质结材料制作的快响应宽频段激光探测器; 发明; 吕惠宾、黄延红、何萌、郭海中、金奎娟、程波林、周岳亮、陈正豪、杨国桢
- [5] ZL200410069100.6; 利用氧化异质结材料制作的快响应宽频段激光探测器; 发明; 吕惠宾、黄延红、何萌、刘立峰、周岳亮、金奎娟、陈正豪、程波林、杨国桢
- [6] ZL200410071174.3; 利用氧化多层膜材料制作的激光探测器; 发明; 吕惠宾、黄延红、何萌、郭海中、程波林、金奎娟、陈正豪、周岳亮、杨国桢
- [7] ZL200410074668.7; 一种具有超快响应紫外到近红外的激光探测器件; 发明; 赵昆、吕惠宾、黄延红、何萌、金奎娟、陈正豪、周岳亮、程波林、戴守愚、杨国桢
- [8] ZL200510066045.X; 在无织构的金属基带上制备 YBCO 高温超导薄膜的方法; 发明; 周岳亮、王淑芳、刘震、赵嵩卿、韩鹏、吕惠宾、陈正豪、金奎娟、杨国桢
- [9] ZL200510107827.3; 基于 ZnO/MgB₂ 异质结的光探测器; 发明; 赵嵩卿、周岳亮、赵昆、刘震、王淑芳、韩鹏、相文峰、陈正豪、吕惠宾、程波林、何萌、杨国桢
- [10] ZL200510123855.4; 高集成度纯数控单光子探测器; 发明; 孙志斌、杨捍东、马海强、翟光杰、吴令安
- [11] ZL02120820.4; 一种具有高时间分辨的电子显微镜; 发明; 张杰、彭练矛、邱阳、张军
- [12] ZL200510066314.2; 一种电子束产生和控制装置; 发明; 张杰、刘运全、梁文锡

发表论文/Publications in Journal

1. In their words - Fix the gender ratio, Ling-An Wu, **Nature** **454**, 399, (2008)
2. Optical Near-Field Mapping of Plasmonic Nanoprisms, Zhou F, Li ZY, **Nano Letters** **8**, 3357, (2008)
3. Plasma Currents and Electron Distribution Functions under a dc Electric Field of Arbitrary Strength SM Weng, ZM Sheng, MQ He, J Zhang, P. A. Norreys, M. Sherlock and A. P. L. Robinson **Physical Review Letters** **100**, 185001 (2008)
4. Study of X-Ray Emission Enhancement via a High-Contrast Femtosecond Laser Interacting with a Solid Foil, LM Chen, M. Kando, MH Xu, YT Li, J. Koga, M Chen, H Xu, XH Yuan, QL Dong, ZM Sheng, S.V. Bulanov, Y. Kato, J Zhang and T. Tajima **Physical Review Letters** **100**, 045004 (2008)
5. Generating High-Current Monoenergetic Proton Beams by a Circularly Polarized Laser Pulse in the Phase-Stable Acceleration Regime, X.Q Yan, C Lin, ZM Sheng, ZY Guo, BC Liu, YR Lu, JX Fang and JE Chen, **Physical Review Letters** **100**, 135003 (2008)
6. Near-Complete Absorption of Intense, Ultrashort Laser Light by Sub- λ Gratings Subhendu Kahaly, S. K. Yadav, WM Wang, S. Sengupta, Z M Sheng, A. Das, P. K. Kaw and G. Ravindra Kumar, **Physical Review Letters** **101**, 145001(2008)
7. Waveguide coupler in three-dimensional photonic crystal, Liu RJ, Li ZY, Zhou F, Zhang DZ, **Optics Express** **16**, 5681, (2008)
8. G-M waveguides two-dimensional triangular-lattice photonic crystal slabs, Liu YZ, Liu RJ, Zhou CZ, Zhang DZ, Li ZY, **Optics Express** **16**, 21483, (2008)
9. Carrier-envelope phase dependence of non-sequential double ionization in few-cycle pulses, Li HY, Chen J, Jiang HB, Liu J, Fu PM, Gong QH, Yan YC, Wang BB, **Optics Express** **16**, 20562, (2008)
10. Widening of Long-range femtosecond laser filaments in turbulent air, YY Ma, X Lu, TT Xi, QH Gong and J Zhang, **Optics Express** **16**, 8332 (2008)
11. Effective fast electron acceleration along the target surface, XH Yuan, YT Li, MH Xu, ZY Zheng, QZ Yu, WX Liang, Y Zhang, F Liu, Jens Bernhardt, SJ Wang, ZH Wang, WJ Ling, ZY Wei, W Zhao and J Zhang, **Optics Express** **16**, 81 (2008)
12. X-ray lasers from Inner-shell transitions pumped by the Free-electron laser, J Zhao, QL Dong, SJ Wang, L Zhang and J Zhang, **Optics Express** **16**, 3546 (2008)
13. Strong terahertz pulse generation by chirped laser pulses in tenuous gases, WM Wang, ZM Sheng, HC Wu, M Chen, C Li, J Zhang, and K Mima, **Optics Express** **16**, 16999 (2008)
14. All-optical switching in subwavelength metallic grating structure containing nonlinear optical materials, Min CJ, Wang P, Chen CC, Deng Y, Lu YH, Miang H, Ning TY, Zhou YL, Yang GZ, **Optics Letters** **33**, 869, (2008)
15. Multichannel filters via G-M and G-k waveguide coupling in two-dimensional triangular-lattice photonic crystal slabs, Liu YZ, Liu RJ, Feng S, Ren C, Zhang DZ, Li ZY, **Applied Physics Letter** **93**, 241107, (2008)
16. Collinear second harmonic generations in a nonlinear photonic quasicrystal, Sheng Y, Koynov K, Dou JH, Ma BQ, Li JJ, Zhang DZ, **Applied Physics Letter** **92**, 201113, (2008)
17. Photonic bandgap of gradient quasidiamond lattice photonic crystal, Dong XZ, Ya Q, Sheng XZ, Li ZY, Zhao ZS, Duan XM, **Applied Physics Letter** **92**, 231103, (2008)
18. Direct characterization of focusing light by negative refraction in a photonic crystal flat lens, Tian J, Yan M, Qiu M, Ribbing CG, Liu YZ, Zhang DZ, Li ZY, **Applied Physics Letter** **93**, 191114, (2008)
19. The effect of phase separation on the temperature dependent magnetoresistance in perovskite

- oxide heterojunction, Hu CL, Jin KJ, Han P, Lu HB, Liao L, Yang GZ, **Applied Physics Letters** **93**, 162106, (2008)
20. Photovoltaic effects and its oxygen content dependence in BaTiO₃- /Si heterojunctions, Xing J, Jin KJ, Lu HB, He M, Liu GZ, Yang GZ, **Applied Physics Letters** **92**, 71113, (2008)
21. Low-frequency negative capacitance in La_{0.8}Sr_{0.2}MnO₃/Nb-doped SrTiO₃ heterojunction, Wang CC, Liu GZ, He M, Lu HB, **Applied Physics Letters** **92**, 52905, (2008)
22. Effects of interfacial polarization on the dielectric properties of BiFeO₃ thin film capacitors, Liu GZ, Wang C, Wang CC, Qiu J, He M, Xing J, Jin KJ, Lu HB, Yang GZ, **Applied Physics Letters** **92**, 122903, (2008)
23. Photovoltaic effect in micrometer-thick perovskite-type oxide multilayers on Si substrates, Liu H, Zhao K, Zhou N, Lu HB, He M, Huang YH, Jin KJ, Zhou YL, Yang GZ, Zhao SQ, Wang AJ, Leng WX, **Applied Physics Letters** **93**, 171911, (2008)
24. Characteristics of the low electron density surface layer on BaTiO₃ thin films, Li XL, Lu HB, Li M, Mai ZH, Kim H, Jia QJ, **Applied Physics Letters** **92**, 12902, (2008)
25. BiZnNbO/Mn-doped BaSrTiO heterolayered thin films with enhanced tunable performance, Fu WY, Wang H, Cao LZ, Zhou YL, **Applied Physics Letters** **92**, 182910, (2008)
26. Modulated terahertz responses of split ring resonators by nanometer thick liquid layers, Yimin Sun, Xiaoxiang Xia, Hui Feng, Haifang Yang, Changzhi Gu, and Li Wang, **Applied Physics Letters** **92**, 221101, (2008)
27. Electronic Grüneisen parameter and thermal expansion in ferromagnetic transition metal, Xuan Wang, Shouhua Nie, Junjie Li, Richard Clinite, Mark Wartenbe, Marcia Martin, Wenxi Liang and Jianming Cao, **Applied Physics Letters** **92**, 121918 (2008)
28. Controlled electron injection into laser wakefields with a perpendicular injection laser pulse, WM Wang, ZM Sheng, and J Zhang, **Applied Physics Letters** **93**, 201502 (2008)
29. Single-photon level ultrafast all-optical switching, Xiao-Feng Han, Yu-Xiang Weng, Rui Wang, Xi-Hao Chen, Kai-Hong Luo, Ling-An Wu, Jimin Zhao, **Applied Physics Letters** **92**, 151109, (2008)
30. Nonlinear frequency conversion in two-dimensional nonlinear photonic crystals solved by a plane-wave-based transfer-matrix method, Li JJ, Li ZY, Zhang DZ, **Physical Review B** **77**, 195127, (2008)
31. Analysis of photonic crystal waveguide bends by a plane-wave transfer-matrix method, Che M, Li ZY, **Physical Review B** **77**, 125138, (2008)
32. Attosecond-pulse-controlled high-order harmonic generation in ultrashort laser fields, Wang BB, Chen J, Liu J, Yan ZC, Fu PM, **Physical Review A** **78**, 23413, (2008)
33. Effect of target shape on fast electron emission in femtosecond laser-plasma interactions, YT Li, MH Xu, XH Yuan, WM Wang, M Chen, ZY Zheng, ZM Sheng, QZ Yu, Y Zhang, F Liu, Z Jin, ZH Wang, Z.Y Wei, W Zhao and J Zhang, **Physical Review E** **77**, 016406(2008)
34. Spatiotemporal moving focus of long femtosecond-laser filaments in air, TT Xi, X Lu and J Zhang, **Physical Review E** **78**, 055401 (R)(2008)
35. Single-cycle powerful megawatt to gigawatt terahertz pulse radiated from a wavelength-scale plasma oscillator, HC Wu, ZM Sheng, and J Zhang, **Physical Review E** **77**, 046405 (2008).
36. Effect of laser parameters on electron injection into laser wakefields in plasma with a counterpropagating additional laser pulse, WM Wang and ZM Sheng, **Physics of Plasmas** **15**, 013101 (2008)
37. A model for the efficient coupling between intense lasers and subwavelength grating targets, WM Wang, ZM Sheng and J Zhang, **Physics of Plasmas** **15**, 030702 (2008)

38. Multiplex emission of the fast electron beams along the target surface in ultrashort laser interaction with solid targets, XH Yuan, YT Li, MH Xu, ZY Zheng, M Chen, WX Liang, QZ Yu, Y Zhang, F Liu, J. Bernhardt, SJ Wang, ZH Wang, ZY Wei, W Zhao and J Zhang, **Physics of Plasmas** **15**, 013106 (2008)
39. Phase space modulation of laser produced protons with a double-foil target generation of quasimonoenergetic proton beams, J Zheng, Kunioki Mima, ZM Sheng and YT Li, **Physics of Plasmas** **15**, 053106 (2008)
40. Experimental evidence and theoretical analysis of photoionized plasma under x-ray radiation produced by an intense laser, FL Wang, Shinsuke Fujioka, Hiroaki Nishimura, Daiji Kato, YT Li, G Zhao, J Zhang and Hideaki Takabe, **Physics of Plasmas** **15**, 073108 (2008)
41. Kinetic theory on the current-filamentation instability in collisional plasmas, B Hao, ZM Sheng, and J Zhang, **Physics of Plasmas** **15**, 082112 (2008)
42. Two dimensional hydrodynamic characteristics of x-ray lasers plasmas, T Cheng, YJ Li, LM Meng and J Zhang, **Europhysics letter** **84** 45001 (2008)
43. Analytic modal solution to transmission and collimation of light by one-dimensional nanostructured subwavelength metallic slits, Hua YL, Li ZY, **Journal of Applied Physics** **104**, 1, (2008)
44. Waveguide bend designs in three-dimensional woodpile photonic crystals, RJ Liu, M Ruan, F Zhou, ZY Li, BY Cheng, DZ Zhang, **Journal of Applied Physics** **103**, 34502 (2008)
45. Scanning near-field optical microscopy study of metallic square hole array nanostructures, JY Li, ZY Li, HF Yang, AZ Jin, **Journal of Applied Physics** **104**, 114303 (2008)
46. Channel-drop filters in three-dimensional woodpile photonic crystals, RJ Liu, ZY li, ZF Feng, BY Cheng, DZ Zhang, **Journal of Applied Physics** **103**, 94514 (2008)
47. Theoretical study on the transport property of p-Si/n-SrTiO₃, Hu CL, Han P, Jin KJ, Lu HB, Yang GZ, **Journal of Applied Physics** **103**, 53701, (2008)
48. Temperature dependence surface structure of BaTiO₃ thin films induced by ferroelectric phase transition, Li XL, Lu HB, Li M, Mai ZH, Kim H, **Journal of Applied Physics** **103**, 54109, (2008)
49. The influences of substrate and metal properties on the magnetic response of metamaterials at terahertz region, Xiaoxiang Xia, Yimin Sun, Haifang Yang, Hui Feng, Li Wang, and Changzhi Gu, **Journal of Applied Physics** **104**, 33505, (2008)
50. Ponderomotive scattering of electrons and its application to measure the pulse duration of ultrafast electron beams, YQ Liu, J Zhang, HC Wu and ZM Sheng, **Journal of Applied Physics** **103**, 044905 (2008)
51. Solution of photonic band diagrams by a planewave-based transfer-matrix method in combination with an interpolation method, Che Ming, Li Zhiyuan, **Journal of the Optical Society of America B** **25**, 1270, (2008)
52. The influence of interband tunneling on leakage current in manganite/titanate heterojunction, Han P, Jia JF, **Physics Letters A** **372**, 4943, (2008)
53. Spectral dynamics studies on the supercontinuum channel of femtosecond laser pulses propagation in air, YQ liu, J Zhang, Z Jin, ZQ Hao, Z Zhang and ZH Wang, **Applied physics B** **92**, 153 (2008)
54. Filamentation of interacting femtosecond laser pulses in air, YY Ma, X Lu, TT Xi, QH Gong and J Zhang, **Applied physics B** **93**, 463(2008)
55. Numerical solution and experiment of a self-Q-switched 946 nm Cr,Nd:YAG laser, Li QN, Feng BH, Zhang DX, Du SF, Shi YX, Zhang ZG, Zhang SW, **Applied physics B** **93**, 421, (2008)

56. Nanostructural effects on optical properties of tungsten inverse opal, Chen X, Zhou F, Wang JX, Li MZ, Jiang L, Song YL, Li ZY, Zhu DB, **Applied Physics A:Materials Science &Processing** **98**, 489, (2008)
57. Preparation and properties of GaFeO thin films grown at various oxygen pressures by pulsed laser deposition, Sun ZH, Zhou YL, Dai SY, Cao LZ, Chen ZH, **Applied Physics A** **91**, 97, (2008)
58. Transmitted laser propulsion in confined geometry using liquid propellant, Y Zhang, X Lu, ZY Zheng, F Liu, PF Zhu, HM Li, YT Li, YJ Li and J Zhang, **Applied Physics A** **91**, 357 (2008)
59. Analysis of surface modes in photonic crystals by a plane-wave transfer-matrix method, Che Ming, Li Zhiyuan, **Journal of the Optical Society of America A** **25**, 2177,(2008)
60. Diode-pumped intra-cavity doubled Nd:LuVO₄ laser at 458 nm, Kunna He, Chunqing Gao, Zhiyi Wei, Dehua Li, Zhiguo Zhang, Huaijin Zhang, Jiyang Wang, **Optics communications** **281**, 3853, (2008)
61. Diode-pumped passively mode-locked Nd:GdVO₄ laser at 912 nm, Changwen Xu,Zhiyi Wei *, Kunna He, Dehua Li, Yongdong Zhang, Zhiguo Zhang, **Optics communications** **281**, 4398, (2008)
62. Detection of scattered light pulses at femto-Joule level by using a picosecond BBO optical parametric amplifier, Du SF, Zhang DX, Shi YX, Wang SM,Li QN,Feng BH, Zhang JY, **Optics Communications** **281**, 3638, (2008)
63. Self-Q-switched and mode-locked 946 nm Cr,Nd:YAG laser, Li QN, Wang SM, Du SF, Shi YX, Xing J, Zhang DX, Feng BH, Zhang ZG, Zhang SW, **Optics Communications** **281**, 2184, (2008)
64. Picosecond optical parametric amplification of stimulated Raman as high peak-power source and ultra-sensitive preamplifier, DU SF, Zhang DX, Shi YX,Li QN,Feng BH, Zhang JY, **Optics Communications** **281**, 5014, (2008)
65. Increased temperature bandwidth of second harmonic generator using two KTiOPO₄ crystals cut at different angles, Zhang DX, Lu J, Feng BH, Zhang JY, **Optics Communications** **281**, 2918, (2008)
66. Absorption and second harmonic emission from interaction of femtosecond laser pulses with microspherical droplets , YQ Liu, J Zhang, ZM Sheng, XY Peng and Z Jin , **Optics Communications** **281**, 1244 (2008)
67. Rapidly Infrared-Assisted Cooperatively Self-Assembled Highly Ordered Multiscale Porous Materials, Zheng ZY, Gao KY, Luo YH, Li DM, Meng QB, Wang YR, Zhang DZ, **Journal of the American Chemical Society** **130**, 9785, (2008)
68. Sum-frequency generation between an actively synchronized ultrashort Ti:sapphire laser and a Nd:YVO₄ laser, Huan Zhao, Peng Wang, Jiangfeng Zhu, Qiang Du, and Zhiyi Wei, **Journal of Optical Society American B** **25**, B39, (2008)
69. Elastic and electrical anomalies at low-temperature phase transitions in BiFeO₃, Redfern SAT, Wang C, Hong JW, Catalan G, Scott JF, **Journal of Physics: Condensed Matter** **20**, 452205, (2008)
70. Ultrafast and high-sensitivity photovoltaic effects in TiN/Si Schottky junction, Xing J, Jin KJ, He M, Lu HB, Liu GZ, Yang GZ, **Journal of Physics D: Applied Physics** **41**, 195103, (2008)
71. Enhanced photovoltage in perovskite-type artificial superlattices on Si substrates, Zhou N, Zhao K, Liu H, Lu HB, He M, Zhao SQ, Leng WX, Wang AJ, Huang YH, Jin KJ, Zhou YL, Yang GZ, **Journal of Physics D: Applied Physics** **41**, 155414, (2008)
72. Large optical nonlinearity of Au nanoparticle-dispersed Ba_{0.6}Sr_{0.4}TiO₃ films prepared by pulsed laser deposition, Chen C, Ning TY, Zhou YL, Zhang DX, Wang P, Ming H, Yang GZ, **Journal of Physics D: Applied Physics** **41**, 225301, (2008)
73. High-Mach number collisionless shock and photo-ionized non-LTE plasma for laboratory ,

- astrophysics with intense lasers, H Takabe, T N Kato, Y Sakawa, Y Kuramitsu, T Morita, T Kadono, K Shigemori, K Otani, H Nagatomo, T Norimatsu, S Dono, T Endo, K Miyanishi, T Kimura, A Shiroshita, N Ozaki, R Kodama, S Fujioka, H Nishimura, D Salzman, B Loupias, C Gregory, M Koenig, J N Waugh, N C Woolsey, D Kato, YT Li, QL Dong, SJWang, Y Zhang, J Zhao, FL Wang, HG Wei, JR Shi, G Zhao, JY Zhang, TS Wen, WH Zhang, X Hu, SY Liu, Y K Ding, L Zhang, YJ Tang, BH Zhang, ZJ Zheng, ZM Sheng and J Zhang, **Plasma Phys. Control. Fusion** 50,124057 (2008)
74. Simulation of high power THz emission from laser interaction with tenuous plasma and gas targets”, ZM Sheng, HC Wu, WM Wang, M Chen, XG Dong, J Zheng, and J Zhang, **Comm. Comp. Phys.** 4, 1258 (2008).
 75. Laser-induced voltages in vicinal cut SrTiO₃ single crystals, Zhao K, Lu HB, He M, **European Physical Journal Applied Physics** 41, 139, (2008)
 76. Gold Nanorod-Seeded Growth of Silver Nanostructures: From Homogeneous Coating to Anisotropic Coating, Xiang YJ, Wu XC, Liu DF, Li ZY, Chu WG, Feng LL, Zhang K, Zhou WY, Xie SS, **Langmuir** 24, 3465, (2008)
 77. Quantitative Analysis of Dipole and Quadrupole Excitation in the Surface Plasmon Resonance of Metal Nanoparticles, Zhou F, Li ZY, Liu Y, **The Journal of Physical Chemistry C** 112, 20233, (2008)
 78. A Quantitative Study on the Photothermal Effect of Immuno Gold Nanocages Targeted to Breast Cancer Cells, Au L, Zheng DS, Zhou F, Li ZY, Li XD, Xia YN, **ACS NANO** 2, 1645, (2008)
 79. Seed-Mediated Growth of Nearly Monodisperse Palladium Nanocubes with Controllable Sizes, Niu WX, Li ZY, Shi LH, Liu XQ, Li HJ, Han S, Chen JA, Xu GB, **Crystal Growth & Design** 8, 4440, (2008)
 80. Thickness dependence of microstructures in La_{0.9}Si_{0.1}MnO₃ thin films grown on exact-cut and miscut SrTiO₃ substrates, Zhang HD, An YK, Mai ZH, Lu HB, Zhao K, Pan FQ, Li RP, Fan R, **Physica B** 403, 2008, (2008)
 81. Temperature-dependent dielectric strength of a Maxwell wagner type relaxation, Wang CC, Lu HB, Jin KJ, Yang GZ, **Modern Physics Letters B** 22, 1297, (2008)
 82. Nonlinear optical properties of Au/ZnO nanoparticle arrays, Ning TY, Zhou YL, Shen H, Lu H, Sun ZH, Cao LZ, Guan DY, Zhang DX, Yang GZ, **Applied Surface Science** 254, 1900, (2008)
 83. Elaboration and optical properties of GaFeO₃ thin films, Sun ZH, Dai S, Zhou YL, Cao LZ, Chen ZH, **Thin Solid Films** 516, 7433, (2008)
 84. Current-voltage characteristics with several threshold currents in insulating low-doped LSMO thin films, Zhao K, Feng JF, He M, Lu HB, Jin KJ, Zhou YL, Yang GZ, **Journal of Rare Earths** 26, 567, (2008)
 85. Synthesis, characterization, photoluminescence and ferroelectric properties of PTO nanotube arrays, Liu LF, Ning TY, Ren Y, Sun ZH, Wang FF, Zhou WY, Xie SS, Song L, Luo SD, Liu DF, Shen J, Ma WJ, Zhou YL, **Materials Science & Engineering B** 149, 41, (2008)
 86. Quasiparticle relaxation dynamics in n-type superconductor La_{2-x}Ce_xCuO₄, Cao N, Long YB, Zhang ZG, Yuan J Gao LJ, Zhao BR, Zhao SP, Yang QS, Zhao J, Fu PM, **Physica C** 468, 894, (2008)
 87. Fabrication of terahertz metamaterials using S1813/LOR stack by lift-off, Xiaoxiang Xia, Haifang Yang, Yimin Sun, Zongli Wang, Li Wang, Zheng Cui and Changzhi Gu, **Microelectronic Engineering** 85, 1433, (2008)
 88. High-visibility intensity interference and ghost imaging with pseudo-thermal light, I. N. Agafonov, M. V. Chekhova, T. S. Iskhakov, Ling-An Wu, **Journal of Modern Optics**, iFirst, (2008)
 89. Opacity Studies of Silicon in Radiatively Heated Plasma, HG Wei, JR Shi, G Zhao, Y Zhang, QL Dong, YT Li, SJ Wang, J Zhang, ZT Liang, JY Zhang, TS Wen, WH Zhang, X Hu, SY Liu, YK Ding,

- L Zhang, YJ Tang, BH Zhang, ZJ Zheng, Hiroaki Nishimura, Shinsuke Fujioka, FL Wang, Hideaki Takabe, *Astrophysical Journal*, **Astrophysical Journal**, **683**, 577 (2008)
90. "Electron acceleration based on an elongated plasma channel", LM Chen, K. Nakajima, W. Hong, T. Kameshima, JF Hua, H. Kotaki, K. Sugiyama, XL Wen, YC Wu, CM Tang, YQ Gu, HS Peng, S.Kurokawa, J. Koga, S. V. Bulanov, T. Tajima, **IEEE Trans. On Plasmas Sci.** **36**(4), 1734(2008)
91. Soft X-Ray Spectroscopy of Highly Charged Silicon Ions in Dense Plasmas, GY Liang, G Zhao, JY Zhong, YT Li, YQ Liu, QL Dong, XH Yuan, Z Jin, and J Zhang, **Astrophysical Journal Supplement Series** **177** 326 (2008)
92. Stochastic heating and acceleration of electrons by high-intensity lasers in inhomogeneous plasmas, H Xu, ZM Sheng, J Zhang and XT He, **Physica Scripta** **77**, 045502 (2008)
93. Ion acceleration in the interaction of an intense laser pulse with structured plasma", M A Barr, M Chen, WM Wang, YT Li, MQ He, ZM Sheng, J Zhang, **Physica Scripta** **77**, 065502 (2008).
94. High gain inner-shell x-ray lasers pumped by X-ray Free-electron laser system FLASH in DESY, J Zhao, QL Dong, SJ Wang, L Zhang and J Zhang, **Journal of Physics: Conference Series** **112**, 042054 (2008)
95. Inverse bremsstrahlung absorption with full electron-electron collisions operator, SM Weng, ZM Sheng, J Zhang, **Journal of Physics: Conference Series** **112**, 022039 (2008)
96. Intense laser-driven electrostatic shocks and its acceleration of ions in overdense plasmas, QL Dong, M Chen, MQ He, ZM Sheng, SM Weng, HC Wu, and J Zhang, **Journal of Physics: Conference Series** **112**, 042032 (2008)
97. Multi-peak emission of the fast electron beams along the target surface in ultrashort laser interaction with solid targets, XH Yuan, YT Li, MH Xu, ZY Zheng, M Chen, WX Liang, QZ Yu, Y Zhang, F Liu, J Bernhardt, SJ Wang, ZY Wei, W Zhao, J Zhang, **Journal of Physics: Conference Series** **112**, 022057 (2008)
98. Focusing of relativistic electron beams by a solid cone, M Chen, ZM Sheng, YY Ma, YT Li, XH Yuan, J Zhang, **Journal of Physics: Conference Series** **112**, 022060 (2008)
99. Recent progress in high field physics research at the Institute of Physics, Chinese Academy of Sciences, J Zhang, ZY Wei, ZM Sheng, YT Li, X Lu, QL Dong, **Journal of Physics: Conference Series** **112**, 022079 (2008)
100. Fast electron transport in high-intensity laser-plasma interactions diagnosed by optical and ion emission, YT Li, XH Yuan, MH Xu, QZ Yu, SJ Wang, GC Wang, XL Wen, CY Jiao, YL He, YQ Gu, WZ Huang, ZJ Zhen, BH Zhang, W Zhao, J Zhang, **Journal of Physics: Conference Series** **112**, 022081 (2008)
101. Effect of target shape on fast electron emission, YT Li, MH Xu, XH Yuan, M Chen, ZY Zheng, ZM Sheng, YY Ma, WX Liang, QZ Yu, Y Zhang, F Liu, Z Jin, ZH Wang, ZY Wei, W Zhao, J Zhang, **Journal of Physics: Conference Series** **112**, 022092 (2008)
102. Study of Cu K α emission from frequency doubled intense femtosecond laser-plasma interactions, XX Lin, LM Chen, YT Li, MH Xu, XH Yuan, F Liu, Y Zhang, HM Li, ZH Wang, F Liu, ZY Wei, W Zhao, M Kando, S Bulanov, T Tajima, J Zhang, **Journal of Physics: Conference Series** **112**, 022094 (2008)
103. Charge-state distribution in a photoionized laser-produced plasma, FL Wang, Shinsuke Fujioka, Hiroaki Nishimura, Daiji Kato, YT Li, Gang Zhao, Jie Zhang, Hideaki Takabe, **Journal of Physics: Conference Series** **112**, 042004 (2008)
104. Absorption spectra measurements of the x-ray radiation heated SiO₂ aerogel plasma in "dog-bone" targets irradiated by high power laser pulses, Y Zhang, QL Dong, SJ Wang, YT Li, J Zhang, HG Wei, JR Shi, G Zhao, JY Zhang, TS Wen, WH Zhang, X Hu, SY Liu, TK Ding, L Zhang, TJ Tang, BH Zhang, ZJ Zheng, Hiroaki Nishimura, Shinsuke Fujioka, Hideaki Takabe, **Journal of Physics: Conference Series** **112**, 042005 (2008)

105. Theoretical investigation on novel particle beams and radiation sources in relativistic laser-solid interactions, ZM Sheng, YY Ma, M Chen, MQ He, H Xu, HC Wu, WM Wang, XG Dong, SM Weng, QL Dong, YT Li, ZY Wei, J Zhang, **Journal of Physics: Conference Series 112**, 042030 (2008)
106. Stochastic heating and acceleration of electrons by high intensity lasers in inhomogeneous plasmas, H Xu, ZM Sheng, J Zhang, XT He, **Journal of Physics: Conference Series 112**, 042045 (2008)
107. Effects of laser and plasma parameters on shock wave generation and acceleration of protons, MQ He, QL Dong, ZM Sheng, SM Weng, M Chen, HC Wu, J Zhang, **Journal of Physics: Conference Series 112**, 042046 (2008)
108. The lasing temporal characteristics of Ni-like Mo x-ray lasers at 18.9 nm driven by a grazing incidence pumping scheme, SJ Wang, QL Dong, J Zhao, L Zhang, J Zhang, **Journal of Physics: Conference Series 112**, 042055 (2008)
109. Powerful THz source based on laser wakefields, HC Wu, ZM Sheng, J Zhang, **Journal of Physics: Conference Series 112**, 042067 (2008)
110. Application of laser Plasma in propulsion, ZY Zheng, Y Zhang, PF Zhu, F Liu, X Lu, YT Li, J Zhang, **Journal of Physics: Conference Series 112**, 042076 (2008)
111. Spectral control in quasi-monoenergetic proton generation with double foil target, J Zheng, Kunioki Mima, ZM Sheng, YT Li, **Journal of Physics: Conference Series 112**, 042035 (2008)
112. Surface oxidation of vanadium dioxide films prepared by radio frequency magnetron sputtering, Wang Xue-Jin, Liang Chun-Jun, Guan Kang-Ping, Li De-Hua, Nie Yu-Xin, Zhu Shi-Oiu, Huang Feng, Zhang Wei-Wei, Cheng Zheng-Wei, **Chinese Physics B 17**, 3512, (2008)
113. Effect of the defect on the focusing in a two-dimensional photonic-crystal-based flat lens, Feng ZF, Wang XG, Li ZY, Zhang DZ, **Chinese Physics B 17**, 1101, (2008)
114. Influence of Dielectric Loss on Quality Factors of Photonic Crystal Microcavity Modes, Xiong ZG, Li ZY, Zhang DZ, **Chinese Physics Letter 25**, 3292, (2008)
115. TM-like and TE-like Modes Coupling in a Two-Dimensional Photonic Crystal, Xiong ZG, Li ZY, Zhang DZ, **Chinese Physics Letter 25**, 2089, (2008)
116. Synthesis and Band Gap Control in Three-Dimensional Polystyrene Opal Photonic Crystals, Liu Y, Zheng ZY, Qin F, Zhou F, Zhou CZ, Zhang DZ, Meng QB, Li ZY, **Chinese Physics Letter 25**, 4019, (2008)
117. Temperature-dependent transport properties in oxide p-n junction above room temperature, Liu GZ, Jin KJ, He M, Qiu J, Xing J, Lu HB, Yang GZ, **Chinese Physicas Letters 25**, 2209, (2008)
118. Transport behavior of La_{0.8}Sr_{0.2}AlO₃ thin film on oxygen deficient SrTiO₃ substrate, Qiu J, Lu HB, Jin KJ, Liu GZ, Yang GZ, **Chinese Physicas Letters 25**, 2206, (2008)
119. Growth model for pulsed-laser deposited perovskite oxide films, Wang X, Fei YY, Zhu XD, Lu HB, Yang GZ, **Chinese Physicas Letters 25**, 663, (2008)
120. Photovoltaic Characteristic of LaSrMnO/ZnO p-n Heterojunction, Sun ZH, NingTY, Zhou YL, Zhao SQ, Cao LZ, **Chinese Physicas Letters 25**, 1861, (2008)
121. laser Molecular Beam Epitaxy of Multilayer Heterostructure SrNb_{0.05}Ti_{0.95}O₃/La_{0.9}Sr_{0.1}MnO₃ in 10000 Unit-Cell Layers, Huang YH, He M, Tian HF, Zhao K, Lu HB, Jin KJ, Li JQ, Yang GZ, **Chinese Physicas Letters 25**, 3426, (2008)
122. Design of Highly Directive Ni-Like Ag X-Ray Laser at 13.9nm, J Zhao, QL Dong, SJ Wang, L Zhang, J Zhang, **Chinese Physics Letters 25**, 2870(2008)
123. Mono-Energetic Proton Beam Acceleration in Laser Foil-Plasma Interactions”, XQ Yan, BC Liu,

- ZH He, ZM Sheng, ZY Guo, YR Lu, JX Fang, JE Chen, **Chinese Physics Letters** **25**, 3330 (2008).
124. Influence of Initial Pulse Chirp on Rainbow-Like Supercontinuum Generation from Filamentation in Air, ZQ Hao, J Zhang, Z Zhang, X Lu, Z Jin, JY Zhong, YQ Liu, ZH Wang, **Chinese Physics Letters** **25**, 1365 (2008).
125. Highly efficient self-starting femtosecond Cr:forsterite laser, Zhou Bin-Bin, Zhang Yong-Dong, Zhong Xin, Wei Zhi-Yi, **Chinese Physics Letters** **25**, 3679, (2008)
126. Characteristics of Nd:YGG Laser Operating at 4F3/2-4I9/2, ZHANG Ling, ZHANG Chun-Yu, LI De-Hua, WEI Zhi-Yi, ZHANG Zhi-Guo, Hans J. Eichler, Stephan Strohmaier, **Chinese Physics Letters** **25**, 3988, (2008)
127. Efficient Pumping Scheme by Direct Excitation of Upper Laser Level in Nd:CNGG, CAO Ning, LI Qi-Nan, ZHAO Yan-Ying, XU Chang-Wen, WEI Zhi-Yi, FENG Bao-Hua, ZHANG Zhi-Guo, ZHANG Huai-Jin, WANG Ji-Yang, HE Kun-Na, GAO Chun-Qing, **Chinese Physics Letters** **25**, 4016, (2008)
128. Femtosecond Optical Detection of Quasiparticle Dynamics in Single-Crystal $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$, Cao N, Wei YF, Zhao JM, Zhao SP, Yang QS, Zhang ZG, Fu PM, **Chinese Physics Letters** **25**, 2257, (2008)
129. Three-photon resonant nondegenerate six-wave mixing in a dressed atomic system, J. Sun, G. Fu, H. Su, Z. Zuo, L.-A. Wu, and P. Fu, **Chinese Physics Letters** **25**, 3652, (2008)
130. Passively mode-locked quasi-three-level Nd:LuVO₄ laser with semiconductor saturable absorber mirror, Kunna He, Zhiyi Wei, Changwen Xu, Dehua Li, Zhiguo Zhang, Huaijin Zhang, Jiyang Wang, Chunqing Gao, **Chinese Physics Letters** **25**, 4286, (2008)
131. Optical properties of Co-BTO/Mg (100) Nano-composite films grown by pulsed laser deposition method, Wu WD, Wang F, Ge FF, Bai L, Lei HL, Tang YJ, Ju X, Chen ZH, Sun WG, **Chinese Physicas Letters** **25**, 1465, (2008)
132. Detection of microarray protein biomolecules by oblique-incidence reflectivity difference technique without labelling agents, Zhang HY, Lu H, Li W, Liang RQ, Jin KJ, Zhou YL, Ruan KC, Yang GZ, **Chinese Physics B** **17**, 2288, (2008)
133. Numerical study of the Ne-like Cr x-ray laser at 28.6nm, J Zhao, QL Dong, SJ Wang, L Zhagn, and J Zhang, **Chinese Phys. B.** **17**, 2517(2008)
134. Impedance effect of manganite thin film-based photodetectors, Chinese Science Bulletin, Zhao K, He M, Lu HB, **Chinese Science Bulletin** **53**, 313, (2008)
135. Fabrication of atomically smooth SrRuO₃ thin films by laser molecular beam epitaxy, Liu GZ, He M, Jin KJ, Yang GZ, Lu HB, Zhao K, Zheng SJ, Ma XL, **Science in China Series G: Physics, Mechanics & Astronomy** **51**, 745, (2008)
136. Carrier-envelope phase locking of 5fs amplified Ti:sapphire laser pulse at 1kHz repetition rate, 杜强, 朱江峰, 滕浩, 运晨霞, 魏志义, **Chinese Science Bulletin** **53**, 671, (2008)
137. Experimental study on generation of high energy few cycle pulses with hollow fiber filled with neon, 朱江峰, 王鹏, 韩海年, 滕浩, 魏志义, **Science in China Series G** **51**, 507, (2008)
138. Oxygen pressure dependent electroresistance in La_{0.9}Sr_{0.1}MnO₃ thin films grown by laser molecular beam epitaxy, OuYang SH, Wang CC, Liu GZ, He M, Jin KJ, Dang ZM, Lu HB, **Science in china series G: Physics, Mechanics & Astronomy** **51**, 232, (2008)
139. 激光尾波场加速器中反向注入激光脉冲参数对电子注入的影响”, 王伟民, 盛政明, **科学通报** **53**(12) 1370 (2008).
140. 磁化非均匀等离子体中的 THz 辐射研究, 董晓刚, 盛政明, 武慧春, 张杰, **科学通报** **53** (12), 1361-1365 (2008).

141. Epitaxial growth of high quality TiN thin film on Si by laser molecular beam epitaxy, He M, Liu GZ, Qiu J, Xing J, Lu HB, **Acta Physica Sinica** **57**, 1236, (2008)
142. Fabrication, microstructure and UPS spectra of Co:BTO/Si(100) nano-composite films, Wu WD, He YJ, Wang F, Zhan YJ, Bai L, Ju X, Chen ZH, Tang YJ, Sun WG, Pan HB, **Acta Physica Sinica** **57**, 600, (2008)
143. 电子型掺杂高温超导体 $\text{La}_{2-x}\text{Ce}_x\text{CuO}_4$ 飞秒时间分辨动力学研究, 曹宁, 龙拥兵, 张治国, 高丽娟, 袁洁, 赵伯儒, 赵士平, 杨乾声, 赵继民, 傅盘铭, **物理学报** **57**, 2543, (2008)
144. 均匀等离子体光栅的色散特性研究, 於陆勒, 盛政明, 张杰, **物理学报**, **10**, 6457-6464 (2008)
145. 静电场对强激光场非序列双电子电离的影响, 李洪云, 王兵兵, 蒋红兵, 陈京, 李晓锋, 刘杰, 龚旗煌, 傅盘铭, **物理学报** **57**, 124, (2008)
146. 布里渊增强非简并四波混频, 刘霞, 牛金艳, 孙江, 米辛, 姜谦, 吴令安, 傅盘铭, **物理学报** **57**, 4991, (2008)
147. 两台独立飞秒钛宝石振荡器的高精度主动同步研究, 赵环, 赵研英, 田金荣, 王鹏, 朱江峰, 令维军, 魏志义, **物理学报** **57**, 892, (2008)
148. Gires-Tournois 干涉镜补偿色散的自启动飞秒 Cr:YAG 激光器实验研究, 周斌斌, 张炜, 詹敏杰, 魏志义, **物理学报** **57**, 1742, (2008)
149. 光子晶体集成光电子器件, 刘娅钊, 李志远, **物理** **37**, 658, (2008)
150. 物理所光学研究的历史和现状, 魏志义, 张杰, **物理** **37**, 400, (2008)
151. 激光引雷研究中的若干基础物理问题, 鲁欣, 张喆, 郝作强, 王兆华, 魏志义, 江秀臣, 张杰, **高压技术** **34**, 2059 (2008)
152. 超短脉冲激光频率达线性及非线性扩展研究, 魏志义, 钟欣, 周斌斌, 朱江峰, 许长文, 张治国, **红外激光与工程** **37**, (2008)

国际会议邀请报告/Invited Plenary Talks at International Conference

- [1]. **ZhiYuan Li**, "Near-field studies of optical nanostructures", **Invited Talk** on OSA topical conference on nanophotonics 2008, May 26-29, 2008, Nanjing, China
- [2]. **ZhiYuan Li**, "Negative refraction in photonic crystals: From microwave to optical wavelengths", **Invited Talk** on International Workshops Metamaterials, November 9-12, 2008, Nanjing, China
- [3]. **ZhiYuan Li**, "Surface plasmon resonance in metallic nanoparticles: designs and applications", **Invited Talk** on PhotonicsGlobal@Singapore 2008 An international conference in Photonics, December 8-12, 2008, IEEE Lasers and Electro-Optics Society Singapore Chapter, Singapore
- [4]. **Kuijuan Jin**, "Dember Effect Induced Photovoltage in Perovskite p-n Heterojunctions", **Invited Talk** on Progress In Electromagnetics Research Symposium, March 24-28, 2008, Hangzhou, China.
- [5]. **Jie Zhang**, "Review of High Energy Density Physics Research in China", **Plenary Talk** on the HEDP/HEDLA-08 Program Committee and The American Physical Society (APS), April 11-15, 2008, St. Louis, Missouri. USA.
- [6]. **Jie Zhang**, "High energy density physics research in China", **Plenary Talk** on the 14th International Congress on Plasma Physics (ICPP2008), September 8-12, 2008, Fukuoka, Japan.
- [7]. **Jie Zhang**, "High energy density physics research in China", **Invited Talk** on the Fifth annual Meeting of the Science and Technology in Society forum, October 5-7, 2008, Kyoto, Japan.
- [8]. **Jie Zhang**, "Magnetic Fusion Power Development for Global Warming Suppression" **Invited Talk** on the 22th IAEA Fusion Energy Conference, October 13-18, 2008, Geneva, Switzerland.
- [9]. **Zhengming Sheng**, "Studies of Laser-Plasma Produced High Power THz Sources", **Invited Talk** on the 1st Global COE Student International Conference SCIENT 2008, August 1, 2008, Osaka University, Japan
- [10]. **Zhengming Sheng**, "Fokker-Planck simulation of plasma currents under a DC electric field of arbitrary strength", **Invited Talk** on the 9th JAEA-KPSI-APRC Symposium July 31, 2008, KPSI, Kizu/Nara, Japan
- [11]. **Yutong Li**, "Studies of high-energy particle acceleration at IOP", **Invited talk** on the 3rd Asian Summer School on Laser Plasma Acceleration and Radiations, July 21-25, 2008, Gwangju, Korea
- [12]. **Yutong Li**, "Lateral transport of fast electron in high-intensity laser-plasma interactions" **Talk** on the 35th EPS Plasma Physics Conference, June 7-19, 2008, Crete, Greece.
- [13]. **Yutong Li**, "Fast Electron Lateral Transport and Guiding Due to Surface Fields", **talk** on the 3rd International Conference on Ultrahigh Intensity Lasers(ICUIL 2008), October 27-31, 2008, Shanghai, China
- [14]. **Xin Lu**, Jie Zhang, "Filamentation of infrared and blue femtosecond laser pulses in air", **Invited Talk** on the 2nd International Symposium on Filamentation, Sep. 22-26, 2008, Paris, France

- [15]. **ZhiYi Wei**, “New progress on femosecond laser research-Toward multi-100TW, few cycles pulse and carrier envelope phase control”, **Invited Talk** on The 6th Asia Pacific Laser Symposium, January 30-February 3, 2008, Laser Society of Japan, Nagoya, Japan
- [16]. **ZhiYi Wei**, “Toward multi-100TW and fem cycles pulse by femtosecond Ti:sapphire laser”, **Invited Talk** on 5th Asian Conference on Ultrafast Phenomena 2008, February 6-9, 2008, National University of Singapore, Singapore
- [17]. **ZhiYi Wei**, “Carrier-envelope phase controlled 5-fs optical pulses for driving single attosecond pulses generation”, **Invited Talk** on Progress in Electromagnetics Research Symposium (PIERS 2008), March 24-28, 2008, Hangzhou, China
- [18]. **Chun Li**, “Generation of attosecond XUV pulses by sub-mJ carrier-envelope phase controlled 5fs laser pulses”, **Invited Talk** on The 4th International Symposium on Ultra-fast Phenomena & Terahertz Waves, March 29-31, 2008, Tianjin, China
- [19]. **ZhiYi Wei**, “Generation of attosecond XUV pulses by sub-mJ carrier-envelope phase controlled 5fs laser pulses”, **Invited Talk** on International Workshop on Attosecond Science and Technology, March 31-April 1, 2008, Beijing, China
- [20]. **ZhiYi Wei**, “Conceptual design of generating relativistic laser intensity by coherently synthesized multi-beam high peak power femtosecond lasers”, **Invited Talk** on 3rd International Conference on Ultralaser Intensity Lasers : Development, Science and Emerging Applications(ICUIL'08), October 27-31,2008, Tongli, Jiangshu, China
- [21]. **ZhiYi Wei**, “Push laser field to multi-100TW peak power, controlled waveform and attosecond pulse duration”, **Invited Talk** on China-France Workshop on Ultra-Short and Ultra-Intense Lasers and Applications, November 1-4, 2008, Hangzhou, China
- [22]. **ZhaoHua Wang**, “A compact 700TW femtosecond Ti:sapphire laser facility with three stage amplifiers”, **Invited Talk** on The 4th Asian Symposium on Intense Laser Science, November 3-6, 2008, Gwangju, Korea

学位论文/Dissertations

1. 博士学位论文

- [1] 刘 霞, 电磁感应透明与四波混频; 导师: 吴令安 傅盘铭
- [2] 陈 民, 超短超强激光脉冲与等离子体相互作用中高能粒子发射和加速的理论模拟研究;
导师: 张杰 盛政明
- [3] 李景娟, 二阶非线性光子晶体的理论研究; 导师: 张道中 李志远
- [4] 徐妙华, 超短超强激光脉冲与薄膜靶相互作用中的高能离子加速和超热电子运输的研究;
导师: 张杰 李玉同
- [5] 王 旭, 光学方法对表面动力学的研究; 导师: 杨国桢 朱湘东
- [6] 朱江峰, 飞秒激光脉冲的压缩、载波包络相位控制及频率变换研究; 导师: 魏志义
- [7] 屈 娥, 光镊系统及其在生物学中的应用; 导师: 张道中
- [8] 奚婷婷, 超强飞秒激光在大气中传输的理论研究; 导师: 张杰 鲁欣
- [9] 何民卿, 强激光和等离子体作用产生的无碰撞静电冲击波加速等离子体的研究; 导师: 盛政明
- [10] 曹 宁, 高温超导材料非平衡态准粒子动力学研究; 导师: 傅盘铭 张治国
- [11] 赵 环, 超短激光脉冲新型预放大技术及主动同步的研究; 导师: 魏志义
- [12] 熊志刚, 时域有限差分方法及其在光子晶体中应用; 导师: 张道中
- [13] 刘荣鹃, 三维光子晶体特性研究及其功能元件的设计; 导师: 李志远
- [14] 赵 静, 飞秒激光泵浦的小型 X 射线激光模拟研究; 导师: 张杰 董全力

光物理系列学术报告 / Optical Physics Series Academic Report

光物理系列学术报告（二十二）

题目：From Photonic Crystals to Metamaterials: A General Mean-Field Theory

报告人：Prof. Peter Halevi (Instituto Nacional de Astrofisica, Opticay Electronica, Puebla, Mexico)

光物理系列学术报告（二十三）

题目：Anisotropic Metamaterial for Field Enhancement and Negative Index Applications

报告人：Dr. Michael A. Fiddy (Center for Optoelectronics and Optical Communications, University of North Carolina at Charlotte, USA)

光物理系列学术报告（二十四）

题目：Advanced quantum dot and photonic crystal technologies for integrated nano-photonic circuit

报告人：Prof. Kiyoshi Asakawa (National Institute of Materials Science (NIMS), Tsukuba, 305-0047, Japan; University of Tsukuba, Tsukuba, 305-8577, Japan)

光物理系列学术报告（二十五）

题目：Semiconductor Intraband Quantum Processes and Terahertz Devices

报告人：Prof. H. C. Liu (National Research Council of Canada)

光物理系列学术报告（二十六）

题目：Patterning and Shaping Ceramics into Macro- and Micro-meter Scale Ranges

报告人：Dr. Dou Zhang (IRC in Materials Processing, University of Birmingham, UK)

光物理系列学术报告（二十七）

题目：Low dimensional semiconductor devices for quantum information processing and spintronics

报告人：许秀来博士 (Hitachi Cambridge Laboratory, Hitachi Europe Ltd., Cambridge, UK)

光物理系列学术报告（二十八）

题目：Controlling Nonlinear Optical Processes in Coherent Atomic Media

报告人：Professor Min Xiao (Department of Physics, University of Arkansas, USA)

光物理系列学术报告（二十九）

题目：Quantum coherence in atomic ensembles and beyond

报告人：Dr. Xiao Yanhong (Harvard University, USA)

光物理系列学术报告（三十）

题目：Multimode Quantum Optics in the Continuous Variable Regime: from Quantum Imaging to Time Transfer Experiments

报告人：Dr. Nicolas Treps (Laboratoire Kastler Brossel, Université Pierre et Marie Curie and CNRS)

光物理系列学术报告（三十一）

题目：A Protein Chip Approach to Unrevealing Protein Function

报告人：Dr. Heng Zhu (Co-Director of the HiT Center, Johns Hopkins University School of Medicine, U.S.A)

光物理系列学术报告（三十二）

题目：高功率光纤超荧光源的研究与最新进展

报告人：王璞博士（英国南安普顿大学光电子研究中心高级研究员）

学术组织与期刊任职/Academic Service

国际学术组织任职/Service to the International Professional Societies

杨国桢 Guozhen Yang	美国物理学会 高级会员 Fellow, American Physical Society
聂玉昕 Nie Yuxin	国际纯粹和应用物理委员会第二专业委员会 委员 Member, Commission on Symbols, Units, Nomenclature, Atomic Masses & Fundamental Constants, International Union of Pure and Applied Physics (IUPAP) C2
张杰 Jie Zhang	国际纯粹物理与应用物理委员会量子电子学和激光专业委员会 委员 国际 X 射线激光专业委员会 委员 全球经合会组织超短超强激光委员会 委员 亚洲原子分子物理专业委员会 委员 英国物理学会 高级会员 亚太物理学会联合会 (AAPPS) 主席 Member, Commission on Quantum Electronics, IUPAP, C17 Member, International Advisory Committee on X-ray Lasers Member, Organization of Economic Collaboration and Development Fellow, International Advisory Committee on Atomic and Molecular Physics, Fellow, British Physical Society Chairman, Council of Association of Asia Pacific Physical Societies (AAPPS)
吴令安 Lingan Wu	国际纯粹物理和应用物理委员会女性物理工作者工作小组 委员 英国物理学会北京代表处 顾问, 英国物理学会 高级会员 亚太物理学会联合会 (AAPPS) 理事 Member, IUPAP Working Group on Women in Physics Consultant, Institute of Physics (UK), Beijing Office Fellow, Institute of Physics (UK) Member, Council of Association of Asia Pacific Physical Societies (AAPPS)
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国际期刊任职/Service to International Journals

张杰 Jie Zhang	Associate Editor, Optics Express Member of Editorial Board, High Energy Density Physics Member of Editorial Board, Chemical Physics Letters Member of Editorial Board, Journal of Plasma and Fusion Research
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魏志义 Zhiyi Wei	Member of International Advisory Board, Measurement Science and Technology
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国内学术组织任职/Service to the Domestic Professional Societies

杨国桢	中国物理学会 理事长
张道中	中国物理学会光物理专业委员会 主任
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客座人员名单及客座研究课题/Visitors List & Open Subjects

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实验室资助的客座研究课题/Open Subjects

序号	课题名称	负责人	职称	单位	起止时间
1	以直接泵浦方式运转的掺Nd ³⁺ 固体激光器的特性研究	高春清	教授	北京理工大学	2008.03-2008.12
2	非线性的光物理现象-铟离子的红绿荧光强度反转的研究	陈晓波	教授	北京师范大学	2008.11-2009.11
3	铁基超导体材料超快动力学研究	赵士平	研究员	中科院物理所	2008.03-2008.04
4	有机-无机复合薄膜激光热致相变研究	王学进	副教授	中国农业大学	2008.01-2008.12

选录论文/Selected Papers

1. In their words - Fix the gender ratio, Ling-An Wu, **Nature** **454**, 399, (2008)
2. Optical Near-Field Mapping of Plasmonic Nanoprisms, Zhou F, Li ZY, **Nano Letters** **8**, 3357, (2008)
3. Plasma Currents and Electron Distribution Functions under a dc Electric Field of Arbitrary Strength SM Weng, ZM Sheng, MQ He, J Zhang, P. A. Norreys, M. Sherlock and A. P. L. Robinson **Physical Review Letters** **100**, 185001 (2008)
4. Study of X-Ray Emission Enhancement via a High-Contrast Femtosecond Laser Interacting with a Solid Foil, LM Chen, M. Kando, MH Xu, YT Li, J. Koga, M Chen, H Xu, XH Yuan, QL Dong, ZM Sheng, S.V. Bulanov, Y. Kato, J Zhang and T. Tajima **Physical Review Letters** **100**, 045004 (2008)
5. Generating High-Current Monoenergetic Proton Beams by a Circularly Polarized Laser Pulse in the Phase-Stable Acceleration Regime, X.Q Yan, C Lin, ZM Sheng, ZY Guo, BC Liu, YR Lu, JX Fang and JE Chen, **Physical Review Letters** **100**, 135003 (2008)
6. Near-Complete Absorption of Intense, Ultrashort Laser Light by Sub- λ Gratings Subhendu Kahaly, S. K. Yadav, WM Wang, S. Sengupta, Z M Sheng, A. Das, P. K. Kaw and G. Ravindra Kumar, **Physical Review Letters** **101**, 145001(2008)
7. Waveguide coupler in three-dimensional photonic crystal, Liu RJ, Li ZY, Zhou F, Zhang DZ, **Optics Express** **16**, 5681, (2008)
8. G-M waveguides two-dimensional triangular-lattice photonic crystal slabs, Liu YZ, Liu RJ, Zhou CZ, Zhang DZ, Li ZY, **Optics Express** **16**, 21483, (2008)
9. Carrier-envelope phase dependence of non-sequential double ionization in few-cycle pulses, Li HY, Chen J, Jiang HB, Liu J, Fu PM, Gong QH, Yan YC, Wang BB, **Optics Express** **16**, 20562, (2008)
10. Widening of Long-range femtosecond laser filaments in turbulent air, YY Ma, X Lu, TT Xi, QH Gong and J Zhang, **Optics Express** **16**, 8332 (2008)
11. Effective fast electron acceleration along the target surface, XH Yuan, YT Li, MH Xu, ZY Zheng, QZ Yu, WX Liang, Y Zhang, F Liu, Jens Bernhardt, SJ Wang, ZH Wang, WJ Ling, ZY Wei, W Zhao and J Zhang, **Optics Express** **16**, 81 (2008)
12. X-ray lasers from Inner-shell transitions pumped by the Free-electron laser, J Zhao, QL Dong, SJ Wang, L Zhang and J Zhang, **Optics Express** **16**, 3546 (2008)
13. Strong terahertz pulse generation by chirped laser pulses in tenuous gases, WM Wang, ZM Sheng, HC Wu, M Chen, C Li, J Zhang, and K Mima, **Optics Express** **16**, 16999 (2008)
14. All-optical switching in subwavelength metallic grating structure containing nonlinear optical materials, Min CJ, Wang P, Chen CC, Deng Y, Lu YH, Miang H, Ning TY, Zhou YL, Yang GZ, **Optics Letters** **33**, 869, (2008)
15. Multichannel filters via G-M and G-k waveguide coupling in two-dimensional triangular-lattice photonic crystal slabs, Liu YZ, Liu RJ, Feng S, Ren C, Zhang DZ, Li ZY, **Applied Physics Letter** **93**, 241107, (2008)
16. Collinear second harmonic generations in a nonlinear photonic quasicrystal, Sheng Y, Koynov K, Dou JH, Ma BQ, Li JJ, Zhang DZ, **Applied Physics Letter** **92**, 201113, (2008)
17. Photonic bandgap of gradient quasicrystal lattice photonic crystal, Dong XZ, Ya Q, Sheng XZ, Li ZY, Zhao ZS, Duan XM, **Applied Physics Letter** **92**, 231103, (2008)
18. Direct characterization of focusing light by negative refraction in a photonic crystal flat lens, Tian J, Yan M, Qiu M, Ribbing CG, Liu YZ, Zhang DZ, Li ZY, **Applied Physics Letter** **93**, 191114, (2008)
19. The effect of phase separation on the temperature dependent magnetoresistance in perovskite

- oxide heterojunction, Hu CL, Jin KJ, Han P, Lu HB, Liao L, Yang GZ, **Applied Physics Letters** **93**, 162106, (2008)
20. Photovoltaic effects and its oxygen content dependence in BaTiO₃- /Si heterojunctions, Xing J, Jin KJ, Lu HB, He M, Liu GZ, Yang GZ, **Applied Physics Letters** **92**, 71113, (2008)
21. Low-frequency negative capacitance in La_{0.8}Sr_{0.2}MnO₃/Nb-doped SrTiO₃ heterojunction, Wang CC, Liu GZ, He M, Lu HB, **Applied Physics Letters** **92**, 52905, (2008)
22. Effects of interfacial polarization on the dielectric properties of BiFeO₃ thin film capacitors, Liu GZ, Wang C, Wang CC, Qiu J, He M, Xing J, Jin KJ, Lu HB, Yang GZ, **Applied Physics Letters** **92**, 122903, (2008)
23. Photovoltaic effect in micrometer-thick perovskite-type oxide multilayers on Si substrates, Liu H, Zhao K, Zhou N, Lu HB, He M, Huang YH, Jin KJ, Zhou YL, Yang GZ, Zhao SQ, Wang AJ, Leng WX, **Applied Physics Letters** **93**, 171911, (2008)
24. Characteristics of the low electron density surface layer on BaTiO₃ thin films, Li XL, Lu HB, Li M, Mai ZH, Kim H, Jia QJ, **Applied Physics Letters** **92**, 12902, (2008)
25. BiZnNbO/Mn-doped BaSrTiO heterolayered thin films with enhanced tunable performance, Fu WY, Wang H, Cao LZ, Zhou YL, **Applied Physics Letters** **92**, 182910, (2008)
26. Modulated terahertz responses of split ring resonators by nanometer thick liquid layers, Yimin Sun, Xiaoxiang Xia, Hui Feng, Haifang Yang, Changzhi Gu, and Li Wang, **Applied Physics Letters** **92**, 221101, (2008)
27. Electronic Grüneisen parameter and thermal expansion in ferromagnetic transition metal, Xuan Wang, Shouhua Nie, Junjie Li, Richard Clinite, Mark Wartenbe, Marcia Martin, Wenxi Liang and Jianming Cao, **Applied Physics Letters** **92**, 121918 (2008)
28. Controlled electron injection into laser wakefields with a perpendicular injection laser pulse, WM Wang, ZM Sheng, and J Zhang, **Applied Physics Letters** **93**, 201502 (2008)
29. Single-photon level ultrafast all-optical switching, Xiao-Feng Han, Yu-Xiang Weng, Rui Wang, Xi-Hao Chen, Kai-Hong Luo, Ling-An Wu, Jimin Zhao, **Applied Physics Letters** **92**, 151109, (2008)
30. Nonlinear frequency conversion in two-dimensional nonlinear photonic crystals solved by a plane-wave-based transfer-matrix method, Li JJ, Li ZY, Zhang DZ, **Physical Review B** **77**, 195127, (2008)
31. Analysis of photonic crystal waveguide bends by a plane-wave transfer-matrix method, Che M, Li ZY, **Physical Review B** **77**, 125138, (2008)
32. Attosecond-pulse-controlled high-order harmonic generation in ultrashort laser fields, Wang BB, Chen J, Liu J, Yan ZC, Fu PM, **Physical Review A** **78**, 23413, (2008)
33. Effect of target shape on fast electron emission in femtosecond laser-plasma interactions, YT Li, MH Xu, XH Yuan, WM Wang, M Chen, ZY Zheng, ZM Sheng, QZ Yu, Y Zhang, F Liu, Z Jin, ZH Wang, Z.Y Wei, W Zhao and J Zhang, **Physical Review E** **77**, 016406(2008)
34. Spatiotemporal moving focus of long femtosecond-laser filaments in air, TT Xi, X Lu and J Zhang, **Physical Review E** **78**, 055401 (R)(2008)
35. Single-cycle powerful megawatt to gigawatt terahertz pulse radiated from a wavelength-scale plasma oscillator, HC Wu, ZM Sheng, and J Zhang, **Physical Review E** **77**, 046405 (2008).
36. Effect of laser parameters on electron injection into laser wakefields in plasma with a counterpropagating additional laser pulse, WM Wang and ZM Sheng, **Physics of Plasmas** **15**, 013101 (2008)
37. A model for the efficient coupling between intense lasers and subwavelength grating targets, WM Wang, ZM Sheng and J Zhang, **Physics of Plasmas** **15**, 030702 (2008)

38. Multippeak emission of the fast electron beams along the target surface in ultrashort laser interaction with solid targets. XH Yuan, YT Li, MH Xu, ZY Zheng, M Chen, WX Liang, QZ Yu, Y Zhang, F Liu, J. Bernhardt, SJ Wang, ZH Wang, ZY Wei, W Zhao and J Zhang, **Physics of Plasmas** **15**, 013106 (2008)
39. Phase space modulation of laser produced protons with a double-foil target generation of quasimonoeenergetic proton beams, J Zheng, Kunioki Mima, ZM Sheng and YT Li, **Physics of Plasmas** **15**, 053106 (2008)
40. Experimental evidence and theoretical analysis of photoionized plasma under x-ray radiation produced by an intense laser, FL Wang, Shinsuke Fujioka, Hiroaki Nishimura, Daiji Kato, YT Li, G Zhao, J Zhang and Hideaki Takabe, **Physics of Plasmas** **15**, 073108 (2008)
41. Kinetic theory on the current-filamentation instability in collisional plasmas, B Hao, ZM Sheng, and J Zhang, **Physics of Plasmas** **15**, 082112 (2008)
42. Two dimensional hydrodynamic characteristics of x-ray lasers plasmas, T Cheng, YJ Li, LM Meng and J Zhang, **Europhysics letter** **84** 45001 (2008)