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。

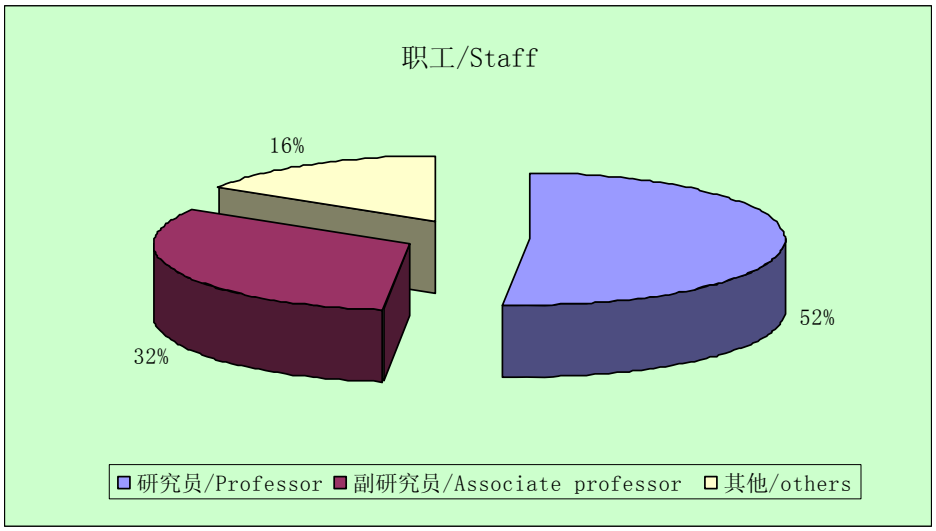
光物理实验室目前拥有三十二位研究人员，是一支具有一定综合实力的研究队伍，现为全国光学学科博士、硕士学位点和博士后流动站，有一百名在读研究生。目前实验室的研究工作大多数已进入国际竞争的前沿，承担多项国家和省部委的重大和重点研究课题。几年来，光物理实验室在光物理及其相关领域的研究中发挥了应有的作用。光物理实验室现与国内外十几个大学和研究所建立了良好的学术合作关系，对国内外科学家提出的优秀研究项目给予资助并开展合作研究。

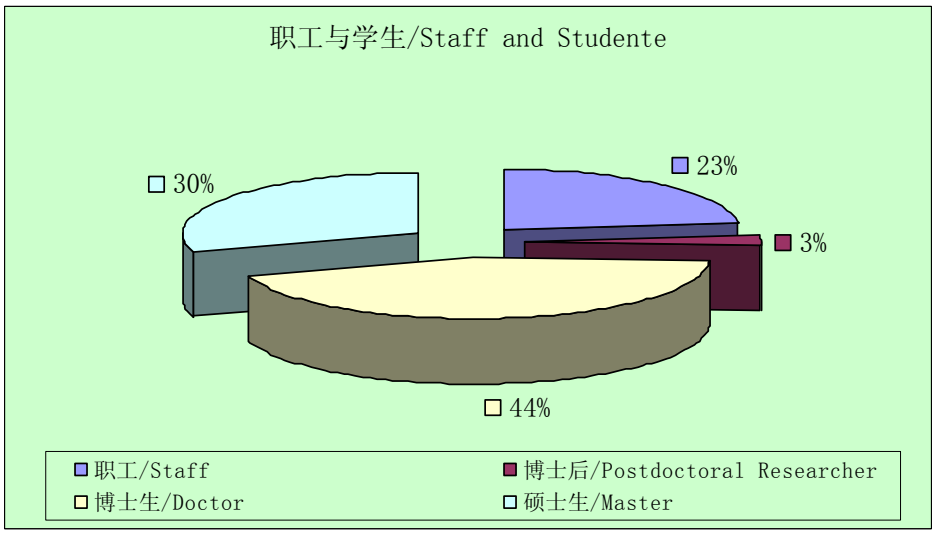
Optical physics was one of the earliest disciplines established in the Institute of Physics, Chinese Academy of Sciences (CAS). In December 1994 the Laboratory of Optical Physics was authorized as an Open Laboratory of CAS, and then renamed a CAS Key Laboratory in 2001. Its main focus is on the fundamental 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.

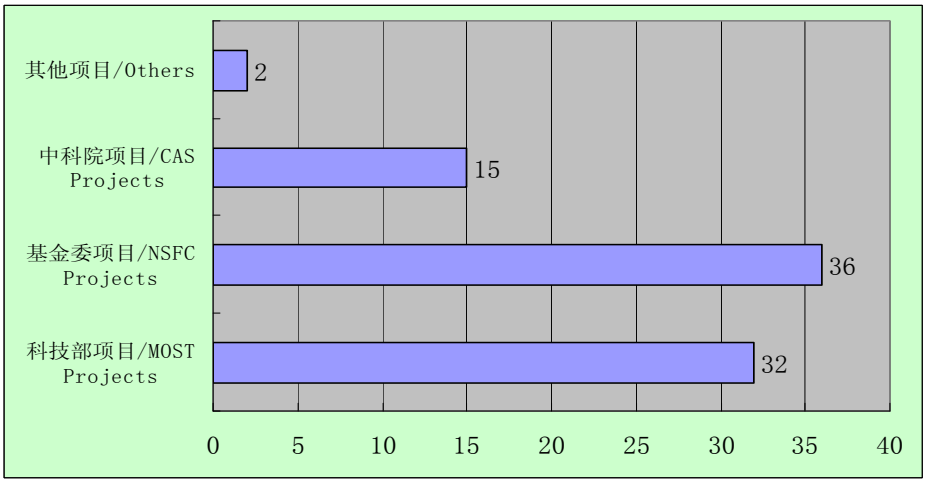
With a total of 32 research and administrative staff and 100 graduate students the Laboratory has emerged as a dynamic force at the forefront of research in optics, undertaking many major national programs. Successful collective projects are in progress with over a dozen external research groups both 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

程丙英　研究员　Chen Bing-ying, Professor

金奎娟　研究员　Jin Kui-juan, Professor

傅盘铭　研究员　Fu Pan-ming, Professor

张　杰　院　士　Zhang Jie, Academician

许祖彦　院　士　Xu Zu-yan, 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 (物理所，Institute of Physics, CAS)

主　任/ Chairman

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

陈润生　研究员　Chen Run-sheng, Professor (中科院生物物理所，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

中国工程院院士/ Academician，CAE

2001 许祖彦 Xu Zuyan

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

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 (60321003, 2004-2006)

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

程丙英	Cheng Bing-ying	姜　谦	Jiang Qian
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
金奎娟	Jin Kui-juan	鲁　欣	Lu Xin
杨国桢	Yang Guo-zhen	董全力	Dong Quan-li
周岳亮	Zhou Yue-liang	许祖彦	Xu Zu-yan
吕惠宾	Lü Hui-bin	彭钦军	Peng Qin-jun
王　灿	Wang Can	薄　勇	Bo Yong
何　萌	He Meng	许家林	Xu Jia-lin
傅盘铭	Fu Pan-ming	魏志义	Wei Zhi-yi
吴令安	Wu Ling-an	聂玉昕	Nie Yu-xin
汪　力	Wang Li	李德华	Li De-hua
李晓峰	Li Xiao-feng	滕　浩	Teng Hao
王兵兵	Wang Bing-bing	王兆华	Wang Zhao-hua

技术人员/Technical Staff

冯宝华	Feng Bao-hua	张东香	Zhang Dong-xiang

博士后/Post-doctoral Fellows

杜　强	Du Qiang	彭润伍	Peng Run-wu
高宏伟	Gao Hong-wei	李成明	Li Cheng-ming

博士生/Ph. D Students

车　明	Che Ming	胡春莲	Hu Chun-lian
刘荣鹃	Liu Rong-juan	张莉莉	Zhang Li-li
窦军红	Dou Jun-hong	陆　珩	Lu Heng
刘娅钊	Liu Ya-zhao	曹　宁	Cao Ning
熊志刚	Xiong Zhi-gang	孙毅民	Sun Yi-ming
屈　娥	Qu E	赵建领	Zhao Jian-ling
李景娟	Li Jing-juan	冯　辉	Feng hui
李江艳	Li Jiang-yan	吴忠安	Wu Zhong-an
刘　晔	Liu Ye	陈希浩	Chen Xi-hao
华一磊	Hua Yi-lei	牛金艳	Niu Jin-yan
秦　飞	Qin Fei	刘　骞	Liu Qian
仇　杰	Qiu Jie	张　喆	Zhang Zhe
廖　棱	Liao Leng	赵　静	Zhao Jing
宁廷银	Ning Ting-yin	徐妙华	Xu Miao-hua
刘国珍	Liu Guo-zhen	奚婷婷	Xi Ting-ting
邢　杰	Xing Jie	梁文锡	Liang Wen-xi
温　娟	Wen Juan	张　翼	Zhang Yi
		刘　峰	Liu Feng

杨　芳	Yang Fang
翁苏明	Weng Su-ming
何民卿	He Min-qing
董晓刚	Dong Xiao-gang
王伟民	Wang Wei-min
李　春	Li Chun
朱鹏飞	Zhu Peng-fei
王首钧	Wang Shou-jun
崔前进	Cui Qian-jin
鲁远甫	Lu Yuan-fu
周　勇	Zhou Yong
张小富	Zhang Xiao-fu
宗　楠	Zong Nan
杨　峰	Yang Feng
赵　环	Zhao Huan
朱江峰	Zhu Jiang-feng
赵研英	Zhao Yan-ying
周斌斌	Zhou Bin-bin
张　炜	Zhang Wei
钟　欣	Zhong Xin
许长文	Xu Chang-wen
李奇楠	Li Qi-nan
杜仕峰	Du Shi-feng
施玉显	Shi Yu-xian
Muhanmmad Abbas Bari	

硕士生/Master Students

周长柱	Zhou Chang-zhu
傅晋新	Fu Jin-xin
甘　霖	Gan Lin
马冬莉	Mang Dong-li
周　飞	Zhou Fei
任明亮	Ren Ming-liang
凌　林	Ling Lin
王京义	Wang Jing-yi
徐中堂	Xu Zhong-tang
葛　琛	Ge Chen
原　昆	Yuan Kun
郭尔佳	Guo Er-jia
潘学聪	Pan Xue-cong
罗开红	Lou Kai-hong
刘　霞	Liu Xia
丁文君	Ding Wen-jun
林晓宣	Lin Xiao-xuan
刘　峰	Liu Feng
张　蕾	Zhang Lei
周木林	Zhou Mu-lin
郝　彪	Hao Biao
毛婧一	Mao Jing-yi
张　璐	Zhang Lu
刘晓龙	Liu Xiao-long
杜　飞	Du Fei
於陆勒	Yu Lu-le
程贤坤	Cheng Xian-kun
谢仕永	Xie Shi-yong
徐一汀	Xu Yi-ting
刘　翌	Liu Yi
李芳琴	Li Fang-qin
马庆磊	Ma Qing-lei
杨　晶	Yang Jing
曹　栋	Cao Dong
运晨霞	Yun Chen-xia
张　青	Zhang Qing
张永东	Zhang Yong-dong
刘　成	Liu Cheng
王　楠	Wang Nan
邹育婉	Zou Yu-wan

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 jiter		<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/Interfermeter 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：±2mV ~ ±5V	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 × 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

项目名称：强场物理若干前沿问题研究

2007 年中国科学院杰出科技成就奖

该研究集体采用系列创新的单元技术，先后建成综合性能居国际先进水平的系列化超强激光装置、并自主建立和发展了相关实验诊断设备和数值模拟程序组成的强场物理研究平台。对强场物理的若干前沿问题进行了深入研究，特别是揭示了超短超强激光吸收机制相互转换的规律；提出了强激光场对电子的随机加热和加速等新机制；实现了强场产生超热电子的定向发射和控制；证实了快点火激光聚变新方案中锥形靶对超热电子的聚焦作用，解决了困惑人们多年的锥靶中子增强之谜；提出了产生超强 THz 辐射新理论，并得到初步实验证实；揭示了超短超强激光在大气中传输及超长距离自聚焦等离子体通道产生的规律等。研究成果得到强场物理界国内外同行的广泛肯定和引用。

主要完成人：张杰，盛政明，魏志义，李玉同，鲁欣，董全力，滕浩，王兆华等。

获奖个人/ Award for distinguished scientists

张　杰：第三世界科学院 TWAS 奖

许祖彦：求是基金会杰出科技成就集体奖

盛政明：中国物理学会饶毓泰物理奖

李玉同：中国科学院物理研究所科技新人奖

获奖研究生 /Award for excellent graduate students

中国科学院院长奖学金优秀奖： 奚婷婷

三好学生标兵：奚婷婷

三好学生： 赵丽明 陈 民 陈亚辉 朱江峰 陶海华 任 坤 刘荣娟 韩 鹏 曹玲柱 马海强 翟艳花 徐妙华 赵 静 赵研英

2007 蔡诗东等离子体物理奖： 陈民

中科院物理所所长奖学金优秀奖： 李景娟，邢杰，仇杰，赵静，朱江峰

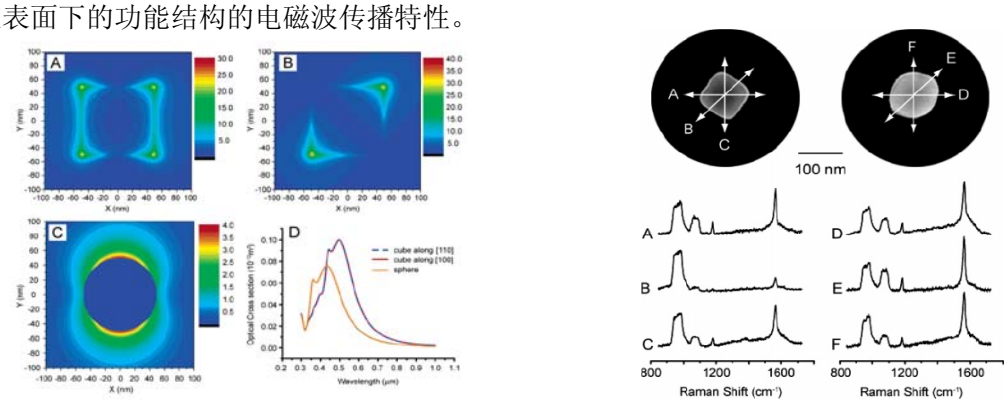
中科院物理所所长奖学金表彰奖：杜仕峰，刘荣鹃，车明，刘国珍，曹宁，张喆，何民卿，张翼，鲁远甫，赵研英，赵环，周勇

研究工作报告/Scientific Report

光子晶体及其应用/Photonic Crystal & Its Application

组长：李志远 Group Leader: Li Zhi-yuan
成员：张道中　郭红莲 Members: Zhang Dao-zhong, Guo Hong-lian

◆研究了红外波段的二维平板光子晶体集成光学器件，利用形状效应制作了精密调谐的多通道微腔共振滤波器。
◆研究了三维光子晶体实现可见光和红外波段的负折射成像以及人工双折射的调控。
◆设计了合适的非线性光子晶体元胞构形，实现超宽带、温度稳定的高效率频率转换。发现将光子带隙效应与传统的准相位匹配技术结合可以显著地提高非线性频率转换效率。
◆研究了 Kerr 非线性光子晶体对超短光脉冲的时空调制，实验上实现了最短达到 10fs 响应时间的超快光开关。
◆研究了金属纳米颗粒和结构的表面等离子体共振光谱和表面增强 Raman 散射光谱，开展了在生物医学应用上的活体实验。
◆发展了扫描近场光学显微镜技术，探测了金属纳米结构表面光场分布，将类似技术用于微波段探测埋在表面下的功能结构的电磁波传播特性。



理论（左上图）和实验（右上图）结果表明，银立方体纳米颗粒的表面电场依赖于入射光的偏振方向，平均增强幅度不同，所以 SERS 信号强度也有明显的偏振方向依赖性。

Both theoretical (upper left panel) and experimental (upper right panel) results show that the electric field around the Ag nanocube particle strongly depends on the polarization of the incident field, leading to strong polarization dependence of the SERS signals.

◆Investigation of photonic crystal slab integrated optical elements and devices; Design and fabrication of multi-channel fine-tuning resonant filters.
◆Three-dimensional photonic crystals for realizing visible and infrared 3D negative refraction imaging and controlling birefringence with tunable anisotropy.
◆Realization of wide-band high-efficiency second harmonic generation that is robust to temperature fluctuation by means of designed nonlinear photonic crystal cell configuration. Significant enhancement of second harmonic generation by combination of photonic band gap effect and quasi-phase-matching technique.
◆Temporal and spatial modulation of ultrashort light pulse by Kerr nonlinear photonic crystals and experimental demonstration of 10fs optical switching.
◆Control of surface plasmon resonance and surface enhanced Raman scattering spectroscopy by designed metallic nanoparticles and nanostructures. In vivo experimental demonstration of metallic nanoparticles for biomedical applications.
◆Application of near-field scanning optical microscopy to analyze metallic nanostructures and microwave near-field scanning technique to detect electromagnetic devices embedded under surface.

激光法低维氧化物材料制备及物性研究／ Manufacturing Low Dimension Oxide Materials by Laser and Studying Their Properties

组长：金奎娟
成员：杨国桢 吕惠宾 周岳亮 何 萌 王灿

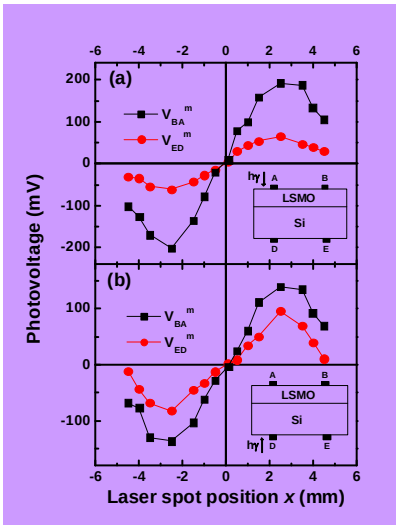
Group Leader: Jin Kui-juan
Members: Yang Guo-zhen, Lü Hui-bin, Zhou Yue-liang, He Meng, Wang Can

◆在氧化物 p-n 结结构中发现并证实了丹倍光伏效应；在氧化物多层膜结构上发现了电、磁双调制效应; 在 $BaTiO_{3-\delta}$/Si *p-n* 结上观测到由于界面增强的铁电特性。

◆结合实验研究光反射差法探测薄膜生长的机理。初步建立了国内首台用于研究生物大分子相互作用的光反射差法实验装置。

◆研制出 2 种纳米团簇增强非线性光学材料，其 P 秒激光作用的三阶非线性系数χ（3）达到 1.1 ×10E－5; 研制的可见盲 $SrTiO_3$紫外光探测器：暗电流＜50 pA；紫外光/可见光＞10^4；光生伏特灵敏度： 2×10^5 V/W。

◆本年度本课题组发表 SCI 收录论文 38 篇，其中影响因子＞3 的论文 9 篇。



Much larger LPVs produced in heterostructures （LSMO/SNTO and LSMO/Si) than that in simple samples (SNTO or Si) are found. The increased carriers in the interface region due to the transfer of electrons from *p*-side to *n*-side might be one of the reasons for the larger LPV in heterostructures than that in the simple substrates.

分别在氧化物异质结 LSMO/SNTO 和 LSMO/Si 中发现了侧向光生伏特（Dember)效应，其数值分别比单纯衬底的 Dember 光伏增大一个数量级。

◆We have found Dember effect in heterojunctions, and observed magneto-electric double modulation effects in oxide multilayers.

◆The Oblique Incidence Reflectivity Differences technique (OIRD) has been employed to study the mechanism of film growth in the experiments. The first OIRD microscope of China has been set up to analyze the interactions of biomolecules primarily.

◆Two kinds of metallic nanocluster/oxide composite materials has been made with large nonlinear optical properties.The highest third-order nonlinear optical susceptibility χ(3) reached 1.1x10-7esu with picosecond response. Our visible-blind ultraviolet (UV) detectors based on SrTiO3 single crystals have such excellent qualities as the following: the dark current lower than 50 pA at 10 V bias, the UV/visible contrast ratio reaching about four orders of magnitude with sharp cutoff at 390 nm and the high photocurrent responsivities of 213 mA/W and high photovoltage responsivities of 2.13*10E5 V/W at 330 nm at ambient temperature.

◆38 SCI papers were published in this year.

量子干涉与量子信息/Quantum Interference & Quantum Information

组长：傅盘铭
成员：汪　力 吴令安 李晓峰 王兵兵 姜　谦

Group Leader: Fu Pan-ming
Members: Wang Li, Wu Ling-an, Li Xiao-feng, Wang Bing-bing, Jiang Qian

◆研究多普勒系统中缀饰原子双光子共振四波混频的极化干涉。

◆研制基于光纤中长期稳定往返式量子密钥分发的量子及时聊天 QQQ 系统。

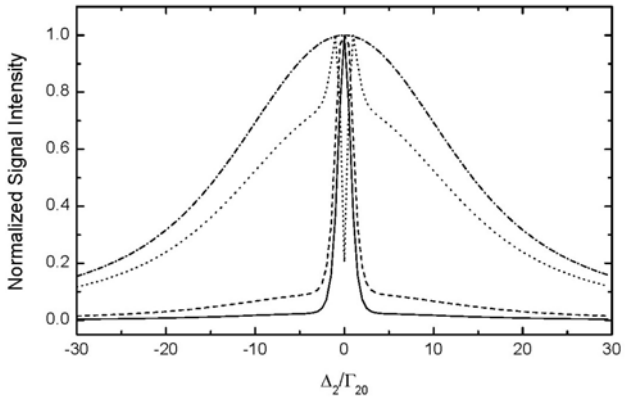
◆对我们提出的一种新型近场太赫兹探测器件的性能进行了实验和理论研究。

◆开始研究基于雁热光高阶关联的二位成像。

◆对两种光合蛋白的变性过程进行了太赫兹光谱分析并给出解释。

◆用飞秒泵浦－探测技术研究 $Bi_2Sr_2Ca_2CuO_{8+\delta}$ 和 $La_{2-x}Ce_xCuO$ 高温超导体的非平衡动力学过程。

◆用 QED 方法研究高阶阈上电离；还研究静电场对非序列电离的影响。



Controlling polarization interference by applying a coupling field. The figure shows four-wave mixing spectra with different coupling coefficient when the coupling field is exactly on resonance.

利用加入耦合光来控制极化干涉。图为在共振条件下不同耦合常数下的四波混频频谱。

◆Polarization interference in dressed-atom two-photon resonant nondegenerate four-wave mixing have been studied in a Doppler broadened system.

◆Developed a quantum instant messenger QQQ system based on very stable roundtrip quantum key distribution in fiber.

◆Experimental and theoretical analyses were performed to characterize the performance of our proposed novel device for teraheretz near-field measurements.

◆Began studies on high-order correlation two-dimensional imaging with quasithermal light.

◆Using the terahertz time-domain technique，we have analyzed the denaturing processes of two photosynthetic proteins.

◆Femtosecond pump-probe spectroscopy has been used to study the nonequilibrium carrier dynamics in cuprate superconductor $Bi_2Sr_2Ca_2CuO_{8+\delta}$ and $La_{2-x}Ce_xCuO_4$.

◆Based on QED, a theory of high-order above-threshold ionization has been developed. Also, effects of static electric field on the nonsequential double ionization have been studied.

超强超短激光与物质相互作用/ Ultra-Short 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.

◆对新建成的 350TW 极光 III 号实验平台进行了完善，发展了诸如汤姆逊离子谱仪、离子实时测量方法等多种实验诊断技术和设备。

◆发现了了激光脉冲上升沿对于 Kα x 射线转换效率的重要作用。该结果即将发表在 2008 年 1 月 13 日的 PRL 上

◆利用极光 III 号实验平台，进行了超热电子输运和中意合作实验，观测到了超热电子输运、渡越辐射、离子发射之间的紧密联系。

◆实验演示了利用尖劈靶引导超热电子输运的可行性，考虑了碰撞效应的 2 维 PIC 模拟和实验符合很好。

◆实验演示了一种利用纳秒激光脉冲环形聚焦对超短脉冲高能质子束进行控制的新方法。

◆利用神光 II 强激光装置，模拟了天体中吸极盘光电离等离子体行为。

◆提出了无碰撞冲击波加速高能离子的新方法，PIC 离子模拟表明该方法有望产生准单能离子束。

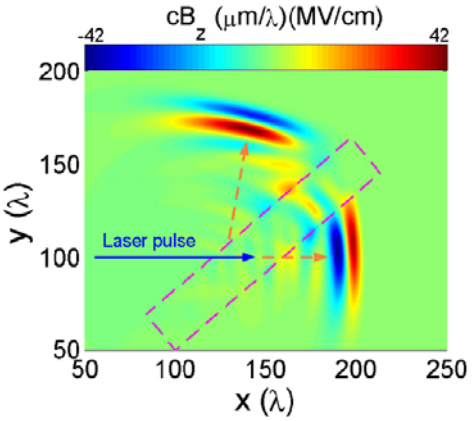
◆对激光尾场加速方案中激光注入电子的控制开展了理论研究和数值模拟，提出了优化注入的方案。

◆利用自己发展的 Fokker－Planck 模拟程序，研究了任意场强下等离子体电导率，并给出了相应的通用电导率公式。

◆在强激光产生 THz 辐射理论研究取得新的进展，同时建立了对强 THz 辐射探测的实验系统。

◆采用数值求解非线性薛定鄂方程与射线追踪相结合的方法揭示了飞秒激光脉冲在大气中长距离成丝的机制为时空移动焦点模式。

◆对 400nm 波长的飞秒激光在大其中的成丝进行了实验研究，发现其成丝的能量利用效率比 800nm 波长的激光高一个数量级。



Single-cycle megawatt terahertz pulse generation from a wavelength-scale plasma oscillator driven by ultrashort laser pulses. This is a snapshot of the magnetic field component of the THz emission from 2D-PIC simulation..

用超短强激光脉冲驱动波长量级等离子体振荡子可以产生兆瓦级单周期 THz 辐射脉冲。这是通过二维粒子模拟得到的某时刻 THz 辐射的磁场分量的分布。

◆The 350 TW femtosecond laser system and experimental platform have been improved. Experimental diagnostics such as Thomson ion spectrometer, real-time method to measure ions and so on have been developed.

◆It is found that the conversion efficiency from laser energy to Kα x-ray strongly depends on the

nonlinearly modified rising edge of the laser pulse. The results will be published on PRL on Jan. 13, 2008.

- ◆An Italy-China joint experiment on fast electron transport has been carried out. The correlations between the transport, proton emission and transition radiation are found.
- ◆The feasibility of guiding fast electron propagation by a wedged target has been demonstrated. The observation is well reproduced by 2D PIC simulations with collisional effect considered.
- ◆A novel method to control the proton beam profile using a ring-focus of a nanosecond laser pulse has been demonstrated.
- ◆Photoionized plasmas around accretion disks have been experimentally simulated in laboratory using Shengguang II laser facility.
- ◆Generation of high energy protons by collisionless shock waves driven by short intense laser pulse is investigated. PIC simulations suggest that quasi-monoenergetic protons can be generated with this new scheme.
- ◆Controlled injection of electrons into laser wakefields by an additional injection laser pulse is investigated theoretically. Injection optimization with suitable parameters of the injection pulse proposed.
- ◆Plasma conductivity at arbitrary field strength is studied by our Fokker-Planck code. A universal expression for the conductivity is obtained
- ◆New progress on powerful THz emission from laser produced plasma is achieved, and the experimental system for detecting such THz pulses has been established.
- ◆The mechanism of long distance filamentation of fs laser pulse in air was studies by combining the modeling of propagation equation and the ray-tracing calculation, the spatial-temporal moving focus was shown as the dominated process in filamentation.
- ◆The filamentation of 400nm wavelength fs laser pulse in air was studied experimentally, the energy utilization of 400 nm laser pusle has shown to be one order higher than the 800 nm laser pulse for generation of plasma filaments in air.

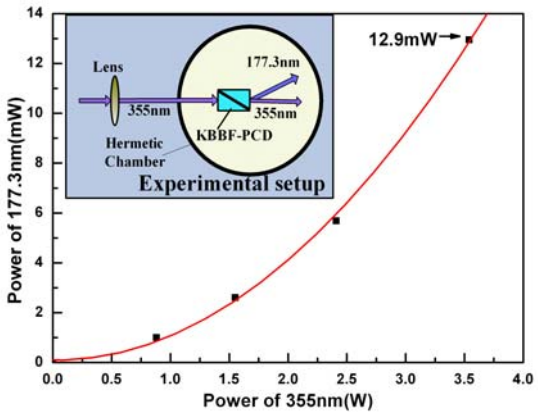
可调谐全固态激光的研究和应用/ Research & Application of Tunable All Solid State Laser

组长：许祖彦 Group Leader: Xu Zu-yan
成员：彭钦军 薄勇 许家林 Members: Peng Qin-jun, Bo Yong, Xu Jia-lin

◆高功率全固态激光（DPL）：实现谐振腔多稳区优化设计和控制，kW 级 1064nm Nd:YAG 激光器已用于工业加工，在宝山和盘山钢铁公司等大型企业使用，可不间断工作 90 小时以上；589nm 黄光 DPL，11.5W；皮秒 1064nm DPL,90W；特殊红外参量振荡器输出达 32W，国际最高。

◆首次将 177.3nm DUV-DPL 用于“高能量分辨率真空深紫外激光角分辨光电子能谱仪”正常运转 1000 小时以上，在高温超导材料研究中，获得了重要新数据；主持凝练出 DUV 激光拉曼光谱仪等 7 个新应用方向；177.3nm 激光输出 12.9mW，再创国际新高。

◆新型激光和非线性光学材料的表征评估：首次实现 Nd:KLuW 激光器被动调 Q 输出(260mW)，首次实现新型晶体 BABF 高转换效率三倍频（26.4%）；初步建立了激光陶瓷特性参数表征评估实验平台，测试了国产激光陶瓷散射等性能参数，激光输出 10W, 国内最高。



图为 177.3nm 深紫外激光输出与 355nm 泵光功率的关系，最大输出 12.9mW，再创国际新高；插图为实验装置示意图。

The output power of 177.3nm versus the input power of 355nm, 12.9mW power is highest level; The inset is experimental setup

◆High power all-solid-state laser（DPL）：kW－class DPL have been employed in industrial manufacture at Baoshan and Panshan iron & steel Co. The output power of 589nm yellow laser is up to 11.5W. The power of pecosecond 1064nm DPL is over 90W. A specail Infrared OPO has a maximum power of 32W with advanced world level.

◆Deep ultraviolet (DUV) DPL: the first 177.3nm laser-based angle-resolved photoemission spectrometer has operated over 1000 hours and several important data of high temperature material have been obtained; We have presided to uphold 7 new application topics, such as DUV laser Raman spectrometer; The 177.3nm laser delivers a maximum output power of 12.9mW.

◆Characterization and evaluation of novel nonlinear optical crystals & laser materials: the first SESAM passively Q-switched Nd:KLuW laser is demonstrated（260mW）. New UV crystal BABF have been employed to generate high efficiency THG （26.4%）for the first time; A platform for measuring the parameters of the ceramic laser materials has been found; The domestic Nd:YAG ceramic laser, 10W.

超短脉冲激光与量子频标物理/ Ultrafast Laser Pulse & Frequency Metrology

组长：魏志义 Group Leader: Wei Zhi-yi

成员：聂玉昕　李德华　滕 浩　王兆华 Members: Nie Yu-Xin, Li De-hua, Teng Hao, Wang Zhao-hua

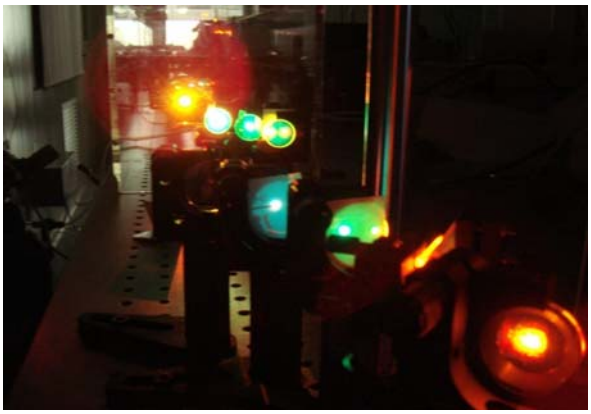
◆开展了超强飞秒激光质量提高的研究，研制成功环形腔飞秒激光放大器及低温冷却的振荡器，获得光束质量 M^2 小于 1.2 的优良结果。

◆进行了飞秒放大脉冲压缩与载波包络相位(CEP)锁定的研究，压缩得到了 4.6fs 的国际先进结果，并将 CEP 的漂移锁定到了小于 60mrad 的领先水平，初步建立起了阿秒激光产生平台。

◆相继实现了重复频率高达 440MHz 及 525MHz 的超宽带飞秒钛宝石激光振荡器，通过设计采用特殊的 PPLN 差频晶体，发现了纵模偏差频率信噪比的增强效应，得到了高达 53dB 的信噪比。

◆开展了新一代单块频率梳的研究，得到了长达 9 小时的锁定结果，将国际上普遍使用的自参考频率梳所能达到的锁定时间提高了一个量级。

◆发展了新型的激光差频技术，利用飞秒激光振荡器直接输出的激光产生了波长从 400nm 到 4 m 的宽带光谱，是迄今所见的最宽激光输出光谱。



载波包络相位（CEP）控制的飞秒放大激光压缩装置照片，该激光压缩后的最短脉宽为 4.6fs，锁定后 CEP 的漂移小于 60mrad，插图为锁定前（黑）后（红）CEP 的稳定曲线。

Photo of compressing experiment system on CEP (Carrier Envelope Phase) controlled amplified laser pulse. The shortest compressing pulse of 4.6fs was generated, the CEP fluctuation is less than 60mrad after locking. Inset is the comparison between locked (red) and unlocked (black) CEP fluctuation.

The new technology of femtosecond ring regenerative Ti:sapphire amplifier and cryogenic cooling Ti:sapphire laser oscillator was developed, beam quality with M2 of less than 1.2 was obtained. By compressing the amplified Ti:sapphire laser, we generated 4.6fs laser pulse at 1kHz repetition rate, the offset of carrier-envelope phase (CEP) was locked within 60 mrad, it issued a platform for attosecond pulse generation. Based on the new designed ultrabroaden Ti:sapphire lasers with repetition rates of 440MHz and 525MHz respectively, we observed the enhance effect of beat frequency with difference frequency generation(DFG) in PPLN, signal to noise ratio of 53dB was measured. Further, we realized monolithic frequency comb with locking time of long as 9 hours, contrast to the locking time of half to one hour in the conventional frequency comb with self-reference technique. In addition, the novel technolgy on DFG was carried out, by self difference frequency the laser of output from the oscillator, we directly generated unprecedented ultrabroaden laser spectrum covered from 400nm to 4 m, which is the broadest laser spectrum as our best knowledge.

专利/Patents

申请专利/Patents Applied

[1] 200710002797.9；一种高分辨率的光子晶体滤波器；发明；任承 陶海华 刘娅钊 李志远 程丙英 张道中

[2] 200710117813.9；一种产生超强太赫兹辐射的装置及方法；发明；盛政明 武慧春 张杰

[3] 200710121834.8；钛酸锶钡/铌酸锌铋异质结构材料及其制备方法；发明；符汪洋、周岳亮、曹玲柱、汪宏

[4] 200710175632.1；一种用电子束泵浦晶体材料产生紫外光的装置和方法；发明；吕惠宾、 金奎娟、 杨国桢

[5] 200710175924.5；一种具有高灵敏度的光电位置探测器；发明；邢杰、吕惠宾 、何萌、金奎娟、刘国珍 、周岳亮、 杨国桢

[6] 200710175985.1；低掺杂的 Nd:CNGG 激光器；发明；张治国 1 、冯宝华 1、 魏志义 1 、李奇楠 1 、张怀金 2 、王继杨 2 、高春清 3 、张春雨 3

[7] 200710098586.X；可扩展环境温度适应范围的非线性光学晶体激光倍频器；发明；张东香，张秀兰，卢 健，冯宝华

授权专利/Patents Approved

[1] ZL02157978.4；一种制备钇钡铜氧高温超导膜的方法；发明；朱亚彬、周岳亮、王淑芳、刘震、陈正豪、吕惠宾、杨国桢

[2] ZL03125088.2 ；多波长同时运转的连续激光器；发明；张治国、李德华、李平雪、李春勇、傅盘铭

[3] ZL03153938.6；原位实时探测薄膜生长状况的光反射装置和方法；发明；费义艳、吕惠宾、朱湘东、陈正豪、周岳亮、金奎娟、程波林、杨国桢

[4] ZL200410009026.9；具有多方向多波长准相位匹配倍频的二维准周期光子晶体及其制备方法；发明；马博琴、王霆、倪培根、王义全、程丙英、张道中

[5] ZL200410046006.9；一种测量弱光光源拍频的方法及装置；发明；吴令安、侯岩雪、马海强

[6] ZL 00410058357.1；用于激光显示系统中的消除视觉干涉条纹的装置；发明；许祖彦、姚爱云、侯玮、林学春、毕勇、王桂玲、孙志培、张鸿博、李瑞宁、崔大复

[7] ZL200410062458.6；补偿相散的折叠腔腔内倍频板条激光装置；发明；耿爱丛、王希军、许祖彦、侯玮、李瑞宁、张瑛

[8] ZL200410069055.4；一种具有红、绿、蓝三基色激光彩色显示装置；发明；许祖彦、候玮、李瑞宁、林学春、姚爱云、王桂玲、张瑛、毕勇、孙志培、张鸿博、崔大复、徐贵昌

[9] ZL200510005309.0；主被动调 Q 单纵横激光器；发明；许祖彦、王学军

[10] ZL200620117667.0；一种投影显示装置；实用新型；许祖彦、彭钦军、毕勇

发表论文/Publications in Journal

1. The SERS activity of a supported ag nanocube strongly depends on its orientation relative to laser polarization, McLellan JM, Li ZY， Siekkinen AR, and Xia YN, **Nano Letters 7**, 1013 (2007)

2. Synthesis and Optical Properties of Silver Nanobars and Nanorice, Wiley BJ, Chen Y, McLellan JM, Xiong YJ, Li ZY, Ginger D, and Xia YN, **Nano Letters 7**, 1032 (2007)

3. Immuno gold nanocages with tailored optical properties for targeted photothermal destruction of cancer cells, Chen JY, Wang DL, Xi JF, Au LL, Siekkinen A, Warsen A, Li ZY ,Zhang H, Xia YN, and Li XD, **Nano Letters 7**, 1318 (2007)

4. Fabrication of cubic nanocages and nanoframes by dealloying Au/Ag alloy nanoboxes with an aqueous etchant based on Fe(NO3)(3) or NH4OH, Lu XM, Au LL, McLellan J, Li ZY, Marquez M,and Xia YN, **Nano Letters 7**, 1764 (2007)

5. Photoacoustic Tomography of a Rat Cerebral Cortex in vivo with Au Nanocages as an Optical Contrast Agent, Yang XM, Skrabalak SE, Li ZY, Xia YN, and Wang LV, **Nano Letters 7**, 3798 (2007)

6. Mechanistic studies on the galvanic replacement reaction between multiply twinned particles of Ag and HAuCl4 in an organic medium, Lu XM, Tuan HY, Chen JY, Li ZY, Korgel BA,and Xia YN, **Journal of the American Chemical Society 129**, 1733 (2007)

7. Catalytic performance of nanoscale-corrugated gold and silver films for surface-enhanced chemiluminescence, Advanced Functionnal Materials, Ou M, Lu GW, Zhen H, Descamps A, Marquette CA, Blum LJ, Ledoux G, Roux S, Tillement O, Cheng BL, Perriat P, **Advanced Functional Materials 17**, 1903 (2007)

8. Surface-plasmon-polariton assisted diffraction in periodic subwavelength holes of metal films with reduced interplane coupling, Fang X，Li ZY, Long YB, Wei HX, Liu RJ Ma JY, Kamran M, Zhao HY, Han XF, Zhao BR, and Qiu XG, **Physical Review Letters 99**, 66805 (2007)

9. Colloidal building blocks with potential for magnetically configurable photonic crystals, Camargo PHC, Li ZY, and Xia YN, **Soft Matter 3**, 1215 (2007)

10. Valley density profile for highly efficient x-ray lasers with good beam quality，,J Zhao, QL Dong, and J Zhang, **Optics Letters 32** , 491 (2007)

11. Visible-blind, ultraviolet-sensitive photodetector based on SrTiO3 single crystal, Xing J, Zhao K, Lu HB, Wang X, Liu GZ, Jin KJ, He M, Wang CC, Yang GZ, **Optics Letters 32**, 2526 (2007)

12. Quantum key distribution based on phase encodingand polarization measurement, Ma HQ, Zhao JL, Wu LA, **Optics Letters 32**, 698 (2007)

13. Optimization of Multiple Filamentation of Femtosecond Laser Pulses in Air Using a Pinhole, ZQ Hao, J Zhang, TT Xi, XH Yuan, ZY Zheng, X Lu, MY Yu, YT Li, ZH Wang, W Zhao, ZY Wei, **Optics Express, 15**, 16102-16109 (2007)

14. Oval-like hollow intensity distribution of tightly focused femtosecond laser pulses in air, YT Li, TT Xi, ZQ Hao, Z Zhang, XY Peng, K Li, Z Jin, ZY Zheng, QZ Yu, X Lu, J Zhang, **Optics Express, 15**, 17973-17979 (2007)

15. Near-field studies of microwave three-dimensional photonic crystals with waveguides, Liu RJ, Li ZY, Zhou F, and Zhang DZ, **Optics Express 15**, 15531 (2007)

16. Non-near-field focus and imaging of an unpolarized electromagnetic wave through high-symmetry quasicrystals, Zhang XD, Li ZY, Cheng BY, and Zhang DZ, **Optics Express 15**, 1292 (2007)

17. Giant enhancement of second harmonic generation in poled ferroelectric crystals, Li JJ，Li ZY, Sheng Y, and Zhang DZ, **Applied Physics Letters 91**, 0200903 (2007)

18. Broadband efficient second harmonic generation in media with a short-range order, Sheng Y, Dou

JH, Ma BQ，Cheng BY, and Zhang DZ, **Applied Physics Letters 91**, 11101 (2007)

19. Temperature and angle tuning of second harmonic generation in media with a short-range order, Sheng Y, Dou JH, Li JJ, Ma BQ，Cheng BY, and Zhang DZ, **Applied Physics Letters 91**, 101109 (2007)

20. Study on the cluster sizes in the mixed-phase thin films, Zhou QL, Jin KJ, Lu HB, Hu CL, Zhao K, Guan DY, Yang GZ, **Applied Physics Letters 90**, 32508 (2007)

21. Fano resonance in the luminescence spectra of donor bound excitons in polar semiconductors, Jin KJ, Xu SJ, **Applied Physics Letters 90**, 32107 (2007)

22. Enhanced tunability due to interfacial polarization in La0.7Sr0.3MnO3 /BaTiO3 multilayers, Wang CC, He M, Yang F, Wen J, Liu GZ, Lu HB, **Applied Physics Letters 90**, 192904 (2007)

23. Dember effect induced hotovoltage in perovskite p-n heterojunctions, Jin KJ, Zhao K, Lu HB, Liao L, Yang GZ, **Applied Physics Letters 91**, 81906 (2007)

24. The mechanism study on transport properties in perovskite oxide p-n junction, Han P, Jin KJ, Lu HB, Zhou QL, Zhou YL, Yang GZ, **Applied Physics Letters 91**, 182102 (2007)

25. Low-field positive magnetoresistance near room temperature in three-component perovskite-type artificial superlattices, Zhao K, He M, Lu HB, **Applied Physics Letters 91**, 152507 (2007)

26. Resistance switching in BaTiO3/Si p-n heterostructure, Liu GZ, Jin KJ, Qiu J, He M, Lu HB, Xing J, Zhou YL, Yang GZ, **Applied Physics Letters 91**, 252110 (2007)

27. Submicron domain inversion in Mg-doped LiNbO3 using backswitched poling with short voltage pulses, Yunlin Chen, Weiguo Yan, Dongdong Wang, Shaolin Chen, Guangyin Zhang, Jiangfeng Zhu and Zhiyi Wei, **Applied Physics Letters 90**, 062908-1 (2007)

28. Terahertz electric field in a three-layer system produced by parallel dipoles with a Gaussian spatial profile, Yan W, Yang YP, Chen H, Wang L, **Physical Review B 75**, 85323 (2007)

29. Three-dimensional light focusing in inverse opal photonic crystals, Ren K, Li ZY, Ren XB, Feng S, Cheng BY, and Zhang DZ, **Physical Review B 75**, 115108 (2007)

30. General theory of optical reflection from a thin film on a solid and its application to heteroepitaxy, Zhu XD, Fei YY, Wang X, Lu HB, Yang GZ, **Physical Review B 75**, 245434 (2007)

31. Enhanced near-infrared transmission through periodic H-shaped arrays, Sun M, Liu RJ, Li ZY, Cheng BY, Zhang DZ, Yang HF, and Jin AZ, **Physics Letters A 75**, 510 (2007)

32. Frequency-domain theory of high-order above-threshold ionization based on nonperturbative quantum electrodynamics, Wang BB, Gao LH, Li XF, Guo DS, Fu PM, **Physical Review A 75**, 63419 (2007)

33. Effects of a static-electric field on non-sequential double ionization, H. Li, B. Wang, J. Chen, H. Jiang, X. Li, J. Liu, Q. Gong, Z.-C. Yan and P. Fu, **Physical Review A 76**, 33405 (2007)

34. Tunable optical anisotropy in three-dimensional photonic crystals, Che M, Li ZY, and Liu RJ, **Physical Review A 76**, 023809 (2007)

35. Two-photon resonant four-wave mixing in a dressed atomic system: Polarization interference in Doppler broadened system, Zuo ZC,Sun J,Liu X,Wu LA,Fu PM, **Physical Review A 75**, 23805 (2007)

36. Second harmonic generation in one-dimensional nonlinear photonic crystals solved by the transfer matrix method, Li JJ, Li ZY, and Zhang DZ, **Physical Review E 75**, 56606 (2007)

37. Powerful THz emission from laser wakefields in inhomogeneous magnetized plasmas, H.-C. Wu, Z.-M. Sheng, Q.-L. Dong, H. Xu and J. Zhang, **Physical Review E 75**, 016407 (2007)

38. Acceleration dynamics of ions in shocks and solitary waves driven by intense laser pulses, Min-Qing He, Quan-Li Dong, Zheng-Ming Sheng, Su-Ming Weng, Min Chen, Hui-Chun Wu, and Jie Zhang, **Physical Review E 76**, 035402 (2007)

39. Active manipulation of the spatial energy distribution of laser-accelerated proton beams, D. C. Carroll, P. Mckenna, O. Lundh, F. Lindau, C. –G. Wahlstrom, S. Bandyopadhyay, D. Pepler, D. Neely, S. Kar, P. T. Simpson, K. Markey, M. Zepf, C. Bellei, R.G. Evans, R. Redaelli, D. Batani, M. H. Xu, Y. T. Li, **Physical Review E 76**, 065401 (2007)

40. Collisionless electrostatic shock generation and ion acceleration by ultraintense laser pulses in overdense plasmas, Min Chen, Zheng-Ming Sheng, Quan-Li Dong, Min-Qing He, Yu-Tong Li, M. A. Bari, and Jie Zhang, **Physics of Plasmas 14**, 053102 (2007)

41. Ion acceleration by colliding electrostatic shock waves in laser-solid interaction, Min Chen, Z.M. Sheng, Quan-Li Dong, Min-Qing He, Su-Ming Weng, Yu-Tong Li, Jie Zhang, **Physics of Plasmas 14**, 113106 (2007)

42. Fast ignition by laser driven particle beams of very high intensity, H.Hora, J.Badziak, M. N. Read, Yu-Tong Li, Tian-Jiao Liang, Yu Cang, Hong Liu, Zheng-Ming Sheng, Jie Zhang, F. Osman, G.H. Miley, Weiyan Zhang et al. **Physics of Plasmas 14**, 572702 (2007).

43. Effective generation of red-green-blue laser in a two-dimensional decagonal photonic superlattice, Sheng Y, Dou JH, Cheng BY, and Zhang DZ, **Applied Physics B Lasers and Optics 87**, 603 (2007)

44. High-power picoseconds 355nm laser by third harmonic generation based on CsB3O5 crystal, Guo L, Wang GL, Zhang HB, Cui DF, Wu YC，Lu L，Zhang JY，Xu ZY, **Applied Physics B 88**, 197 (2007)

45. How the morphology of biochips roughness increases surface-enhanced chemiluminescence, Shen H, Lu GW, Ou MG, Marquette CA, Ledoux G, Roux S, Tillement O, Perriat P, Bheng BL, Zhen ZH, **Chemical Physics Letters 4 39**, 105 (2007)

46. Strong terahertz emission from superlattices via Zener tunneling, Han P, Jin KJ, Sanders BC, Zhou YL, Lu HB, Yang GZ, **Europhysics Letters 79**, 27001 (2007)

47. A theoretical study on the transport property of the La0.7Sr0.3MnO3/Si p-n heterojunction, Qiu J, Jin KJ, Han P, Lu HB, Hu CL, Wang BP, Yang GZ, **Europhysics Letters 79**, 57004 (2007)

48. C-axial oriented (Bi1.5Zn0.5)(Zn0.5Nb1.5)O7 thin film grown on Nb doped SrTiO3 substrate by pulsed laser deposition, Cao LZ, Fu WY, Wang SF, Wang Q, Sun ZH, Yang H, Cheng BL, Wang H, Zhou YL, **Journal of Physics D 40**, 1460 (2007)

49. Effects of film thickness and preferred orientation on the dielectric properties of (Bi1.5Zn0.5)(Zn0.5Nb1.5)O7 films, Cao LZ, Fu WY, Wang SF, Wang Q, Sun ZH, Yang H, Cheng BL, Wang H, Zhou YL, **Journal of Physics D 40**, 2906 (2007)

50. Photo-induced voltage charateristics of La0.9Sr0.1MnO3 films epitaxially grown on vicinal SrTiO3 (001) substrates, Zhao K, He M, Liu GZ, Lu HB, **Journal of Physics D 40**, 5703 (2007)

51. Enhancement ofphovoltaic effect in La0.9Sr0.1MnO3/Si heterojunctions by side illumination, Xing J, Zhao K, Liu GZ, He M, Jin KJ, Lu HB, **Journal of Physics D 40**, 5892 (2007)

52. Transient infrared laser-induced photovoltaic effect of ZnO/MgB2 heterostructures, Zhao SQ, Zhao K, Zhou QL, Zhou YL, Wang SF, Ning TY, **Journal of Physics D 40**, 4489 (2007)

53. Large third-order optical nonlinearity of periodic gold nanoparticle arrays coated with ZnO, Ning TY, Zhou YL, Shen H, Lu H, Sun ZH, Cao LZ, Guan DY, Zhang DX, Yang GZ, **Journal of Physics D 40**, 6705 (2007)

54. Raman scattering study of La-doped SrBi2Nb2O9 ceramics, Liu GZ, Wang C, Gu HS, Lu HB, **Journal of Physics D 40**, 7817 (2007)

55. Influence of unit cell rotated on the focusing in a two-dimensional photonic-crystal-based flat lens, Feng ZF, Wang XG, Li ZY, and Zhang DZ, **Journal of Applied Physics 101**, 123112 (2007)

56. Multichannel filters with shape designing in two-dimensional photonic crystal slabs, Liu YZ, Feng S, Tian J, Ren C, Tao HH, Li ZY, Cheng BY, Zhang DZ and Luo Q, **Journal of Applied Physics 102**, 043102 (2007)

57. Effects of shapes and orientations of reversed domains on the conversion efficiency of second harmonic wave in two-dimensional nonlinear photonic crystal, Li JJ，Li ZY, and Zhang DZ, **Journal of Applied Physics 102**, 093101 (2007)

58. Movement of oxygen vacancies in oxide film during annealing observed by an optical reflectivity difference technique, Wang X, Jin KJ, Lu HB, Fei YY, Zhu XD, Yang GZ, **Journal of Applied Physics 102**, 53107 (2007)

59. Numerical analysis of optothermionic refrigeration in semiconductor triple-well structure, Han P, Jin KJ, Ren SF, Zhou YL, Lu HB, **Journal of Applied Physics 102**, 114501 (2007)

60. Investigation of guanidine hydrochloride induced chlorophyll protein 43 and 47 denaturation in the terahertz frequency range, Chen H, Wang L, Qu YG, Kuang TY, Li LB, Peng WX, **Journal of Applied Physics 102**, 74700 (2007)

61. Reversal transient laser-induced voltages in La2/3Ca1/3MnO3 films, Zhao K, He M, Lu HB, **Chinese Physics 16**, 840 (2007)

62. Evolution of shock waves formed by laser-induced breakdown in air, Zhang Yi, Li Yu-Tong, Zheng Zhi-Yuan,Liu Feng, Zhong Jia-Yong, Lin Xiao Xuan, Liu Feng, Lu Xin, and Zhang Jie, **Chin. Phys.16（12）**, 3728（2007）.

63. Potential fields of merging and splitting filaments in air, YY Ma, X Lu, TT Xi, QH Gong, J Zhang, **Chinese Physics 16**, 2731 (2007)

64. Controlling the focusing properties of a triangular-lattice metallic photonic-crystal slab, Feng S, Wang YQ, Li ZY, Cheng BY, and Zhang DZ, **Chinese Physics 16**, 1689 (2007)

65. Possibility of population inversion of Fe XVII ions in dense plasma conditions, M A Bari, JY Zhong, B Duan, QL Dong, J Yan, M Chen, J Zhao, GY Liang, JR Shi, G Zhao, J Zhang, **Journal of Physics B:** At. Mol. Opt. Phys. **40** 3785–3793 (2007)

66. In-diffusion of oxygen vacancies near step edges dominates the oxidation of perovskite films, Wang X, Fei YY, Lu HB, Jin KJ,Zhu XD, Chen ZH, Yang GZ, **Journal of Physics 19**, 26206 (2007)

67. Tunable negative refraction by electro-optical control in two-dimensional photonic crystal, Ren K, Li ZY, Ren XB, Cheng BY, and Zhang DZ, **Applied Physics a-Materials Science & Processing87**, 181 (2007)

68. Ultraviolet photoresponse properties of SrTiO3 single crystals, Huang YH, Zhao K, Lu HB, He M, Jin KJ, Chen ZH, Zhou YL, Yang GZ, **European Physical Journal Applied 38**, 37 (2007)

69. Effect of rotational randomness on focusing in a two-dimensional photonic-crystal flat lens, Feng ZF, Zhang XD, Feng S, Ren K, Li ZY, Cheng BY and Zhang DZ, **Journal of Optics a-Pure and Applied Optics 9**, 101 (2007)

70. Permanent tuning of the opal stop-band with the application of uniaxial pressure, Khokhar1 AZ, Rue1 RMDL, Ren K, Li ZY and Johnson NP, **Journal of Optics a-Pure and Applied Optics 9**, 446 (2007)

71. Development of a compact efficient 10Hz 20TW Ti:sapphire laser system with a 1kHz regenerative amplifier, Jun Zhang, Masayuki Suzuki, Motoyoshi Baba, ZY Wei, ZH Wang, P Wang, Jie Zhang, Jiaan Zheng, Hiroto Kuroda, **Applied Optics 46** (13), 2498-2502 (2007)

72. High energy picosecond near-vacuum ultraviolet pulses generated by sum frequency mixing of

amplified Tisapphire laser, Zhu JF,Ling WJ, Wang ZH, Wang P, Sun JH, Wei ZY, Zhang DC, Ma XW, Zhan WL, **Applied Optics 46**, 6228 (2007)

73. Enhanced second-harmonic generation in an electro-optic controlled periodically poled ferroelectric crystal, Sheng Y, Li JJ, Cheng BY, and Zhang DZ, **Applied Optics 46**, 3318 (2007)

74. Development of a compact efficient 10Hz 20 TW Ti:sapphire laser system with a 1 kHz regenerative amplifier, Zhang J, Massayuki Suzuki, Motoyoshi Baba, Wei ZY, Wang ZH，Wang P, Zhang J, Zheng JA, Hiroto Kuroda, **Applied Optics 46**, 2498 (2007)

75. Microstructural characteristics in the BaTiO2.52 thin films showing metallic behavior, Zhu YL, Zhuo MJ, Ma XL, Lu HB, **Materials Letters 61**, 1971 (2007)

76. C3N4 as a precursor for the synthesis of NbC, TaC and WC nanoparticles, Li PG, Lei M, Sun ZB, Cao LZ, Guo YF, Guo X, Tang WH, **Journal of Alloys and Compounds 430**, 237 (2007)

77. Optical improvement of photonic devices fabricated by Ga+ focused ion beam micromachining, Tao HH, Ren C, Feng S, Liu YZ, Li ZY, Cheng BY, Zhang DZ, and Jin AZ, **Journal of Vacuum Science & Technology B 25**, 1071 (2007)

78. Thickness-dependent surface morphology of La0.9Sr0.1MnO3 ultrathin films, He M, Qiu J, Liang X, Lu HB, Jin KJ, **Applied Surface Science 253**, 6080 (2007)

79. 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** (2007)

80. Radiation properties of sources inside an opal structure modified by changing the incident angle of pump light, Li JJ，Xiong ZG, Li ZY, and Zhang DZ, **Optics Communications 279**, 390 (2007)

81. Higher order quasi-phase matched harmonics in two-dimensional quasiperiodic superlattice, Ma BQ, Sheng Y, Dou JH, Cheng BY, and Zhang DZ, **Optics Communications 274**, 429 (2007)

82. Intracavity frequency doubling of an active Q-switched Nd:YAG laser with 2.25W output power at 473nm, Chen YH, Hou W, Peng HB, Zhang HL, Guo L, Zhang HB, Cui DF, Xu ZY, **Optics Communications 270**, 58 (2007)

83. Kinetics of Microtubule AtMAP65-1 Bond Studied with Dual-Optical Tweezers, Qu E, Guo HL, Xu CH, Li ZL, Yuan M, Cheng BY, and Zhang DZ, **Japanese Journal of Applied Physics 46**, 7514 (2007)

84. Efficient generation of blue light by intracavity frequency doubling of a cw Nd:YAG laser with LBO, Pingxue Li,Dehua Li, Zhiguo Zhang, **Optics & Laser Technology 39**, 1421 (2007)

85. Study on the THz Spectra of Tyrosine, Ma SH, Shi YL, Yan W, Xu XL, Yang YP, Wang L, **Spectroscopy and Spectral Analysis 27**, 1665 (2007)

86. Measurement of binding force between microtubule-associated protein and microtubule, Xu CH, Qu E, Guo HL, Li ZL, Yuan M, Cheng BY, and Zhang DZ, **Chinese Physics Letters 24**, 2714 (2007)

87. Ultraviolet photoelectric effectin ZrO2 single crystals, Xing J, Wang X, Zhao K, Li J, Jin KJ, He M, Zheng DN, Lu HB, **Chinese Physics Letters 24**, 530 (2007)

88. Dielectric and ferroelectric properties of La-doped SrBi2Nb2O9 ceramics, Liu GZ, Gu HS, Wang CC, Qiu J, Lu HB, **Chinese Physics Letters 24**, 2387 (2007)

89. Structure stability of LaAlO3 thin films on Si substrates, He M, Liu GZ, Xiang WF, Lu HB, Jin KJ, Zhou YL, Yang GZ, **Chinese Physics Letters 24**, 2671 (2007)

90. Giant Birefringence of Lithium Niobate Crystals in the Terahertz Region, Sun YM, Mao Zl, Hou BH, Liu GQ, Wang L, **Chinese Physics Letters 24**, 414 (2007)

91. Investigation of Chlorophyll Protein 43 and 47 Denaturation by Terahertz Time-Domain

Spectroscopy, Chen H, Qu YG, Peng WX, Kuang TY, Li LB, WANG L, **Chinese Physics Letters 24**, 2131 (2007)

92. A Reflected Terahertz Emission Microscopy, Yang YP, Yan W, Wang L, **Chinese Physics Letters 24**, 169 (2007)

93. Imaging properties of a rectangular-lattice metallic photonic-crystal slab, Feng S, Wang YQ, Li ZY, Cheng BY, and Zhang DZ, **Chinese Physics Letters 24**, 229 (2007)

94. Transmission properties of W3 Y-branch filters in two-dimensional photonic crystal slabs, Ren C, Ren K, Liu RJ, Tao HH, Feng S, Xiong ZG, Liu YZ, Tian J, Li ZY, Cheng BY, and Zhang DZ, **Chinese Physics Letters 24**, 2863 (2007)

95. Single-photon detection at telecom wavelengths, Sun ZB, Ma HQ, Lei M, Wang D, Liu ZJ, Yang HD, Wu LA, Zhai GJ, Feng J, **Chinese Physics Letters 24**, 574 (2007)

96. High coupling coefficient generation in water confined laser plasma propulsion, Z. Y. Zheng, Y. Zhang, W. G. Zhou, X. Lu, J. Zhang, **Chinese Physics Letters 24**, 501 (2007)

97. Femtosecond Laser-Induced Breakdown Spectroscopy for Detection of Trace Elements in Sophora Leaves, M Bossu, ZQ Hao, M Baudelet, J Yu, Z Zhang, J Zhang, **Chinese Physics Letters 24**, 3466-3468 (2007)

98. Passively Q-Swithed Nd:KLuW Laser with Semiconductor Saturable Absorber, Guo L, Wang GL, Zhang HB, Geng AC, Chen YH, Lu YF, Cui QJ, Zhou Y, Cui DF, Zhang JX, Zhang HJ, Wang JY, Xu ZY, **Chinese Physics Letters 24**, 1583 (2007)

99. Highly efficient and stable ring regenerative amplifier for chirped-pulse amplification at repetition rate 1kHz, Zhao H，Wang P，Wei ZY，Tian JR，Li DH，Wang ZH，Zhang J, **Chinese Physics Letters 24**, 115 (2007)

100. Synchronously pumped femtosecond optical parametric oscillator based on MgO-doped periodically poled LiNbO3, Zhu JF, Zhong X, Teng H, Sun JH, Wei ZY, **Chinese Physics Letters 24**, 2603 (2007)

101. Low-field positive and high-field negative magnetoresistances in multiphase Fe-oxide thin films at room temperature, Zhao K, Xing J, Liu YZ, Zhao JG, Lu HB, **Chinese Science Bulletin 52**, 1607 (2007)

102. Anisotropic current-induced electroresistance effect in low-doped La0.9Sr0.1MnO3 thin films, feng JF, Zhao K, Zhao JG, Huang YH, He M, Lu HB, Han XF, Zhen WS, **Physica B 387**, 156 (2007)

103. Ultraviolet photovoltaic effect in tilted orientation LaAlO3 single crystals, Wang X, Xing J, Zhao K, Li J, Huang YH, Jin KJ, He M, Lu HB, Yang GZ, **Physica B 392**, 104 (2007)

104. Effect of annealing on the crystal structure and dielectric properties of Ba0.6Sr0.4TiO3 thick films, Cao LZ, Meng QD, Fu WY, Wang SF, Lei M, Cheng BL, Zhou YL, Chen ZH, **Physica B 393**, 175 (2007)

105. W doping-dependent structural and ferroelectric properties of SrBi2Nb2O9 ferroelectric ceramics, Qiu J, Liu GZ, He M, Gu HS, Zhou TS, **Physica B 400**, 134 (2007)

106. Manganite-layer thickness-dependent photovoltaic effect of La0.9Sr0.1MnO3/SrNb0.01Ti0.99O3 p–n heterojunction, Qiu J, Lu HB, Jin KJ, He M, Xing J, **Physica B 400**, 66 (2007)

107. 近红外单光子探测器, 孙志斌,马海强,雷鸣,杨捍栋,吴令安,翟光杰,冯稷, **物理学报 56**, 5790 (2007)

108. MgF2 单晶的 THz 光谱研究, 侯碧辉，邵萌，徐新龙，汪力，王吉有，范志达, **物理学报 56**, 1370 (2007)

109. 超短脉冲强激光与固体靶相互作用中 Kα 射线的实验研究, 徐妙华, 陈黎明, 李玉同, 远晓辉, 刘运全, Kazuhisa Nakajima, Toshi Tajima, 王兆华, 魏志义, 赵 卫, 张 杰, **物理学报，56**(1)，353-358

(2007)

110. 激光等离子体的电子温度对 Thomson 散射离子声波双峰的影响, 于全芝, 李玉同, 蒋小华, 刘永刚, 王哲斌, 董全力, 刘 峰, 张喆, 黄丽珍, C. Danson, D. Pepler, 丁永坤, 傅世年, 张 杰, **物理学报，56**(1)，359-365 (2007)

111. 激光啁啾对激光等离子体细丝传输的影响, 王兆华, 郝作强, 张喆, 鲁欣, 金展, 仲佳勇, 刘运全, 魏志义, 张杰, 赵刚, **物理学报 56**（3） 1434 （2007）

112. 对超短脉冲强激光在大气通道中产生的三次谐波偏振特性及白光光谱调制特性的研究, 李昆, 徐妙华, 金展, 刘运全, 王兆华, 令维军, 张杰, **物理学报 56**，1439（2007）

113. 飞秒激光引导闪电的模拟实验研究, 张喆, 鲁欣, 郝作强, 张适昌, 张东东, 王兆华, 马媛媛, 严萍, 张杰, **物理学报 56**（9）5293 （2007）

114. 20μm 单微滴的产生和特性和研究, 李汉明, 刘峰, 李英骏, 张翼, 张喆, Jens Bernhardt, Perez Renaud, 程涛, 李玉同, 张杰 , **物理学报 56**（10） 5926（2007）

115. 超短激光脉冲在等离子体中的分裂以及类孤子结构的形成, 张秋菊, 武慧春, 王兴海, 盛政明, 张杰, **物理学报 56, 7106-7113（2007）**

116. 两个冲击波相互碰撞的演化过程, 张翼, 郑志远, 李玉同, 刘峰, 李汉明, 鲁欣, 张杰, **物理学报 56（10）**5931 （2007）

117. 空气中单个激光等离子体通道的形成条件, 仲佳勇, 李玉同, 鲁欣, 张翼, Bernhardt Jens, 刘峰, 郝作强, 张喆, 于全芝, 陈民, 远晓辉, 梁文锡, 赵刚, 张杰, **物理学报 56（12）**7114 （2007）

118. 利用锁相环和 TV-Rb 钟控制飞秒脉冲的载波包络相移, 韩海年，张 炜，佟娟娟，王延辉，王 鹏，魏志义，李德华，沈乃澂，聂玉昕，董太乾, **物理学报 56**, 291 (2007)

119. 飞秒钛宝石光学频率梳的精密锁定, 韩海年，张 炜，王鹏，李德华，魏志义，沈乃澂，聂玉昕，高玉平，张首刚，李师群, **物理学报 56**, 2760 (2007)

120. PPLN 晶体差频测量飞秒激光脉冲的载波包络相移, 韩海年，赵研英，张炜，朱江峰，王鹏，魏志义，李师群, **物理学报 56**, 2756 (2007)

121. 用 SPIDER 法测量超宽带钛宝石振荡器的激光脉宽研究, 王鹏，赵环，赵研英，王兆华，田金荣，李德华，魏志义, **物理学报 56**, 224 (2007)

122. 相对论效应对大振幅电子等离子体振荡破裂影响的数值模拟, 徐 慧 盛政明 张 杰, **物理学报 56,** 968 (2007)

123. 采用啁啾反射镜色散补偿的 7fs 掺钛蓝宝石激光振荡器, 赵研英，王鹏，张炜，田金荣，魏志义, **中国科学 G37**, 123 (2007)

124. 光镊在生命科学中的应用, Guo HL,Qu E, Xu CH, Li ZL, Cheng BY, and Zhang DZ, **物理 36**, 476 (2007)

125. 超强激光脉冲与等离子体相互作用中高能离子的产生, 李玉同, 徐妙华，张杰, **物理，36**(01)，39-45（2007）

126. 激光等离子体 X 射线光源的应用, 董全力, 张杰, 王首钧, 赵静, 李英骏 **物理，36**（8）, 609（2007）

127. 激光等离子体推进技术研究新进展, 郑志远，张翼，吴秀文，鲁欣，李玉同, 张杰, **物理, 36**, 76 (2007)

128. 提高飞秒超强激光对比度的新方法, 王兆华，魏志义，张杰, **物理 36**, 483 (2007)

129. 稠密等离子体表面不稳定性的入射光偏振态效应, 何民卿，盛政明，武慧春，翁苏明，董全力，张杰, **光学学报 27**，2009（2007）

130. 双光镊研究 DNA 与 SpoIIIE 的作用动力学, Guo HL,Wang XL, Qu E, Xu CH, Li Ming, Cheng BY, and Zhang DZ, **量子电子学报 24**, 123 (2007)

131. 飞秒激光倍频的实验研究, 林晓宣, 陈黎明，李玉同，徐妙华，远晓辉，刘峰，张翼，李汉明，王兆华，刘峰，魏志义，赵卫，张杰, **科技导报，25,** 17-20 (2007)

132. 激光等离子体微推进技术研究进展, 张翼，郑志远，鲁欣，李玉同，张杰, **科技导报 25（19）** 70～74 （2007）

133. 绝缘阻挡放电等离子体弦向温度分布研究, 李汉明，李英骏，毛灵涛，李钢，张翼，刘峰，王芳，聂超群，李玉同，张杰, **科技导报**, **25，** 21 (2007)

134. 透射式水工质的高耦合效率激光推进模式., 张翼 , 鲁欣 , 郑志远, 刘峰 , 朱鹏飞, 李汉明, 李玉同, 李英俊, 张杰, **推进技术 28（5）**534 （2007）

135. 等离子体中 Fokker-Planck 方程的有限元模拟, 翁苏明 盛政明, **计算物理 24**(2), 134 (2007)

136. 980nm 高功率 VCSEL 的光束质量, 李特，宁永强，孙艳芳，崔锦江，郝二娟，秦莉，套格套、刘云，王立军，崔大复，许祖彦, **中国激光 Chinese Journal of lasers 34**, 641 (2007)

137. 实用化全固态 266nm 激光器的研究, 耿爱丛，张鸿博，王桂玲，薄勇，许祖彦，王晓青，沈德忠, **光电子 激光 Journal of Optoelectronics • Laser 18**, 767 (2007)

138. 高功率深紫外 177.3nm 激光倍频产生, 周勇，王桂玲，陈亚辉，李成明，彭钦军，崔大复, 许祖彦，王晓洋，朱镛，陈创天，刘国栋，董晓莉，周兴江, **中国激光 Chinese Journal of lasers 34**, 660 (2007)

139. 国产 Nd:YAG 透明陶瓷实现 10.0W 激光输出, 陈亚辉，周勇，宗楠，王桂玲，薄勇，彭钦军，崔大复, 许祖彦，吴玉松，李江，潘裕柏，冯锡琪，李军，范飞镝，于爱芳，朱镛，胡章贵, **中国激光 Chinese Journal of lasers 34**, 1231 (2007)

140. 171W 1.3um 调 Q 准连续全固态激光器, 许家林，彭钦军，薄勇，彭海波，王桂玲，陈亚辉，崔大复, 许祖彦, **中国激光 Chinese Journal of lasers 34**, 162 (2007)

141. Generation of 7-fs laser pulse directly from a compact Ti:sapphire laser with chirped mirrors, ZHAO YanYing, WANG Peng, ZHANG Wei, TIAN JinRong，WEI ZhiYi, **Science in China Series G:50**, 261 (2007)

142. 从感知光到操纵光, 魏志义, **科学世界**, 1 (2007)

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

[1]. **DaoZhong Zhang**, “基于光子晶体的超快光开关”, **Invited Talk** on 光子信息技术前沿学术研讨会, 2007.3.27-2007.3.31, 中国深圳

[2]. **ZhiYuan Li, “**Surface Plasmon Resonance in Metallic Nanoparticles nanostructures**”, Invited Talk** on 第 88 期东方科技论坛, 2007.1.5-2007.1.9, 中国上海

[3]. **Kuijuan Jin,** “The Interface Effect on the Positive Magnetoresistance in the Heterostructure Fabricated by Laser-MBE” **Invited Talk** on International Symposium on the Recent Progress in Optical Spectroscopy and Its Applications, 2007.05.07-2007.05.09, 中国香港

[4]. **Huibin Lu,** “Electrical-modulated Magnetoresistance in Perovskite Oxide p-n Heterostructures” **Invited Talk** on International Conference on Electroceramics, 2007.07.31-2007.08.03, Tanzania

[5]. **Kuijuan Jin,** “Dember effect induced photovoltage in perovskite p-n junction”, **Invited Talk** on 2007 国际功能材料专题论坛, 2007.11.15-2007.11.19, 中国武汉

[6]. **Jie Zhang,** “Energy reservoir of filaments generated by fs laser propagating in air”, **Invited Talk** on the second France-China Workshop on Ultra-short and Ultra-intense Laser and Applications, 2007.6.4-2007.6.7, Lyon, France

[7]. **Jie Zhang, “**Self organized propagation of femtosecond laser filamentation in air”, **Invited Talk** on the International Conference on Laser Spectroscopy, 2007.6.24-2007.6.29, Telluride, Colorado,USA

[8]. **Jie Zhang, “**Mechanism for collimating hot electron emission along surface”, **Invited Talk** on the The Fifth International Conference on Inertial Fusion Sciences and Applications (IFSA2007), 2007.9.9-2007.9.14, Kobe, Japan

[9]. **Jie Zhang, “**Extreme non-linear optics produced by ultra-intense lasers”, **Invited Talk** on the 2nd Sino-German Symposium on Quantum Engineering, 2007.9.22-2007.9.27, Ulm, Germany

[10]. **ZhengMing Sheng**, “Intense THz emission from laser wakefields and quasi-monoenergetic electron bunches from laser interaction with solids”, **Invited Talk** on the Dream Beam Symposium, 2007.2.26-2007.2.28, MPQ/Garching, Germany

[11]. **ZhengMing Sheng**, “Investigation on novel particle beams and radiation sources in relativistic laser-plasma interactions at IoP, CAS, Beijing”, **Invited Talk** on The Fifth International Conference on Inertial Fusion Science and Applications (IFSA2007), 2007.9.9-2007.9.14, Kobe, Japan

[12]. **ZhengMing Sheng**, **“**Theory and simulation of laser plasma acceleration and radiation”, **Invited Talk** on The Mini-workshop on the Frontiers of Computational Physics, 2007.10.1-2007.10.2, The Chinese University of Hong Kong

[13]. **ZhengMing Sheng**, "Studies on monoenergetic proton beam generation and THz emission in relativistic laser-plasma interaction", **Invited Talk** on 1st international conference on ULtra-intense Interaction Sciences (ULIS), 2007.10.1-2007.10.5, Bordeaux, France

[14]. **YuTong Li**, "Fast electron transport in high-intensity laser-plasma interactions diagnosed by optical and ion emission", **Invited Talk** on the Fifth International Conference on Inertial Fusion Science and Applications (IFSA2007), 2007.9.9-2007.9.14, Kobe, Japan

[15]. **YuTong Li, "**Recent progress of intense laser-plasma interactions at the Institute of Physics", **Invited Talk** on The 7th Pacific Rim Conference on Lasers and Electro-Optics (CLEO®/Pacific Rim 2007), 2007.8.26-2007.8-31, Seoul, Korea

[16]. **YuTong Li, "**Study on fast electrons emitted from ultraintense laser-plasma interactions", **Invited Talk** on the International West Lake Workshop on Fusion Theory and Simulation, 2007.319-2007.3.21, Hangzhou, China

[17]. **ZhiYi Wei**, "Toward to Petawatt power with controlled waveform and high contrast ratio", **Invited Talk** on 1st Petawatt Scientific Committee Conference, 2007.5.11-2007.5.11, Thales Inc, Washington DC, USA

[18]. **YuTong Li,** "Recent progress of intense laser-plasma interactions at the Institute of Physics", **Invited Talk** on Pacific Rim Conference On Lasers and Electro-Optics 2007, 2007.8.26-2007.8.31, Optical Society of Korea; Seoul，Korea

[19]. **ZhaoHua Wang**, "Amplification of 355TW Ti:sapphire laser and Phase Control of 6fs laser pulse", **Invited Talk** on 2nd Sino-German Workshop on Quantum Engineering, 2007.9.23-2007.9.27, Max-Planck Society and Sino-Germany C, Ulm, Germany

[20]. **ZhiYi Wei**, "A new monolithic carrier-envelope phase measurement scheme with 53dB signal to noise ratio", **Invited Talk** on 2nd ESA International Workshop on Optical Atomic Cocks, 2007.10.10-2007.10.12, European Space Agency; Frascati,Italy

[21]. **ZhiYi Wei**, "Femosecond Laser-Toward multi-100TW and Few Cycles Pulse", **Invited Talk** on International Symposium on Ultrafast and Nano-Optics, 2007.10.29-2007.10.31, 中国北京

学位论文/Dissertations

1. 博士学位论文

[1] 王　鹏，超短激光脉冲的精密测量与同步控制研究； 导师：魏志义

[2] 武慧春，等离子体光栅对强激光脉冲的操纵和新型高功率太赫兹辐射源；导师：盛政明 张杰

[3] 马海强，全光纤量子密钥分发系统中的关键技术；导师：吴令安

[4] 徐　慧， 相对论效应对电子等离子波破裂以及激光共振吸收的影响； 导师：盛政明

[5] 杨晓东，高功率全固态脉冲激光技术研究； 导师：许祖彦

[6] 郝作强，强飞秒激光在大气中的成丝非线性光学研究； 导师：张杰

[7] 赵丽明，非线性色散材料的光子晶体和原子自发辐射特性的研究； 导师：顾本源 杨国桢

[8] 翟艳花， 热光的双光子特性； 导师：吴令安

[9] 陈亚辉，高功率全固态红蓝激光器研究； 导师：许祖彦

[10] 陶海华，硅基近红外二维平板光子晶体器件的设计、制备和近场光学研究； 导师：程丙英

[11] 任　承， 二维平板光子晶体器件的制备及光学特性的测量； 导师：张道中

[12] 韩　鹏，半导体超晶格中 THz 辐射及半导体势阱发光制冷的研究； 导师：周岳亮 金奎娟

[13] 郭　林，大功率全固态皮秒激光器及其变频技术研究； 导师：许祖彦

[14] 王素梅，LD 泵浦被动调 Q、锁模激光特性研究； 导师：冯宝华

[15] 盛　艳，准相位匹配光学频率变换的研究； 导师：程丙英

[16] 刘元好，光子晶体光开关效应的研究； 导师：张道中

[17] 任　坤，电磁波在光子晶体中的负折射传播； 导师：张道中 李志远

[18] 严　伟，THz 波近场传播的数值模拟和特性研究； 导师：汪力

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

光物理系列学术报告（八）

题目：Study on the Photon Density of States of Photonic Crystals

报告人：Prof. Ming-Chieh Lin (林銘杰) （NanoScience Simulation Laboratory Department of Physics Fu Jen Catholic University, Taiwan）

光物理系列学术报告（九）

题目：飞秒脉冲激光－从超快、超宽、超强到超稳物理现象

报告人：魏志义 研究员（中国科学院物理研究所）

光物理系列学术报告（十）

题目：真的是表面等离激元干的活吗?

—关于亚波长表面结构引发的光异常透射现象的机理的争论

报告人：顾本源 研究员（中国科学院物理研究所）

光物理系列学术报告（十一）

题目：Thermoelectric Materials for Transportation Applications and Role of Microscopic Modeling of Phonon Modes in Nanostructures

报告人：Professor Shang-Fen Ren（Department of Physics, Illinois State University）

光物理系列学术报告（十二）

题目：Optical Spectroscopy on Nanostructures

报告人：Prof. Yuen-Ron Shen (Department of Physics, University of California, Berkeley)

光物理系列学术报告（十三）

题目：Time Variation of Fundamental Constants Measurements by Optical Frequency Standards Comparisons

报告人：Prof. Guilong Huang（National Physical Laboratory, Teddington, Middlesex TW11 0LWUnited Kingdom）

光物理系列学术报告（十四）

题目：光纤激光器及光纤传感器关键技术

报告人：骆飞 （美国波士顿大学光电子中心）

光物理系列学术报告（十五）

题目：Nano/Micro-fabrication of Photonic Devices

报告人：Assistant Prof. Roberto Panepucci (Electrical and Computer Engineering Department, Florida International University)

光物理系列学术报告（十六）

题目：Quantum Imaging

报告人：Professor Yanhua Shih (史砚华)（Department of Physics, University of Maryland, Baltimore, U.S.A.）

光物理系列学术报告（十七）

题目：Plenty of Rooms for Nano in Bio- and Electronics

报告人：Dr. Chang-Ming Li（School of Chemic and Biomedical Engineering，Nanyang Technological University）

光物理系列学术报告（十八）

题目：Moving atomic qubits

报告人：Dr. Gaétan Messin（Institut d'Optique, France 法国光学研究所）

光物理系列学术报告（十九）

题目：How Significant is the Figure of Merit to Heat Transport

报告人：赵光安 教授（瑞典 Lund 大学教授）

光物理系列学术报告（二十）

题目：Wave Particle-Duality with a Single Photon: The Delayed Choice Gedanken Experiment at Last a Real Experiment

报告人：Prof. Jean-Francois ROCH （法国 Ecole Normale Superieure de Cachan）

光物理系列学术报告（二十一）

题目：太赫兹研究国际新进展及若干思考

报告人：姚建铨 院士（天津大学精密仪器与光电子工程学院）

光物理系列学术报告（二十一）

题目：太赫兹研究国际新进展及若干思考

报告人：姚建铨 院士（天津大学精密仪器与光电子工程学院）

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

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国际期刊任职/Service to International Journals

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国内期刊任职/Service to the Domestic Journals

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张 杰	《物理学报》副主编 《物理》副主编
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盛政明	《中国物理快报》特约评审

客座人员名单及客座研究课题/ Visitors List & Open Subjects

客座人员名单/Visitor List

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1	张希成	男	激光物理	教 授	美国 Rensselaer Polytechnic Institute
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3	郁明阳	男	光学	教 授	德国鲁尔大学
4	俞 进	男	光学	教 授	法国里昂大学
5	曹建明	男	光学	教 授	美国佛罗里达州立大学
6	张坚地	男	材料学	教 授	美国佛罗里达国际大学
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8	赵 刚	男	天文学	研究员	中科院国家天文台
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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	离子 C^+ 注入形成 Sic 和 PECND Sic 膜层的激光退火结晶化及应用研究	张国炳	教授	北京大学微电子学研究所	2007.01-2007.12
2	钨酸盐单晶的受激拉曼散射研究	臧竞存	教授	北京工业大学	2007.01-2007.12
3	单壁碳纳米管薄膜的非线性光学性质的研究	解思深	研究员	中科院物理所	2007.01-2007.12

选录论文/Selected Papers

1. The SERS activity of a supported ag nanocube strongly depends on its orientation relative to laser polarization, McLellan JM, Li ZY，Siekkinen AR, and Xia YN, **Nano Letters 7**, 1013 (2007)

2. Synthesis and Optical Properties of Silver Nanobars and Nanorice, Wiley BJ, Chen Y, McLellan JM, Xiong YJ, Li ZY, Ginger D, and Xia YN, **Nano Letters 7**, 1032 (2007)

3. Immuno gold nanocages with tailored optical properties for targeted photothermal destruction of cancer cells, Chen JY, Wang DL, Xi JF, Au LL, Siekkinen A, Warsen A, Li ZY ,Zhang H, Xia YN, and Li XD, **Nano Letters 7**, 1318 (2007)

4. Fabrication of cubic nanocages and nanoframes by dealloying Au/Ag alloy nanoboxes with an aqueous etchant based on Fe(NO3)(3) or NH4OH, Lu XM, Au LL, McLellan J, Li ZY, Marquez M,and Xia YN, **Nano Letters 7**, 1764 (2007)

5. Photoacoustic Tomography of a Rat Cerebral Cortex in vivo with Au Nanocages as an Optical Contrast Agent, Yang XM, Skrabalak SE, Li ZY, Xia YN, and Wang LV, **Nano Letters 7**, 3798 (2007)

6. Mechanistic studies on the galvanic replacement reaction between multiply twinned particles of Ag and HAuCl4 in an organic medium, Lu XM, Tuan HY, Chen JY, Li ZY, Korgel BA,and Xia YN, **Journal of the American Chemical Society 129**, 1733 (2007)

7. Catalytic performance of nanoscale-corrugated gold and silver films for surface-enhanced chemiluminescence, Advanced Functionnal Materials, Ou M, Lu GW, Zhen H, Descamps A, Marquette CA, Blum LJ, Ledoux G, Roux S, Tillement O, Cheng BL, Perriat P, **Advanced Functional Materials 17**, 1903 (2007)

8. Surface-plasmon-polariton assisted diffraction in periodic subwavelength holes of metal films with reduced interplane coupling, Fang X，Li ZY, Long YB, Wei HX, Liu RJ Ma JY, Kamran M, Zhao HY, Han XF, Zhao BR, and Qiu XG, **Physical Review Letters 99**, 66805 (2007)

9. Colloidal building blocks with potential for magnetically configurable photonic crystals, Camargo PHC, Li ZY, and Xia YN, **Soft Matter 3**, 1215 (2007)

10. Valley density profile for highly efficient x-ray lasers with good beam quality，,J Zhao, QL Dong, and J Zhang, **Optics Letters 32** , 491 (2007)

11. Visible-blind, ultraviolet-sensitive photodetector based on SrTiO3 single crystal, Xing J, Zhao K, Lu HB, Wang X, Liu GZ, Jin KJ, He M, Wang CC, Yang GZ, **Optics Letters 32**, 2526 (2007)

12. Quantum key distribution based on phase encodingand polarization measurement, Ma HQ, Zhao JL, Wu LA, **Optics Letters 32**, 698 (2007)

13. Optimization of Multiple Filamentation of Femtosecond Laser Pulses in Air Using a Pinhole, ZQ Hao, J Zhang, TT Xi, XH Yuan, ZY Zheng, X Lu, MY Yu, YT Li, ZH Wang, W Zhao, ZY Wei, **Optics Express, 15**, 16102-16109 (2007)

14. Oval-like hollow intensity distribution of tightly focused femtosecond laser pulses in air, YT Li, TT Xi, ZQ Hao, Z Zhang, XY Peng, K Li, Z Jin, ZY Zheng, QZ Yu, X Lu, J Zhang, **Optics Express, 15**, 17973-17979 (2007)

15. Near-field studies of microwave three-dimensional photonic crystals with waveguides, Liu RJ, Li ZY, Zhou F, and Zhang DZ, **Optics Express 15**, 15531 (2007)

16. Non-near-field focus and imaging of an unpolarized electromagnetic wave through high-symmetry quasicrystals, Zhang XD, Li ZY, Cheng BY, and Zhang DZ, **Optics Express 15**, 1292 (2007)

17. Giant enhancement of second harmonic generation in poled ferroelectric crystals, Li JJ，Li ZY, Sheng Y, and Zhang DZ, **Applied Physics Letters 91**, 0200903 (2007)

18. Broadband efficient second harmonic generation in media with a short-range order, Sheng Y, Dou JH, Ma BQ，Cheng BY, and Zhang DZ, **Applied Physics Letters 91**, 11101 (2007)

19. Temperature and angle tuning of second harmonic generation in media with a short-range order, Sheng Y, Dou JH, Li JJ, Ma BQ，Cheng BY, and Zhang DZ, **Applied Physics Letters 91**, 101109 (2007)

20. Study on the cluster sizes in the mixed-phase thin films, Zhou QL, Jin KJ, Lu HB, Hu CL, Zhao K, Guan DY, Yang GZ, **Applied Physics Letters 90**, 32508 (2007)

21. Fano resonance in the luminescence spectra of donor bound excitons in polar semiconductors, Jin KJ, Xu SJ, **Applied Physics Letters 90**, 32107 (2007)

22. Enhanced tunability due to interfacial polarization in La0.7Sr0.3MnO3 /BaTiO3 multilayers, Wang CC, He M, Yang F, Wen J, Liu GZ, Lu HB, **Applied Physics Letters 90**, 192904 (2007)

23. Dember effect induced hotovoltage in perovskite p-n heterojunctions, Jin KJ, Zhao K, Lu HB, Liao L, Yang GZ, **Applied Physics Letters 91**, 81906 (2007)

24. The mechanism study on transport properties in perovskite oxide p-n junction, Han P, Jin KJ, Lu HB, Zhou QL, Zhou YL, Yang GZ, **Applied Physics Letters 91**, 182102 (2007)

25. Low-field positive magnetoresistance near room temperature in three-component perovskite-type artificial superlattices, Zhao K, He M, Lu HB, **Applied Physics Letters 91**, 152507 (2007)

26. Resistance switching in BaTiO3/Si p-n heterostructure, Liu GZ, Jin KJ, Qiu J, He M, Lu HB, Xing J, Zhou YL, Yang GZ, **Applied Physics Letters 91**, 252110 (2007)

27. Submicron domain inversion in Mg-doped LiNbO3 using backswitched poling with short voltage pulses, Yunlin Chen, Weiguo Yan, Dongdong Wang, Shaolin Chen, Guangyin Zhang, Jiangfeng Zhu and Zhiyi Wei, **Applied Physics Letters 90**, 062908-1 (2007)

28. Terahertz electric field in a three-layer system produced by parallel dipoles with a Gaussian spatial profile, Yan W, Yang YP, Chen H, Wang L, **Physical Review B 75**, 85323 (2007)

29. Three-dimensional light focusing in inverse opal photonic crystals, Ren K, Li ZY, Ren XB, Feng S, Cheng BY, and Zhang DZ, **Physical Review B 75**, 115108 (2007)

30. General theory of optical reflection from a thin film on a solid and its application to heteroepitaxy, Zhu XD, Fei YY, Wang X, Lu HB, Yang GZ, **Physical Review B 75**, 245434 (2007)

31. Enhanced near-infrared transmission through periodic H-shaped arrays, Sun M, Liu RJ, Li ZY, Cheng BY, Zhang DZ, Yang HF, and Jin AZ, **Physics Letters A 75**, 510 (2007)

32. Frequency-domain theory of high-order above-threshold ionization based on nonperturbative quantum electrodynamics, Wang BB, Gao LH, Li XF, Guo DS, Fu PM, **Physical Review A 75**, 63419 (2007)

33. Effects of a static-electric field on non-sequential double ionization, H. Li, B. Wang, J. Chen, H. Jiang, X. Li, J. Liu, Q. Gong, Z.-C. Yan and P. Fu, **Physical Review A 76**, 33405 (2007)

34. Tunable optical anisotropy in three-dimensional photonic crystals, Che M, Li ZY, and Liu RJ, **Physical Review A 76**, 023809 (2007)

35. Two-photon resonant four-wave mixing in a dressed atomic system: Polarization interference in Doppler broadened system, Zuo ZC,Sun J,Liu X,Wu LA,Fu PM, **Physical Review A 75**, 23805 (2007)

36. Second harmonic generation in one-dimensional nonlinear photonic crystals solved by the transfer matrix method, Li JJ, Li ZY, and Zhang DZ, **Physical Review E 75**, 56606 (2007)

37. Powerful THz emission from laser wakefields in inhomogeneous magnetized plasmas, H.-C. Wu, Z.-M. Sheng, Q.-L. Dong, H. Xu and J. Zhang, **Physical Review E 75**, 016407 (2007)

38. Acceleration dynamics of ions in shocks and solitary waves driven by intense laser pulses, Min-Qing He, Quan-Li Dong, Zheng-Ming Sheng, Su-Ming Weng, Min Chen, Hui-Chun Wu, and Jie Zhang, **Physical Review E 76**, 035402 (2007)

39. Active manipulation of the spatial energy distribution of laser-accelerated proton beams, D. C. Carroll, P. Mckenna, O. Lundh, F. Lindau, C. –G. Wahlstrom, S. Bandyopadhyay, D. Pepler, D. Neely, S. Kar, P. T. Simpson, K. Markey, M. Zepf, C. Bellei, R.G. Evans, R. Redaelli, D. Batani, M. H. Xu, Y. T. Li, **Physical Review E 76**, 065401 (2007)

40. Collisionless electrostatic shock generation and ion acceleration by ultraintense laser pulses in overdense plasmas, Min Chen, Zheng-Ming Sheng, Quan-Li Dong, Min-Qing He, Yu-Tong Li, M. A. Bari, and Jie Zhang, **Physics of Plasmas 14**, 053102 (2007)

41. Ion acceleration by colliding electrostatic shock waves in laser-solid interaction, Min Chen, Z.M. Sheng, Quan-Li Dong, Min-Qing He, Su-Ming Weng, Yu-Tong Li, Jie Zhang, **Physics of Plasmas 14**, 113106 (2007)