



2016 年度重点实验室总结报告

重点实验室名称：纳米器件物理与化学教育部重点实验室

实验室主任：彭练矛

副主任：陈清 张锦

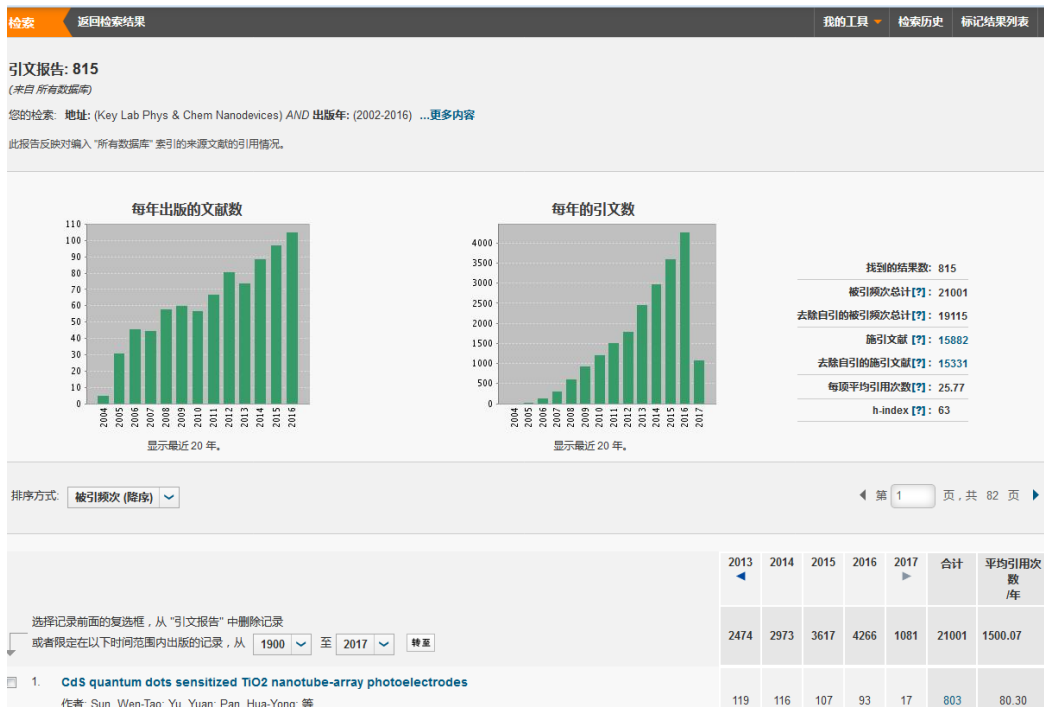
学术委员会主任：解思深

副主任：王占国 薛增泉 刘忠范

总结报告内容：

一、研究水平与贡献

实验室自成立以来得到了科技部、基金委、教育部、北京市科委和北京大学的 985、211 等各专项的支持，围绕着纳米器件物理与化学相关领域开展研究，得到了很大的发展。自 2003 年实验室验收成立至 2016 年底，共发表以实验室为单位的 SCI 论文 815 篇，论文数目平稳上升，2016 年的年文章数达到 116 篇。论文的引用也逐年增加，2016 年达到 4266 次/年，如下图所示。特别是，近些年实验室在碳基电子器件及其集成方面有重要突破，2016 年彭练矛团队获得了国家自然科学二等奖。





1. 本年度新增项目和合同经费数（万元）

2016 年实验室成员承担的科研项目有 57 项，总合同经费达到 2.5 亿多元；其中 2016 年新启动的纵向项目有 11 项，新增合同经费 1.3 亿多元。特别是，在 2016 年新启动的国家重点研发计划“纳米科技”专项中，本实验室承担了 2 个首席项目，还参与了多个项目；彭练矛为首的基金委创新群体第一期结束后获得了连续资助。

2. 本年度获奖情况（其中：国家级奖，省部级奖）

彭练矛、张志勇、丁力、王胜和梁学磊等完成的“碳基电子器件及集成”项目获得国家自然科学二等奖。

张志勇获得“第十九届茅以升青年科技奖”。

李彦获得“第七届全国优秀科技工作者”称号。

彭练矛入选第十二批“北京市有突出贡献的科学、技术、管理人才”。

张锦获得 2016 年优秀博士学位论文指导教师称号。

实验室的学生们也取得了不少成果，获得了不少奖励：

吴功涛获得 2016 年“国际真空纳米电子学大会”SGS 奖。

吴功涛和李星获得 2016 年博士研究生国家奖学金。

赵至真获得 2016 年硕士研究生国家奖学金。

张娜获得硕士学业奖学金。

李明获得真空学会真空科学硕士生奖学金。

张雪获得中国化学会优秀墙报奖。

马泽获得苏州工业园区奖。

另有多位同学获得北京大学及信息科学技术学院的多项奖项。

3. 本年度发表论文数（其中：SCI, EI 论文数）

本年度实验室人员发表 SCI, EI 论文有 115 篇，其中影响因子大于 6 的杂志上的有 61 篇（其中影响因子大于 10 的有 33 篇，分别是 SCIENCE 1 篇，ACCOUNTS OF CHEMICAL RESEARCH 1 篇，ADVANCED MATERIALS 6 篇，



ADVANCED ENERGY MATERIALS 3 篇, NANO LETTERS 7 篇, ACS NANO 9 篇, JOURNAL OF THE AMERICAN CHEMICAL SOCIETY 3 篇, NANO ENERGY 1 篇, ADVANCED FUNCTIONAL MATERIALS 1 篇, NATURE COMMUNICATIONS 1 篇。)

实验室骨干 2016 年在国际会议上做了 4 次大会报告(Plenary talk)、39 次邀请报告和 34 次一般报告或墙报; 在全国性重要学术会议上做 40 余次邀请报告。

4. 本年度申请及授权专利数

本年度实验室有 7 项中国国家发明专利申请获得授权, 3 项国际专利申请获得授权, 新申请了 5 项中国国家发明专利。

二、队伍建设与人才培养

1. 人才队伍情况: 总人数, 其中院士、长江学者、杰出青年人数, 教授、副教授人数

到 2016 年底, 实验室有 11 名正教授、3 位特聘研究员、13 名副教授或副研究员、2 名高工、1 名讲师和 1 名助研, 共 31 位固定人员。学术骨干中有 3 位长江特聘教授、1 位千人计划特聘教授、4 位国家杰出青年获得者、2 位青年千人、1 位中组部拔尖人才、2 位优青、6 位教育部新世纪优秀人才、2 名北京大学百人计划特聘研究员。实验室成员在 20 余个重要学术机构中任职。

2. 人才培养情况: 在站博士后、在读博士生、硕士生人数

本年度实验室有 10 名在站博士后; 有在读博士生 80 余人, 在读硕士生 40 余人。



数据和成果:

一、实验室固定成员名单

序号	姓名	性别	年龄	最后学位	称号	研究方向	技术职称	在实验室工作期限
1	彭练矛	男	54	博士	长江、杰青、百千万人才	纳米电子学	教授	2000 年至今
2	张锦	男	47	博士	长江、杰青、新世纪人才	纳米化学	教授	2002 年至今
3	陈清	女	51	博士	杰青、百千万人才、新世纪人才	纳米材料, 电子显微学	教授	2000 年至今
4	徐洪起	男	60	博士	中组部千人	量子结构 纳米电子学	教授	2010 年至今
5	李彦	女	50	博士	长江、杰青、新世纪人才	纳米材料化学	教授	2002 年至今
6	侯士敏	男	46	博士	新世纪人才	纳米电子学	教授	2000 年至今
7	张志勇	男	39	博士	拔尖、优青、新世纪人才	纳米电子学	教授	2008 年至今
8	张耿民	男	47	博士		物理电子学	教授	2000 年至今
9	梁学磊	男	42	博士		纳米电子学	教授	2003 年至今
10	许胜勇	男	50	博士		凝聚态物理	教授	2006 年至今
11	叶安培	男	56	博士		纳米生物 光子学	教授	2008 年至今
12	王永锋	男	37	博士	青千、优青	分子电子学	特聘研究员	2012 年至今
13	魏贤龙	男	34	博士	全国优博、北大百人	纳米材料表征和物性	特聘研究员	2012 年至今
14	胡又凡	女	37	博士	青千、北大百人	纳米电子学	特聘研究员	2014 年至今
15	王胜	男	39	博士	新世纪人才	纳米电子学	副研	2008 年至今
16	邢英杰	男	46	博士	全国优博	物理电子学	副教授	2008 年至今
17	王晶云	女	45	博士		电子显微学	副教授	2000 年至今
18	申自勇	男	47	博士		扫描探针	副教授	2000 年至今
19	潘华勇	男	48	博士		电子显微学	副研	2004 年至今
20	郭等柱	男	49	博士		物理电子学	副研	2005 年至今



21	叶林晖	男	47	博士		理论计算	副教授	2008 年至今
22	孙文涛	女	40	博士		纳米电子学	副教授	2008 年至今
23	廖建辉	男	40	博士		纳米电子学	副研	2008 年至今
24	戴恩光	男	52	博士		光电子学	副教授	2009 年至今
25	康宁	男	40	博士		纳米电子学	副研	2011 年至今
26	黄少云	男	42	博士		纳电子学与 纳米器件物 理	副教授	2011 年至今
27	黄珏华	男	44	博士		物理电子	副教授	2014 年至今
28	岳双林	女	40	博士		微纳加工	高工	2006 年至今
29	董立军	男	42	学士		微纳加工	高工	2013 年至今
30	高崧	男	49	博士		扫描探针	讲师	2002 年至今
31	丁力	男	32	博士	全国优博提 名, 北京市 优博	纳米电子学	助研	2015 年至今



二、实验室成员在学术机构任职情况

姓名	学术任职
彭练矛	国际物理学杂志 “Journal of Applied Physics”的副主编 国际显微学杂志 “Ultramicroscopy”编委 国际晶体学会电子衍射专业委员会委员 中国电子显微学会副理事长 中国晶体学会副理事长 中国真空学会副理事长 北京大学学位委员会委员 北京大学研究生奖助工作专家委员会委员 北京大学理工科人才评估专家委员会委员 北京大学信息科学技术学院学位委员会、学术委员会委员 北京大学电子学系主任 北京大学纳米器件物理与化学教育部重点实验室主任 北京大学微纳加工实验室主任 北京大学碳基纳米电子学研究中心主任
张锦	英国皇家化学会会士 Carbon 杂志副主编 Nano Research 杂志编委 Particles 和 Chemistry of Graphene 的顾问编委 化学学报和光散射学报编委 北京市低维碳材料科学与工程工程技术研究中心副主任 北京大学化学与分子工程学院副院长 北京大学纳米化学研究中心副主任 北京大学纳米器件物理与化学教育部重点实验室副主任 北京石墨烯研究院副院长
侯士敏	真空科学与技术学报副主编 北京大学信息科学技术学院副院长 北京大学纳米科学与技术中心副主任



陈清	金属学报编委 中国真空学会理事 中国材料研究学会纳米材料与器件分会理事 中国仪表功能材料学会 ALD 学会委员 北京大学纳米器件物理与化学教育部重点实验室副主任
李彦	Journal of Materials Chemistry A 杂志副主编 ACS Nano 杂志顾问编委 Materials Horizons 顾问编委 Nano Research 编委国际碳纳米管系列学术会议指导委员会委员 中国化学会女化学工作者委员会副主任
徐洪起	“Frontiers of Physics” 副主编 “Nature—Scientific Reports” 编委 中国物理学会低温物理专业委员会委员 中国材料研究学会纳米材料与器件分会理事 第三十三届国际半导体物理（ICPS2016）大会主席 第一届中-日量子技术国际会议（QTech2016）主席 第十九届国际超晶格、纳米结构和纳米器件大会（ICSNN2016）顾问委员会委员 国际固态器件和材料大会-2016（SSDM2016）程序委员会委员
张耿民	中国真空学会副秘书长
叶安培	原子与分子物理学报编委 中国生物物理学会理事 中国生理学会仪器专业委员会委员
戴恩光	中国宇航学会光电子专业委员会常委
王永锋	物理化学学报第四届编委 中国化学快报青年编委



郭等柱	中国真空学会质谱分析与检漏专委会委员 北京真空学会理事
魏贤龙	中国计量测试学会真空计量专委会委员
张志勇	物理电子学研究所副所长 中国电子学会青年科学家联盟会员
黄少云	“半导体学报”第12届编辑委员会委员



三、2015 年实验室成员承担的主要课题目录

序号	批准号	类别	项目名称	负责人	起止时间	总经费 (万元)
1	2016YF A02001 04	国家重点研发计划“纳米科技”专项	纳米碳材料产业化关键技术及重大科学前沿	张锦 (首席)	2016. 7- 2021. 6	9494
2	2016YF A02019 02	国家重点研发计划“纳米科技”专项	基于纳米碳及相关材料的新型纳米光电器件	彭练矛 (首席)	2016. 7- 2021. 6	1120
3	2012CB 932703	国家重大科学研究计划“纳米研究”专项项目	新型高性能半导体纳米线电子器件和量子器件/新型半导体纳米线量子电子器件研究	徐洪起 (首席)	2012. 1- 2016. 8	976
4	2016YF A02019 01	国家重点研发计划“纳米科技”专项	高性能碳基纳米晶体管的制备及大规模集成	张志勇	2016. 8- 2021. 7	960
5	2016YF A02019 04	国家重点研发计划“纳米科技”专项	芯片用碳管材料的可控和批量制备	李彦	2016. 7- 2021. 6	640
6	2013CB 933404	国家重大科学研究计划“纳米研究”专项项目课题	单分子纳米磁体自旋态检测与输运性质调控	王永锋	2013. 1- 2017. 8	561
7	2013CB 933604	国家重大科学研究计划课题	新型场发射纳米材料及物理机制研究	张耿民	2013. 1- 2017. 8	414
8	2012CB 932702	国家重大科学研究计划“纳米研究”专项项目课题	环栅半导体纳米线超高频器件的基础研究	陈清	2012. 1- 2016. 8	703
9	2016YF A03006 01	国家重点研发计划	拓扑量子器件的制备和调控	徐洪起 (参加)	2016. 9- 2021. 8	500
10	2016YF A02008 02	国家重点研发计划“纳米研究”专项课题	外场诱导下纳米结构电子过程原位测量研究	陈清 (参加)	2016. 6- 2021. 5	308
11	2016YF A03008 00	国家重点研发计划“量子调控与量子信息”重点专项	自旋波电子学物理、材料与器件	黄少云, 邢英杰 (参加)	2016. 7- 2021. 6	150



12	2012CB932701	国家重大科学研究计划“纳米研究”专项项目课题	新型半导体纳米线的可控生长和表征	邢英杰 (参加)	2012. 1- 2016. 8	225
13	2012BAF14B14	国家科技支撑项目	全自动光镊-光刀显微操纵系统	叶安培	2012. 7- 2016. 6	414
14	61321001	国家自然科学基金创新群体项目	纳米尺度的高性能电子与量子器件的理论与方法	彭练矛	2014. 1- 2016. 12	600
15	61390504	国家自然科学基金重大项目	高性能石墨烯器件与电路的批量制备与优化	彭练矛	2014. 1- 2018. 12	440
16	61427901-002	国家自然科学基金重大仪器项目	二维电子材料及纳米量子器件的研究和原位分析仪器	彭练矛 (参加)	2015. 1- 2019. 12	800
17	91421303	国家自然科学基金重点项目	复合量子结构中的拓扑量子态和量子纠缠态研究	徐洪起	2015. 1- 2017-12	500
18	91221202	自然科学基金委重大研究计划重点项目	纳米线复合量子结构中的电子纠缠及其器件研究	徐洪起	2013. 1- 2016. 12	320
19	21233001	国家自然科学基金重点项目	平整基底上的拉曼信号增强技术及其应用	张锦	2013. 1- 2017. 12	300
20	21433011	国家自然科学基金重点项目	单层二维共价网络结构的构筑策略与性质研究	王永峰 (参加)	2015. 1- 2019. 12	140
21	21522301	国家自然科学基金优秀青年	表面自组装	王永峰	2016. 1- 2018. 8	150
22	61322105	国家自然科学基金优秀青年	碳基纳米电子学	张志勇	2014. 1- 2017. 12	100
23	61571016	国家自然科学基金面上项目	高性能碳基瞬态电子器件和集成电路	胡又凡	2016. 1- 2019. 12	76. 8
24	21573014	国家自然科学基金面上项目	单分子自旋电子器件的构建和输运性质测量	廖建辉	2016. 1- 2019. 12	80
25	91333105	国家自然科学基金重大研究计划面上项目	用于光伏倍增器件的高纯半导体性单壁碳纳米管阵列的可控生长	李彦	2014. 1- 2016. 12	91



26	613710 01	国家自然科学基金面上项目	内电场驱动下石墨烯表面电子发射特性的实验研究	魏贤龙	2014. 1- 2017. 12	83
27	613761 26	国家自然科学基金面上项目	亚 20 纳米碳纳米管 CMOS 器件研究	张志勇	2014. 1- 2017. 12	82
28	113740 16	国家自然科学基金面上项目	软物质波导与神经信号传输物理机制研究	许胜勇	2014. 1- 2017. 12	89
29	113740 22	国家自然科学基金面上项目	应变对单层/少层 MoS ₂ 纳米片及其器件的性能的影响	陈清	2014. 1- 2017. 12	89
30	113740 19	国家自然科学基金面上项目	基于石墨烯三端和多端纳米器件的量子输运研究	康宁	2014. 1- 2017. 12	88
31	213730 20	国家自然科学基金面上项目	自旋交叉配合物自旋双稳态的可逆调控	王永锋	2014. 1- 2017. 12	83
32	613700 09	国家自然科学基金面上项目	表面等离子激元增强碳纳米管光电器件性能研究	王胜	2014. 1- 2017. 12	81
33	613760 59	国家自然科学基金面上项目	用阴极缓冲层提高小分子有机太阳能电池性能的研究	邢英杰	2014. 1- 2017. 12	83
34	612710 51	国家自然科学基金面上项目	基于平行阵列碳纳米管的射频晶体管和电路	彭练矛	2013. 1- 2016. 12	95
35	512720 06	国家自然科学基金面上项目	碳纳米管异质结构的控制制备及其在光电转换器件中的应用	张锦	2013. 1- 2016. 12	80
36	612710 50	国家自然科学基金面上项目	高介电氧化物薄膜局域阻变特性和机理研究	申自勇	2013. 1- 2016. 12	76
37	112740 21	国家自然科学基金面上项目	原位集成电荷探测器的 InSb 纳米线耦合双量子点的实验构筑及低温电学输运	黄少云	2013. 1- 2016. 12	90
38	702140 3008	国家自然科学基金青年基金项目	单分子磁体自旋态的磁交换力显微镜研究	李娜	2015. 1- 2017. 12	25



39	261614 01006	国家自然科学基金 基金青年基金 项目	基于碳纳米管的极 低开启电压二极管 及其射频电路	丁力	2015. 1- 2017. 12	8
40	613060 79	国家自然科学基金 基金青年基金 项目	钙钛矿结构有机金 属卤化物量子点太 阳能电池的研究	孙文涛	2014. 1- 2016. 12	25
41	113040 03	国家自然科学基金 基金青年基金 项目	电子显微镜中同一 单个纳米结构多种 物性的综合研究	魏贤龙	2014. 1- 2016. 12	26
42	115284 07	基金委海外及 港澳学者合作 研究基金	二维半导体的制备, 优化和光电器件应 用	楼峻/陈 清	2016. 1- 2017. 12	20
43	D15110 000331 5004	北京市科委重 大项目	有源智能卡碳纳米 管芯片模块开发	张志勇	2015. 1- 2016. 12	492
44	Z15110 000331 501	北京市科委科 技计划	集成电路用碳纳米 管工程化制备化学 气相沉积设备研制	张志勇	2015. 7- 2017. 12	100
45	Z15110 000331 5009	北京市科委创 新项目	100kHz 碳纳米管 CPU 研制	彭练矛	2015. 1- 2016. 12	600
46	Z15110 000311 507	北京市科委专 项项目	北京碳基集成电路 技术与产业发展路 径研究	彭练矛	2015. 1- 2015. 6	30
47		青年千人计划	智能化纳米集成传 感系统	胡又凡	2015. 1- 2017. 12	300
48	201241	全国优秀博士 学位论文作者 专项基金	单原子层碳纳米材 料表面的电子发射 特性和机理研究	魏贤龙	2012. 1- 2016. 12	42
49	201200 011100 93	高等学校博士 学科点专项基 金	光镊诱导表面增强 拉曼光谱技术及其 在蛋白结构检测中 的应用	叶安培	2014. 1- 2017. 8	12
50	201300 011100 30	高等学校博士 学科点专项基 金	扫描电子显微镜中 同一单根纳米结构 多种物性的综合研 究	魏贤龙	2014. 1- 2016. 12	12
51	2015T8 0021	博士后特别资 助	基于碳纳米管的能 量转换器	丁力	2015. 7- 2016. 3	15
52		国防预研项目	几种电子元器件散 热和力学仿真与试 验	郭等柱	2015. 8- 2016. 9	40



53		国防预研项目	场发射飞行时间质谱仪研制	郭等柱	2014. 11-2016. 4	95
54		总装项目	碱金属微气室封装设备改造与气室性能提高	郭等柱	2014. 4-2016. 4	20
55		横向项目	一种微型原子气室封装工艺方法	郭等柱	2016. 5-2018. 4	30
56	HQ-141 2-CTO- TE-026	横向项目	CNT-TFT 显示技术研究	梁学磊	2014. 12-2017. 6	400
57		中科院微生物资源前期开发 国家重点实验室开放课题	用于海洋微生物分选的激光诱导表面增强 Raman 光谱技术探索	叶安培	2014. 7-2017. 6	20



四、2015 年实验室发表的高影响因子论文的刊物分布

刊物	篇数
SCIENCE (IF34.661)	1
ACCOUNTS OF CHEMICAL RESEARCH (IF22.003)	1
ADVANCED MATERIALS (IF18.96)	6
ADVANCED ENERGY MATERIALS (IF15.23)	3
NANO LETTERS (IF13.779)	7
ACS NANO (IF13.334)	9
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY (IF13.038)	3
NANO ENERGY (IF11.553)	1
ADVANCED FUNCTIONAL MATERIALS (IF11.382)	1
NATURE COMMUNICATIONS (IF11.329)	1
NANO RESEARCH (IF8.893)	2
APPLIED CATALYSIS B-ENVIRONMENTAL (IF8.328)	1
SMALL (IF8.315)	3
JOURNAL OF MATERIALS CHEMISTRY A (IF8.262)	1
NANOSCALE (IF7.761)	10
PHYSICAL REVIEW LETTERS (IF7.645)	1
ACS APPLIED MATERIALS & INTERFACES (IF7.145)	2
CHEMICAL COMMUNICATIONS (IF6.567)	3
CARBON (IF6.198)	4
ADVANCED SCIENCE (IF6)	1



五、主要研究成果目录

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- 1 Chuancheng Jia, Agostino Migliore, Na Xin, Shaoyun Huang, Jiying Wang, Qi Yang, Shuopei Wang, Hongliang Chen, Duoming Wang, Boyong Feng, Zhirong Liu, Guangyu Zhang, Da-Hui Qu, He Tian, Mark A. Ratner, H. Q. Xu, Abraham Nitzan, Xuefeng Guo, “Covalently bonded single-molecule junctions with stable and reversible photoswitched conductivity”, **SCIENCE** 352(2016)1443-1445
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(二) 邀请报告

1. Lian-Mao Peng, “Carbon nanotube transistors: scaling and fundamental limits”, **Workshop on Emerging Electronic Materials and Devices (EEMD 2016)**,



- Hefei, China, July 9-11, 2016. (**Plenary Talk**)
2. Lian-Mao Peng, “Exciton formation and dissociation in carbon nanotubes and potential for the sensing in the shortwave infrared”, **The 12th China-Singapore Joint Symposium on Research Frontiers in Physics**, Hefei, China, September 22-24, 2016. (**Plenary Talk**)
 3. Yan Li, “Synthesis of single-walled carbon nanotubes with specific structure”, **ICSM 2016**, Guangzhou, China, June 26-July 1, 2016. (**Plenary talk**)
 4. Yan Li, “Structure-controlled synthesis of single-walled carbon nanotubes”, **ISRERU-4 & ISFM-7**, Changchun, China, August 16-19, 2016. (**Plenary talk**)
 5. Hongqi Xu, “Majorana Fermions in Solid State”, **International Workshop on Spin Coherence and Topological Order in Semiconductor Nanosystems**, Beijing, China, November 2-4, 2016. CSRC, (**Tutorial Lectures**)
 6. Lian-Mao Peng, “Carbon based optoelectronic devices and sensing in the shortwave infrared”, **The 3rd Muju International Winter School**, Muju Deogyusan Resort, Republic of Korea, January 17-21, 2016. (**Invited Talk**)
 7. Lian-Mao Peng, “Carbon nanotube based field-effect transistors: merits and fundamental limits”, **March Meeting 2016 of the American Physical Society**, in Baltimore, Maryland, USA, March 14-18, 2016. (**Invited Talk**)
 8. Lian-Mao Peng, “Sensing in the shortwave infrared using carbon nanotube”, **5th International Workshop NPO2016: Nanocarbon Photonics and Optoelectronics**, Holiday Club Saimaa, Lappeenranta, Finland, August 1-6, 2016. (**Invited Talk**)
 9. Lian-Mao Peng, “Contact dominated transport in carbon nanotube thin film: towards large-scale fabrication of high performance photovoltaic devices”, **Asia Nano 2016**, Sapporo, Japan, October 10-13, 2016. (invited talk)
 10. Lian-Mao Peng, “Graphene based high performance Hall elements and circuits”, **7th A3 Symposium on Emerging Materials: Nanomaterials for Energy and Electronics**, Lotte Buyeo Resort, Korea, October 31- November 3, 2016. (**Invited Talk**)



11. Lian-Mao Peng, “Carbon nanotube CMOS technology: towards high performance large scale integrated circuits”, **International Symposium on Carbon Nanotube in Commemoration of its Quarter-Century Anniversary**, Tokyo, Japan, November 15-18, 2016. **(Invited Talk)**
12. S. Y. Xu, J. J. Xu and F. Yang, “The overlooked role of a protein channel: Generation of pulsed electromagnetic wave in a biosystem,” **World Gene Convention-2016**, Shanghai, China, November 3-5, 2016. **(Invited Talk)**
13. Qing Chen, “The structure-dependent properties of InAs nanowires and their devices”, **Pacific Rim Meeting on Electrochemical and Solid-State Science (PRiME) 2016**, Honolulu, Hawaii, USA, October 2-7, 2016. **(Invited Talk)**
14. Qing Chen, “The origin of the hysteresis of the transfer curves measured from MoS₂-based FETs”, **2ND International Conference on Two-Dimensional Layered Materials**, the Hong Kong Polytechnic University, Hong Kong SAR, January 7-9, 2016. **(Invited talk)**
15. Qing Chen, “1D nanomaterials and nanodevices”, **Nano Science Seminar, Arizona State University**, Arizona State University, USA, April 4, 2016. **(Invited Talk)**
16. Xianlong Wei, “Graphene-based thermionic micro-emitters and vacuum transistors”, **2016 IUMRS International Conference in Asia**, the University of British Columbia, Qingdao, China, October 20-24, 2016. **(Invited Talk)**
17. Xianlong Wei, Qing Chen, Lianmao Peng, “In-situ SEM study of nanomaterials”, **The 1st Sino-German Symposium on Advanced Electron Microscopy and Spectroscopy in Materials Science**, Beijing, china, October 30-November 5, 2016. **(Invited Talk)**
18. Youfan Hu, “Harvesting the Hidden Energy for Self-Powered Systems”, **IEEE NANO 16th International Conference on Nanotechnology**, Sendai, Japan, August 22-25, 2016. **(Invited Talk)**
19. Youfan Hu, “Energy Harvesting Technology for Self-powered Systems”, **International Conference on Electronic Materials and Nanotechnology for**



- Green Environment**, Jeju, South Korea, November 6-9, 2016. (**Invited Talk**)
20. Ning Kang, “Semiconductor nanowire-superconductor hybrid quantum devices”, **China-Japan International Workshop on Quantum Technologies**, Beijing, China, May 13-14, 2016. (**Invited Talk**)
 21. Xuelel Liang, “Carbon nanotube thin film transistors for display technology”, **The 7th International conference on computer aided design for thin-film transistors**, Beijing, China, October 26-28, 2016. (**Invited Talk**)
 22. Yan Li, “Structure-controlled growth of single-walled carbon nanotubes: from catalyst design to growth conditions”, **The 50th Fullerenes-Nanotubes-Graphene General Symposium**, Tokyo, Japan, February 20-26, 2016. (**Invited Talk**)
 23. Yan Li, “Synthesis of single-walled carbon nanotubes with specific structure”, **International Winterschool on Electronic Properties of Novel Materials**, Tirol, February 13-19, 2016. (**Invited Talk**)
 24. Yan Li, “Structure-controlled synthesis of single-walled carbon nanotubes”, **APS March Meeting 2016**, Baltimore, March 14-18, 2016. (**Invited Talk**)
 25. Yan Li, “Growth of single-walled carbon nanotubes with specific structure”, **229th ECS Meeting**, San Diego, May 29-June 2, 2016. (**Invited Talk**)
 26. Yan Li, “Graphene Oxide as a Multifunctional Platform for Cell Imaging”, **6th Symposium on Graphene Oxide**, Fukuoka, June 17, 2016. (**Invited Talk**)
 27. Yan Li, “Structure-controlled synthesis of single-walled carbon nanotubes Using Intermetallic Compound Catalyst”, **NPO 2016**, Holiday Club Saimaa, Lappeenranta, Finland, August 1-6, 2016. (**Invited Talk**)
 28. Yan Li, “Structure-controlled synthesis of single-walled carbon nanotubes on substrates”, **NT16 Seventeenth International Conference on the Science and Application of Nanotubes and Low-dimensional Materials**, University of Vienna, Austria, August 7-13, 2016. (**Invited Talk**)
 29. Yan Li, “Synthesis of single-walled carbon nanotubes with specific structure”, **MRS Fall Meeting**, Boston, November 27- December 2, 2016. (**Invited Talk**)



30. 张锦, “CVD Growth of Single-Walled Carbon Nanotubes with Controlled Structures”, **Sino Australian bilateral meeting**, Suzhou, China, January 6, 2016. **(Invited Talk)**
31. Jin Zhang, “CVD Growth of Single-Walled Carbon Nanotubes with Controlled Structures for Nanodevice Applications”, **IEEMF&INF2016**, Australia, February 2-6, 2016. **(Invited Talk)**
32. Jin Zhang, “Synthesis of Near Zigzag Single-walled Carbon Nanotubes using Tandem-Plate CVD”, **Graphene 2016**, Genova, Italy, April 19-22, 2016. **(Invited Talk)**
33. Jin Zhang, “CVD Growth of Single-Walled Carbon Nanotubes with Controlled Structures for Nanodevice Applications”, **The 10th International Conference on New Diamond and Nano Carbons 2016**, Xian, China, May 22-26, 2016. **(Invited Talk)**
34. Jin Zhang, “Growth of Single-Walled Carbon Nanotubes with Controlled Structure”, **NT16**, Austria, August 7-13, 2016. **(Invited Talk)**
35. Jin Zhang, “CVD Growth of Single-Walled Carbon Nanotubes with Controlled Structures”, **51st Fullerenes-Nanotubes-Graphene General Symposium**, Sapporo, Japan, September 7-9, 2016. **(Invited Talk)**
36. Jin Zhang, “Lighting up the Raman Signal of Molecule in the Vicinity of Graphene and Other 2D Materials”, **2016 International Graphene Innovation Conference**, Qingdao, China, September 22-24, 2016. **(Invited Talk)**
37. Jin Zhang, “CVD Growth of Single-Walled Carbon Nanotubes with Controlled Structures”, **Asia Nano 2016**, Sapporo, Japan, October 10-13, 2016. **(Invited Talk)**
38. Jin Zhang, “Determine the structure information of horizontal carbon nanotube arrays by optical imaging”, **1st German-Chinese symposium Development and Technology of Carbon Materials**, Berlin, Germany, November 13-19, 2016. **(Invited Talk)**
39. Yongfeng Wang, “Assembling molecular Sierpinski triangle fractals”, **The fifth**



- Sino French Symposium on advanced materials**, Wuhan, China, September, 2016. (**Invited Talk**)
40. Hongqi Xu, “Topological quantum devices and Majorana fermions in superconductor-semiconductor quantum dot hybrid devices”, **International Conference on the Synthetic Topological Quantum Matter**, Kitpc, Beijing, China, August 1-4, 2016. (**Invited Talk**)
41. Hongqi Xu, “Topological Superconducting Devices Made from Semiconductor Nanostructures”, **International workshop on nano-spin conversion science & quantum spin dynamics**, Tokyo, Japan, October 12-15, 2016. (**Invited Talk**)
42. Hongqi Xu, “Majorana Fermions in Topological Superconducting Devices Made from Semiconductor Nanostructures”, **International Workshop on Spin Coherence and Topological Order in Semiconductor Nanosystems**, CSRC, Beijing, China, November 2-4, 2016. (**Invited Talk**)
43. Na Zhang, “Surface-enhanced Raman Scattering on Anisotropic 2D Layered Materials”, **SIEMME**, Suzhou, China, September 22-25, 2016. (**Oral Speaker**)
44. Lian-Mao Peng, “Sensing in the shortwave infrared using carbon nanotubes”, **The 12th Cross-strait Workshop on Nanoscience and Nanotechnology**, Taipei, March 22-25, 2016. (**Invited Talk**)
45. 张锦, “Lighting up the Raman Signal of Molecules in the Vicinity of Graphene Related Materials”, 第十二届海峡两岸纳米科学与技术研讨会, 台湾, 3月23-25日, 2016. (**Invited Talk**)
46. 彭练矛, “Contact dominated transport in carbon nanotube thin film: towards large-scale fabrication of high performance photovoltaic devices”, 沈阳低维材料研讨会, 沈阳金属研究所师昌绪楼 403 会议室, 12月26日, 2016. (特邀报告)
47. 张志勇, “碳纳米管 CMOS 电子学——从晶体管到规模集成电路”, 中国电子学会青年科学家与院士论坛, 浙江嘉兴, 7月17日, 2016. (特邀报告)
48. Lian-Mao Peng, “Carbon nanotube-based plasmonic interconnect and optoelectronic integrated system”, **Multidisciplinary Workshop on Low**



- Dimensional Semiconductor Nanostructures and Nanotechnologies**, Hunan University, China, November 19-20, 2016. **(Invited Talk)**
49. J. J. Xu, H. B. Han and S. Y. Xu, “Limb-angle-dependent frequency spectrum of electrical conductance for 12 Yuan acupuncture points”, 十八届中国科协年会第 16 分会场针灸大科学研究叙述高峰论坛, Xian, September 24-25, 2016. **(Invited Talk)**
50. S. Y. Xu, F. Yang, D. H. Han and G. Li, “To measure the temperature distribution of live cells”, **Opto fluidic 2016**, Beijing, China, July24-27, 2016. **(Invited Talk)**
51. 郭等柱, “场发射小型化飞行时间质谱仪研制”, 中国计量测试学会真空计量专委会第十四届年会, 兰州, 6 月 18-19 日, 2016. **(Invited Talk)**
52. 陈清, “与结构相关的 InAs 纳米线的物理特性”, 2016 年全国电子显微学学术年会“能源、环境和信息等功能材料的微结构表征分会”, 天津, 10 月 12-16, 2016. **(Invited Talk)**
53. 陈清, 宁志远, 魏贤龙, “单根碳纳米管应变下的电学和谐振特性及其与原子结构的关系”, 中国真空学会 2016 学术年会“纳米科学与技术分会”, 昆明, 8 月 12-14, 2016. **(Invited Talk)**
54. 陈清, 付梦琦, 李星, 唐志强, 魏贤龙, “InAs 纳米线的电学特性与其结构的关系研究”, 中国真空学会 2016 学术年会“电子材料与器件、等离子体技术”, 昆明, 8 月 12-14, 2016. **(Invited Talk)**
55. 陈清, “纳米结构和纳米器件的加工、表征和测量”, 2016 年微纳米加工技术讲习班, 中国科学院物理研究所, 北京, 7 月 11-15 日, 2016. **(Invited Talk)**
56. 魏贤龙, “石墨烯微型热电子源和微型真空三极管”, 真空电子学分会第 20 届学术年会, 厦门, 8 月 23-25, 2016. **(Invited Talk)**
57. 魏贤龙, “石墨烯微型热电子源和微型真空三极管”, 2016 中国计量测试学会真空计量专委会第十四届学术年会, 兰州, 6 月 18-19, 2016. **(Invited Talk)**
58. 魏贤龙, “石墨烯微型热电子源和微型真空三极管”, 中国化学会第 30 届学术年会, 青岛, 6 月 30 日-7 月 4 日, 2016. **(Invited Talk)**
59. 魏贤龙, “碳纳米材料热电子发射机制及其纳米热阴极”, 新型纳米薄膜材料与应用研讨会, 南京, 10 月 19-20 日, 2016. **(Invited Talk)**



60. 魏贤龙, “扫描电子显微镜中纳米结构的原位研究”, 2016 年全国电子显微学年会, 天津, 10 月 12-16 日, 2016. (Invited Talk)
61. 张志勇, “碳纳米管电子学——从晶体管到规模集成电路”, 中国化学年会, 大连理工大学, 7 月 1-4 日, 2016. (Invited Talk)
62. 胡又凡, “用于人体呼吸监测的可机洗织物传感器”, 中国物理年会 2016 秋季学术会议, 北京, 9 月 1-4 日, 2016. (Invited Talk)
63. 康宁, “基于二维过渡族金属碳化物超导晶体的输运研究”, 中国化学会第三十届学术年会, 大连, 6 月 30 日-7 月 2 日, 2016. (Invited Talk)
64. 康宁, “Gate-tunable Andreev Bound States in InSb Nanowire Josephson junction”, 第十五届全国低温物理学术会议, 韶关, 11 月 15-19 日, 2016. (Invited Talk)
65. 黄少云, “局域栅高可调 InAs 纳米线多量子点耦合器件”, 第十五届全国低温物理学术研讨会, 韶关, 11 月 16-18 日, 2016. (Invited Talk)
66. 李彦, “单壁碳纳米管的结构可控生长”, 物理无机会议, 北京, 5 月 8 日, 2016. (Invited Talk)
67. 李彦, “碳纳米管手性选择性生长的催化剂”, 化学会年会, 大连, 7 月 1-4 日, 2016. (Invited Talk)
68. 李彦, “单壁碳纳米管结构可控生长的策略”, 化学会年会, 大连, 7 月 1-4 日, 2016. (Invited Talk)
69. Yan Li, “Structure-controlled synthesis of single-walled carbon nanotubes”, PKU-Upenn Joint Symposium on Molecular Science Frontiers, Peking University, July 12-13, 2016. (Invited Talk)
70. 杨烽, 李彦, “单壁碳纳米管的结构可控生长”, 2016 泰山学术论坛, 青岛, 11 月 25-27 日, 2016. (Invited Talk)
71. 张锦, “碳纳米管的控制生长研究”, 2016 年中国纳米光电材料与器件青年科学家学术会议, 广州, 3 月 4-6 日, 2016. (Invited Talk)
72. 张锦, “单壁碳纳米管的控制生长方法研究”, 中国化学会第 30 届学术年会, 大连 7 月 1-4 日, 2016. (Invited Talk)
73. 张锦, “Graphene-based Surface-enhanced Raman Scattering (G-SERS): Toward



- quantitative analytical applications”, 首届全国生物医学拉曼光谱学术会议, 武汉, 11月4-7日, 2016. **(Invited Talk)**
74. 张锦, “单壁碳纳米管的控制生长方法”, 中国科学院苏州纳米所所庆十周年系列科技活动“材料专题论坛”, 苏州, 11月10-11日, 2016. **(Invited Talk)**
75. 张锦, “单壁碳纳米管的控制生长方法”, 新材料与能源科学南科大高峰论坛, 深圳, 11月26-27日, 2016. **(Invited Talk)**
76. 张锦, “Chirality-Predicted Growth of Horizontal Carbon Nanotubes Array with Designed Catalysts”, 碳基与新能源材料高端论坛---澳门2016, 澳门, 11月28-30日, 2016. **(Invited Talk)**
77. 王永锋, “谢尔宾斯基三角分形结构的STM研究”, 第30届中国化学会年会表面物理化学分会, 大连, 7月, 2016. **(Invited Talk)**
78. 王永锋, “基于单分子正离子自由基的自旋调控”, 第30届中国化学会年会纳米表征分会, 大连, 7月, 2016. **(Invited Talk)**
79. 王永锋, “表面分形结构的制备”, “中国化学快报”2016高峰论坛, 抚州, 4月, 2016. **(Invited Talk)**
80. 王永锋, “Spin manipulation by creation of single-molecule radical cations”, 2016年全国电子显微学学术年会, 天津, 10月, 2016. **(Invited Talk)**
81. 徐洪起, “Semiconductor Quantum Devices and Their Application in Quantum Information Technologies”, The 2nd Conference on Condensed Matter Physics (CCMP-2016), Nanjing, China, July20-22, 2016. **(Invited Talk)**
82. 徐洪起, “Search for Majorana Fermions in Topological Superconducting Devices Made from Semiconductor Nanostructures”, 第十五届全国低温物理学术会, 韶关, 11月15-19日, 2016. **(Invited Talk)**
83. 徐洪起, “Majorana Fermions in the Solid State and Topological Quantum Computation”, 第553次香山科学会议—自旋电子学物理、材料与器件, 北京, 2月23-24日, 2016. **(Invited Talk)**
84. 徐洪起, “拓扑量子计算的基本物理问题和一些进展”, 科学与技术前沿论坛(第59次): 量子计算, 合肥, 10月22-23日, 2016. **(Invited Talk)**
85. 徐洪起(黄少云代做报告), “固态半导体量子器件的构造及其在量子信息技



术中的应用”，半导体物理发展战略研讨会：半导体中的新奇量子现象，北京，6月4日，2016. (**Invited Talk**)

(三) 国际会议一般报告和墙报

1. F. Yang, D. H. Han, J. J. Xu and S. Y. Xu, “To measure the temperature of individual live cells”, **Chinese micron nanotechnology nano science and Technology Institute of the fourth annual conference of the 2016 International Conference of nano biology and medicine**, Fuzhou, China., December 7-9, 2016. (**Oral Presentation**)
2. Qing Chen, Zhiyuan Ning, Xianlong Wei, “In-situ characterizing the structure-dependent properties of individual carbon nanotube”, **Asia NANO 2016**, Sapporo, Japan, October 10-13, 2016. (**Oral Presentation**)
3. Jianhui Liao, An Xiang, Hui Li, Songjie Chen, Shi-Xia Liu, Silvio Decurtins, Meilin Bai, Shimin Hoi, “Electronic transport in benzodifuran single-molecule transistors”, **20th International Vacuum Congress, usan**, Korea, August 21-26, 2016. (**Oral Presentation**)
4. Ning Kang, “Andreev bound states in semiconductor nanowire-superconductor hybrid quantum devices”, **The 33rd International Conference on the Physics of Semiconductors**, Beijing, China, July 31-August 5, 2016. (**Oral Presentation**)
5. Shaoyun Huang, Yumei Jing, Jinxiong Wu, Hailin Peng and H. Q. Xu, “Multiple Coulomb Islands Realized in a Bi₂Te₃ Topological Insulator Nanoplate by Lateral Constrictions”, **The 33rd International Conference on the Physics of Semiconductors (ICPS2016)**, Beijing, China, July 31-August 5, 2016. (**Oral Presentation**)
6. Jiyin Wang, Shaoyun Huang, Dong Pan, Jianhua Zhao and H. Q. Xu, “Highly tunable multiple quantum dots in pure-phase InAs nanowires”, **The 33rd International Conference on the Physics of Semiconductors (ICPS2016)**, Beijing, China, July 31-August 5, 2016. (**Oral Presentation**)
7. Ning Kang, “Gate-tunable Andreev bound states in InSb Nanowire Josephson Junction”, **17th International Conference on Narrow Gap Systems**, Wurzburg,



- Germany, July 24- 29, 2016. (**Oral Presentation**)
8. Xianlong Wei, “Graphene-based thermionic micro-emitters and vacuum transistors”, **29th International Vacuum Nanoelectronics Conference (IVNC2016)**, the University of British Columbia, Vancouver, Canada, July11-15, (**Oral Presentation**)
 9. Shaoyun Huang, Jiyin Wang, Dong Pan, Jianhua Zhao and H. Q. Xu, “Singlet-triplet states and spin-orbit interaction in InAs nanowire quantum dots”, **the China-Japan International Workshop on Quantum Technologies (QTech 2016)**, Beijing, China, May13-14, 2016. (**Oral Presentation**)
 10. Qing Chen, Jaipai Shu, Gongtao Wu, Yao Guo, Xianlong Wei, “The hysteresis of MoS₂ based FETs”, **2016 MRS Spring Meeting & Exhibit**, Phoenix, Arizona, USA, March 28-April 1, 2016. (**Oral Presentation**)
 11. Youfan Hu, Heng Zhang, Zongpeng Wang, Zheyu Fang, Lian-Mao Peng, “Performance Boosting of Flexible ZnO UV Sensors with Rational Designed Absorbing Antireflection Layer and Humectant Encapsulation”, **2016 MRS Spring Meeting & Exhibit**, Phoenix, Arizona, USA, March 28-April 1, 2016. (**Oral Presentation**)
 12. Feng Yang, Yan Li, “Growth of Chirality-Specific Single-Walled Carbon Nanotubes Arrays”, **Carbon Nanotube 25th**, Tokyo, Japan, November15-18, 2016. (**Poster**)
 13. Feng Yang, Xu Liu, Dong Ji, Yan Li, “Controlled Growth of Single-Walled Carbon Nanotubes Using W-Co Catalyst at Different Temperatures and Carbon Feedings”, **2016 international symposium on carbon nanotube in commemoration of its quarter-century anniversary**, Tokyo, Japan, November15-18, 2016. (**Poster**)
 14. Min Lyu, Qinghua Zhao, Juan Yang, Yan Li, “Chirality-Selective Metal Enhanced Fluorescence of DNA-Dispersed Single-Walled Carbon Nanotubes”, **international symposium on carbon nanotube in commemoration of its quarter-century anniversary**, Tokyo, Japan, November15-18, 2016. (**Poster**)



15. Zeyao Zhang, Yitan Li, Meihui Li, Xiulan Zhao and Yan Li, “Patterning Catalyst Precursors by Inkjet Printing to Grow Single-Walled Carbon Nanotubes”, **7th A3 Symposium**, Buyeo, Korea, October 30-November 3, 2016. (**Poster**)
16. Yitan Li, Lu Han, Yuguang Chen, Hao wang and Yan Li, “Large-scale aligned lead iodide perovskite arrays”, **7th A3 Symposium**, Buyeo, Korea, October 30-November 3, 2016. (**Poster**)
17. Xing Li, Shaobo Cheng, Jing Zhu and Qing Chen, “Layer-by-layer growth of ZnO nanopillar observed by in-situ high resolution transmission electron microscopy”, **Asia NANO 2016**, Sapporo, Japan, October 10-13, 2016. (**Poster**)
18. Lixing Kang, “Growth of Horizontal Semiconducting SWNT Arrays with High Density using Ethanol/Methane CVD”, **NT16**, Austria, August 8-15, 2016. (**Poster**)
19. Qiuchen Zhao, “Etching Behavior of Carbon Nanotubes”, **NT16**, Austria, August 8-15, 2016. (**Poster**)
20. Shuchen Zhang, “Chirality-Predicted Growth of Specific Single-Walled Carbon Nanotubes”, **NT16**, Austria, August 8-15, 2016. (**Poster**)
21. Feng Yang, Yan Li, “Growth of Horizontally Aligned Chirality-Specific Single-Walled Carbon Nanotubes”, **The 17th International Conference on the Science & Application of Nanotubes (NT16)**, Vienna, Austria, August 8-15, 2016. (**Poster**)
22. Daqi Zhang, Juan Yang, Eddwi H. Hasdeo, Can Liu, Kaihui Liu, Riichiro Saito, Yan Li, “Simultaneous Observation of Multiple Electronic Raman Scattering in Suspended Metallic Carbon Nanotubes”, **The 17th International Conference on the Science & Application of Nanotubes (NT16)**, Vienna, Austria, August 8-15, 2016. (**Poster**)
23. Daqi Zhang, Juan Yang, Yan Li, “Reliable (n,m) Assignment of metallic SWNTs Based on Multiple Electronic Raman Scattering”, **The 17th International Conference on the Science & Application of Nanotubes (NT16)**, Vienna, Austria, August 8-15, 2016. (**Poster**)



24. Mengqi Fu, Zhiqiang Tang, Xing Li, Dong Pan, Jianhua Zhao and Qing Chen, “Crystal phase- and orientation-dependent electrical transport properties of InAs nanowires”, 第三十三届国际半导体物理大会(ICPS 2016), Beijing, China, July 31-August 5, 2016. (Poster)
25. Yuxiang Han, Zheng Xiao, Mengqi Fu, Dong Pan, Xing Li, Guo Yao, Jianhua Zhao and Qing Chen, “Negative photocunductivity of InAs nanowire”, 第三十三届国际半导体物理大会(ICPS 2016), Beijing, China, July 31-August 5, 2016. (Poster)
26. Xing Li, Dongdong Xiao, Hao Zheng, Xianlong Wei, Xiaoye Wang, Lin Gu, Yong-Sheng Hu, Tao Yang, and Qing Chen, “Ultrafast and reversible electrochemical lithiation of InAs nanowires observed by in-situ transmission electron microscopy”, 第三十三届国际半导体物理大会(ICPS 2016), Beijing, China, July 31-August 5, 2016. (Poster)
27. Mengmeng Meng, Shaoyun Huang, Jinxiong Wu, Yumei Jing, Hailin Peng and H.Q Xu, “Electrical transport properties of Bi₂O₂Se semiconductor nanoplates”, **The 33rd International Conference on the Physics of Semiconductors (ICPS2016)**, Beijing, China, July 31-August 5, 2016. (Poster)
28. Jianhong Xue, Shaoyun Huang and H. Q. Xu, “Quantum dot devices based on exfoliated MoS₂ flakes”, **The 33rd International Conference on the Physics of Semiconductors (ICPS2016)**, Beijing, China, July 31-August 5, 2016. (Poster)
29. Yumei Jing, Shaoyun Huang, Jinxiong Wu, Hailin Peng and H. Q. Xu, “Nano Fabrications and Transport Characterizations of Bi₂Te₃ Quantum Dot Devices”, **The 33rd International Conference on the Physics of Semiconductors (ICPS2016)**, Beijing, China, July 31-August 5, 2016. (Poster)
30. Xin Gao, “ Robust Superhydrophobic Foam: A Graphdiyne-based Hierarchical Architecture for Oil/water Separation ”, **Graphene 2016**, Genova Italy, April 19-22, 2016. (Poster)
31. Feng Yang, Yan Li, “Growth of Horizontally Aligned Chirality-Specific single-walled carbon nanotubes SWNTs”, **The 50th**



- Fullerenes-Nanotubes-Graphene General Symposium**, Tokyo, Japan ,
February 19-22, 2016. (**Poster**)
32. Min Lyu, Qinghua Zhao, Juan Yang, Yan Li, “Chirality-Selective Photoluminescence Enhancement of ssDNA-Wrapped Single-Walled Carbon Nanotubes Modified with Gold Nanoparticles”, **The 50th Fullerenes-Nanotubes-Graphene General Symposium**, Tokyo, Japan ,
February 19-22, 2016. (**Poster**)
33. Li Ding, Yan Li, “Solvothermal preparation of uranium oxide supported on reduced graphene oxide”, **The 50th Fullerenes-Nanotubes-Graphene General Symposium**, Tokyo, Japan, February 19-22, 2016. (**Poster**)
34. Meng Wang, Yang Niu, Zhenyu Zhang, Yan Li, “Dispersing Behavior of Graphene Oxide in Aqueous Solution”, **The 50th Fullerenes-Nanotubes-Graphene General Symposium**, Tokyo, Japan,
February 19-22, 2016. (**Poster**)

(四) 专利

2016 年度授权专利

2016 年授权专利			
专利号	专利名称	发明人	授权日期
ZL 2013 1 0579131.5	一种红外光电探测器及其制备方法	梁爽; 王胜; 魏楠; 彭练矛	2016 年 4 月 27 日
ZL20121054019 1.1	一种提高 PEDOT:PSS 薄膜的功函数及导电性的方法	邢英杰; 钱旻昉	2016 年 4 月 27 日
ZL20141023229 5.5	用于飞行时间质谱计的场发射电离源	郭等住	2016 年 6 月 15 日
ZL20162029828 1.1	一种液体中激光诱导增强拉曼光谱的检测与分选装置	叶安培, 徐晶晶	2016 年 11 月 23 日
日本专利号: 第 5990329 号	用于制备手性选择性和导电性选择性单壁碳纳米管的催化剂及其制备方法和应用	李彦、杨烽、彭飞、杨娟	2016 年 8 月 12 日
美国专利号: US 9468911 B2	用于制备手性选择性和导电性选择性单壁碳纳米管的催化剂及其制备方法和应用	李彦、杨烽、彭飞、杨娟	2016 年 10 月 18 日



ZL 2014101549603	一种提高碳纳米管平行阵列密度的方法	司佳, 张志勇, 彭练矛	2016年4月27日
US 14/453/831	METHOD FOR INCREASING DENSITY OF ALIGNED CARBON NANOTUBES 美国专利	Jia Si, Zhiyong Zhang, Lianmao Peng	2016/5/17
ZL 201410448913. X	独立可剥离的二氧化钛纳米线薄膜及其制备方法和应用	孙文涛 夏华荣 彭练矛	2016年8月17日
ZL20131050865 5.5	一种基于纳米线的立式环栅晶体管及其制备方法	史团伟、陈清、许胜勇、徐洪起	2015年12月4日

2016 年度申请专利

申请号	专利名称	申请人
2016107573253	一种基于阻变材料的微型电子源及其阵列和实现方法	魏贤龙, 吴功涛
2016100821233	一种有机无机杂化钙钛矿材料的制备方法及其新应用	孙文涛 夏华荣 彭练矛
ZL20161104047 7.8	一种 (2m, m) 碳纳米管水平阵列及其制备方法	张锦, 张树辰
ZL20161104439 3.1	一种 (n, n-1) 型碳纳米管水平阵列及其制备方法	张锦, 张树辰
2016100551022	一种 III-V 族半导体纳米线的制备方法	李侃、邢英杰、徐洪起



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