



求是
浙江大学信息学部
FACULTY OF INFORMATION TECHNOLOGY,
ZHEJIANG UNIVERSITY



地址：浙江杭州浙大路 38 号
邮编：310027
电话：0571-87951772
传真：0571-87951077
网址：<http://fit.zju.edu.cn>
邮箱：fit@zju.edu.cn

Address: No.38 Zheda Road, Hangzhou Zhejiang
Zip: 310027
Tel: 0571-87951772
Fax: 0571-87951077
Wed site: <http://fit.zju.edu.cn>
E-mail: fit@zju.edu.cn

责任编辑：周立芳 谌群芳 彭 莉



浙江大学
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Annual
Report 2015

封面设计：视觉传达设计教研室 Tel: 0571-88367110



学部概况

求是

INTRODUCTION TO FIT

信息学部涵盖了光电科学与工程学院、信息与电子工程学院、控制科学与工程学院、计算机科学与技术学院、软件学院、生物医学工程与仪器科学学院。学部共有9个一级学科，其中光学工程、控制理论与工程、生物医学工程为国家重点学科，另有计算机应用和通信与信息系统2个二级学科为国家重点学科；拥有3个国家重点实验室，1个国家专业实验室，1个国家工程实验室，3个国家工程研究中心，共有22个研究所，主要开展信息领域科学和工程技术问题的创新研究。

Faculty of Information Technology (FIT) of Zhejiang University (ZJU) is comprised of six colleges, namely College of Optical Science & Engineering (COSE), College of Information Science and Electronic Engineering (ISEE), College of Control Science and Engineering (CSE), College of Computer Science and Technology (CCST), College of Biomedical Engineering & Instrument Science (BME) and College of Software Technology (CST). Currently, FIT has 9 primary disciplines, in which there are 3 national key disciplines, Optical Engineering, Control Science and Technology, and Biomedical Engineering. Besides, 2 secondary disciplines, Computer Applied Technology, Communication and Information Systems, are also national key disciplines. Under its administration, there are 3 State Key Laboratories, 1 National Special Laboratory, 1 National Engineering Laboratory, 3 National Engineering Research Centers, 22 research institutes, to devote to the innovation research on information science and technology.



主任：鲍虎军
Dean : Bao Hujun



副主任：李尔平
Vice-Dean : Li Erping

AnnualReport 2015

Faculty of Information Technology
Zhejiang University

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Zhejiang University

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学部机构

Organization



学术委员会

- ◆ 荣誉主任 孙优贤
◆ 主任 鲍虎军 ◆ 副主任 刘旭
◆ 委员 陈纯 陈耀武 程鹏 龚小谨 李尔平
李劲松 刘承 钱骏 仇旻 荣冈
孙守迁 童利民 吴朝晖 徐文 张光新
张明璋 章献民 张朝阳 周昆 朱建科
庄越挺 彭金荣 严晓浪 应义斌

学术交流与合作专门委员会

- ◆ 主任 李尔平 ◆ 副主任 仇旻
◆ 委员 陈积明 田景奎 张朝阳 周昆

Academic Committee

- ◆ Honorary Director: Sun Youxian
◆ Director: Bao Hujun ◆ Vice-Director: Liu Xu
◆ Committee members:
Chen Chun Chen Yaowu Cheng Peng
Gong Xiaojin Li Erping Li Jingsong
Liu Cheng Qian Jun Qiu Min
Rong Gang Sun Shouqian Tong Limin
Wu Zhaohui Xu Wen Zhang Guangxin
Zhang Mingwei Zhang Xianmin Zhang Zhaoyang
Zhou Kun Zhu Jianke Zhuang Yueting
Peng Jinrong Yan Xiaolang Ying Yibin

Academic Exchange And Cooperation Committee

- ◆ Director: Li Erping ◆ Vice-Director: Qiu Min
◆ Committee members:
Chen Jiming Tian Jingkui Zhang Zhaoyang Zhou Kun

人力资源专门委员会

- ◆ 主任 鲍虎军 ◆ 副主任 刘旭
◆ 委员 陈纯 陈耀武 李尔平 李劲松 刘承
仇旻 荣冈 徐文 孙守迁 孙优贤
童利民 吴朝晖 张光新 章献民 张朝阳
周昆 庄越挺

另外5名教授委员由学部在各院系学术委员会中随机抽取产生。

Human Resources Committee

- ◆ Director: Bao Hujun Vice-Director: Liu Xu
◆ Committee members:
Chen Chun Chen Yaowu Li Erping
Li Jingsong Liu Cheng Qiu Min
Rong Gang Xu Wen Sun Shouqian
Sun Youxian Tong Limin Wu Zhaohui
Zhang Guangxin Zhang Xianmin Zhang Zhaoyang
Zhou Kun Zhuang Yueting

The other 5 committee members are selected randomly from the academic committee of colleges.

学位评定委员会

- ◆ 主任 李尔平 ◆ 副主任 李光
◆ 委员 鲍世宁 陈刚 何钦铭 何湘宁 黄海
黄志尧 林兰芬 宁钢民 仇旻 孙守迁
王小松 许正平 杨建义 赵民建 郑臻荣

Academic Degrees Committee

- ◆ Director: Li Erping Vice-Director: Li Guang
◆ Committee members:
Bao Shining Chen Gang He Qinming He Xiangning
Huang Hai Huang Zhiyao Lin Lanfeng Ning Gangmin
Qiu Min Sun Shouqian Wang Xiaosong Xu Zhengping
Yang Jianyi Zhao Minjian Zheng Zhenrong

学部学院 COLLEGE OF

信息学部
Faculty of Information Technology

光电科学与工程学院
Optical Science & Engineering

信息与电子工程学院
Information Science & Electronic Engineering

控制科学与工程学院
Control Science & Engineering

计算机科学与技术学院
Computer Science & Technology

生物医学工程与仪器科学学院
Biomedical Engineering & Instrument Science

软件学院
Software Technology

师资队伍

Talent Team

教职员工674人，其中教学科研岗394人，教授187人，副教授181人。有中国工程院院士4人，

教育部长江特聘教授11人，973

首席科学家6人，“百千万人才工程”国家级人选9人，国家教学名师1人，浙江省特级专家7人，国家自然科学基金杰出青年获得者13人，优秀青年基金获得者8人。国家自然科学基金创新群体2个，教育部创新团队2个。

2015年新增 长江学者特聘教授1人，杰出青年基金获得者1人，优秀青年基金获得者2人，“百千万人才工程”国家级人选2人以及“万人计划”青年拔尖人才1人。

FIT has 674 faculty members, including 394 teaching staff members, among which 187 are full professors and 181 are associate professors. There are 4 members of the Chinese Academy of Engineering.

11 Special-term professors (8 chair professors besides) specially engaged in the National Cheung Kong Scholar Program, 6 Chief Scientists of National "973" Program, 1 National Renowned Teacher, 7 Zhejiang Province Outstanding Experts, 13 National Distinguished Youth Science Foundation Fellows, 8 National Excellent Youth Science Foundation Fellows, 2 Innovative Research Groups of the NSFC and 2 Innovative Research Teams of Ministry of Education have been constructed.

In 2015, 1 professor was engaged in the National Cheung Kong Scholar's Program, 1 professor was appointed as National Distinguished Youth Science Foundation Fellow, 2 professors were appointed as National Excellent Youth Science Foundation Fellows, 2 professors were engaged in the National Program for Bai-Qian-Wan Talents, and 1 professor was engaged in National High-level Talents Special Support Plan for Youth Fellow.

2015年新增 Awarded in 2015

中国工程院院士

Academician of Chinese Academy of Engineering



陈 纯
Chen Chun

师资队伍职称结构
Professional Structure

教授 Prof. 副教授 Associate Prof.
其他 Others

长江学者教授

"Cheung Kong Scholar's Program" Professor



陈积明
Chen Jimin

专家|教授
Experts

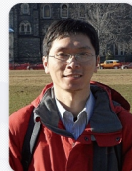
陈 焰
Chen Yan



William Ireland Milne

青年专家
Youth Experts

余显斌
Yu Xianbin



贺诗波
He Shibao



杨 易
Yang Yi

国家百千万人才工程入选者 National Bai-Qian-Wan Talents



苏宏业
Su Hongye



王文海
Wang Wenhai

杰出青年基金获得者 National Distinguished Youth Science Foundation Fellow



刘华锋
Liu Huafeng



蔡登
Cai Deng

优秀青年基金获得者 National Excellent Youth Science Foundation Fellows



高云君
Gao Yunjun



黄劲
Huang Jing

浙江省青年专家教授 Expert in Zhejiang Province



巫英才
Wu Yingcai

浙江省师德先进个人 Zhejiang Province Advanced Individual Teacher



章献民
Zhang Xianmin

宝钢优秀教师 Bao Gang Excellent Teacher



熊蓉
Xiong rong

教授 Professors



匡翠方
Kuang Cuifang



钱骏
Qian Jun



项志宇
Xiang Zhiyu



程鹏
Cheng Peng

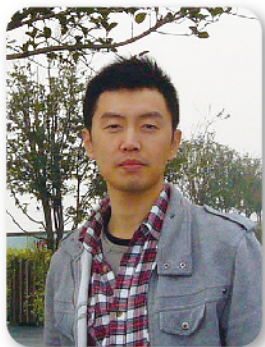
教授
Professors



侯迪波
Hou Dibo



高云君
Gao Yunjun



孙凌云
Sun Lingyun



黄 劲
Huang Jing

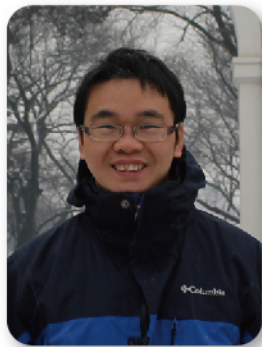


张 琳
Zhang Lin

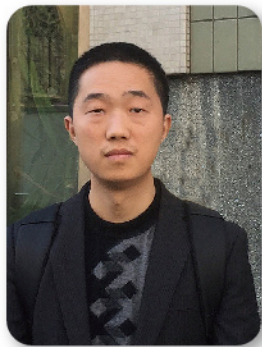
副教授
Associate Professors



郭 欣
Guo Xin



唐龙华
Tang Longhua



郝 然
Hao Ran

副教授
Associate Professors



单杭冠
Shan Hangguan



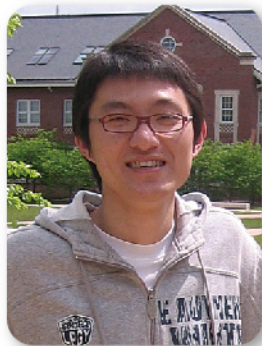
胡瑞芬
Hu Ruifen



任沁源
Ren Qinyuan



汤斯亮
Tang Siliang



夏莹杰
Xia Yingjie



何宏建
He Hongjian

引进教师 New Faculty Members

丁 甯
Ding Nai

王跃宣
Wang Yuexuan

尹巍巍
Yin Weiwei

巫英才
Wu Yingcai

杨 旻
Yang Yang

赵 洲
Zhao Zhou

夏莹杰
Xia Yingjie



科学研究

Scientific Research

2015年度学部到校科研经费逾4.7亿，其中光电学院、计算机学院超亿元。国家自然科学基金获批73项，合计经费4444.1万元，其中杰青1项，优青2项，重点项目2项，重大研究计划课题2项，新增两化融合基金重点项目4项。在研千万级项目共17项（新增3项）。被SCI收录论文737篇，其中ZJU100论文占6.3%，TOP论文占31.3%，5年平均IF≥10有7篇，5年被引超30次论文31篇。获国家授权发明专利346项。省部级一等奖4项，另有2个参与项目分获国家科技进步二等奖和技术发明二等奖。新增1个教育部国际合作联合实验室和1个浙江省重点实验室。

In 2015, the total research funding of FIT reached over 470 million RMB. Moreover, the research funding for 2 colleges was more than 100 million each. In total, 73 grants with the amount up to 44.44 million RMB were approved by the National Natural Science Foundation of China, including 1 national distinguished youth science project, 2 national excellent youth science projects, 2 national key projects, and 2 projects in the major program. Meanwhile, there were 17 ongoing grants with over ten million each, including 3 new projects. 737 papers were indexed by SCI, including 6.3% list in ZJU100 journals, 31.3% list in ZJU top journals, 31 papers cited more than 30 times each in five years. In total, 346 national patents have been approved this year. There were 4 Sci & Tech Progress Prizes awarded the first class by Zhejiang Province / MOE. Furthermore, a Joint International Research Lab of MOE and 1 key lab of Zhejiang Province were established in 2015.

国家研究基地 National Research Bases



研究所 Institutes

学院 College of	研究所名称 Institute	所长 Director
光电科学与工程学院 Optical Science & Engineering	光学工程研究所 Inst. of Optical Engineering	白剑 Prof. Bai Jian
	光学成像工程研究所 Inst. of Optical Imaging Engineering	冯华君 Prof. Feng Huajun
	微纳光子学研究所 Inst. of Microphotonics and Nanophotonics	仇旻 Prof. Qiu Min
	光电信息检测技术研究所 Inst. of Optoelectronic Information Detection Technology	严惠民 Prof. Yan Huimin
	光电子技术研究所 Inst. of Optoelectronic Technology	沈永行 Prof. Shen Yonghang
	光电工程研究所 Inst. of Optical and Photonical Engineering	刘旭 Prof. Liu Xu
	激光生物医学研究所 Inst. of Laser Biomedicine	丁志华 Prof. Ding Zhihua
	光及电磁波研究中心 Center for Optical & Electromagnetic Research	何赛灵 Prof. He Sailing
信息与电子工程学院 Information Science and Electronic Engineering	光学惯性技术工程中心 Center for Optical Inertial Technology	刘承 Prof. Liu Cheng
	信息与通信工程研究所 Inst. of Information & Communication Engineering	张朝阳 Prof. Zhang Zhaoyang
	电子电路与信息系统研究所 Inst. of Electronic Circuit & Information System	沈继忠 Prof. Shen Jizhong
	电子信息技术与系统研究所 Inst. of Electronic Information Technology & System	李尔平 Prof. Li Erping
控制科学与工程学院 Control Science and Engineering	微电子与光电子研究所 Inst. of Microelectronics and Optoelectronics	骆季奎 Prof. Luo Jikui
	工业控制研究所 Inst. of Industrial Process Control	孙优贤 Prof. Sun Youxian
	自动化仪表研究所 Inst. of Automation Instrumentation	黄志尧 Prof. Huang Zhiyao
计算机科学与技术学院 Computer Science and Technology	智能系统与控制研究所 Inst. of Cyber-Systems and Control	苏宏业 Prof. Su Hongye
	人工智能研究所 Inst. of Artificial Intelligence	庄越挺 Prof. Zhuang Yueting
	计算机软件研究所 Inst. of Computer Software	陈纯 Prof. Chen Chun
	计算机系统结构与网络安全研究所 Inst. of Computer System and Security	吴朝晖 Prof. Wu Zhaohui
软件学院 Software Technology	工业设计研究所 Inst. of Modern Industrial Design	孙守迁 Prof. Sun Shouqian
	生物医学工程研究所 Inst. of Biomedical Engineering	李劲松 Prof. Li Jingsong
	数字技术及仪器研究所 Inst. of Digital Technology & Instrument	陈耀武 Prof. Chen Yaowu

科研亮点 Research Highlights

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1. 学部青年创新奖 Youth Innovation Awards

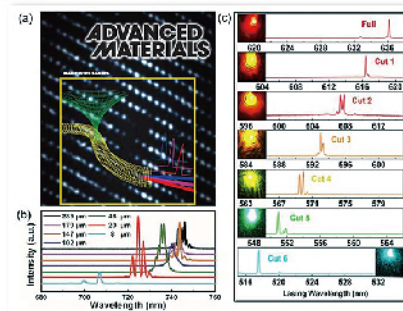


研究方向: 纳米线发光器件的调控及应用

简介: 光电科学与工程学院杨青教授取得优异成果: 1) 针对单纳米线激光波长宽范围调控难题, 提出调控吸收和增益实现波长变化新方法, 实现了波长宽范围可控变化; 2) 将力电光耦合引入纳米线发光器件, 解决了界面缺陷导致纳米线基电致发光器件效率低的难题, 显著提高紫外LED量子效率; 3) 提出压电光电子学效应的判别准则, 解决三场耦合中多效应共存难以区分的问题, 并实现了最小特征尺寸为30 nm的刻线结构和复杂图形的纳米显微成像。近5年在Adv. Mater.、Angew. Chem. Int. Edit.、Nano Lett.、ACS Nano上共发表8篇, 相关工作被Laser Focus World和Semicond. Today封面等报道。

Parameter Controlling and Applications of Nanowire Light Emitting Devices

Prof. Yang Qing from COSE has made original contributions: 1) She pioneered and systematically investigated nanowire based lasers. She put forward a method to achieve broad band wavelength tailoring up to 40 nm on pure CdSe nanowires. 2) She proposed a new mechanism to enhance the performance of micro- and nanowire LEDs by introducing three-phase coupling of mechanics-electronics-photonics. 3) She constructed the physical mechanism of three-phase coupling and pointed out several important and general criteria for distinguishing the piezo-phototronic effects. Recently, Yang demonstrates a fluorescent nanowire ring illumination microscopy, with this method, a feature size as small as 35 nm and various 2D patterns were successfully recorded.

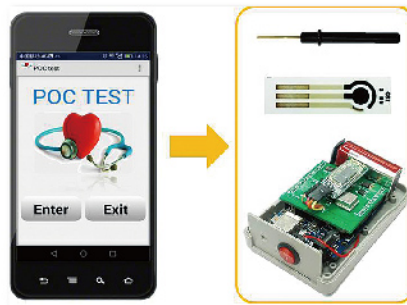


研究方向: 生物医学传感与检测研究

简介: 生物医学工程与仪器科学学院刘清君教授课题组, 在生物传感机理和设计的基础研究、传感检测装置的工程实现及检测技术的应用等推广方面, 开展了系统的研究。主要采用电化学、纳米等离子光学、石墨烯等检测手段和材料研究化学感受细胞与蛋白小分子的特异性结合。相关研究在Chemical reviews等刊物发表。在传感检测工程实现方面, 主要设计和开发了基于智能手机移动终端的便携式检测系统, 并在检测技术的应用方面, 将其用于环境爆炸物、生化指标的快速现场检测。相应工作近年来在Biosensors and Bioelectronics等刊物进行了集中连续报道。

Biomedical Sensing and Detecting Research

Research team led by Prof. Liu Qingjun from BME focused on biomedical sensing and detecting research area, mainly covering fundamental researches of bio-sensing mechanism and design, engineering realizations of measurement devices, and applications of biosensors. For the fundamental researches, Liu's group employed some methods and materials to explore interaction between cells, proteins and small molecules and then design biosensor for small molecule detection (Published on Chemical Reviews, 2014). For engineering realizations, they developed a portable measuring instrument based on the smart phone mobile terminal which can be used to detect some explosives and biochemical indicators for environmental and biomedical application.

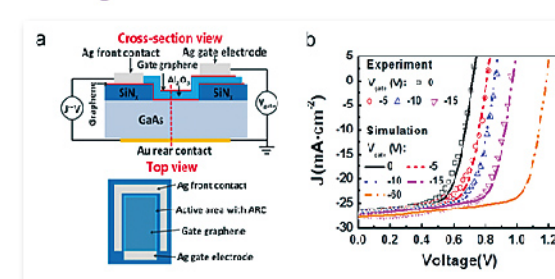


研究方向: 二维材料物理光电转换器件研究

简介: 信息与电子工程学院林时胜副教授主要从事新材料微纳电子学以及光电子学方向的研究工作。研制出石墨烯-介电层-石墨烯/半导体异质结器件, 取得转换效率高达18.5%的石墨烯太阳能电池, 理论预测石墨烯/半导体异质结器件转换预测转换效率可以超过23.5%。利用界面能带工程, 在二硫化钼/半导体异质结太阳能电池取得了目前全球最高的转换纪录(9.03%)。逐渐开创了二维碳化硅等二维硅碳体系的材料物理器件交叉研究, 成为国际研究热点。相关成果在Nano Energy、Nano Letters等国际期刊上发表60余篇, 被引用1000余次。

Parameter Controlling and Applications of Nanowire Light Emitting Devices

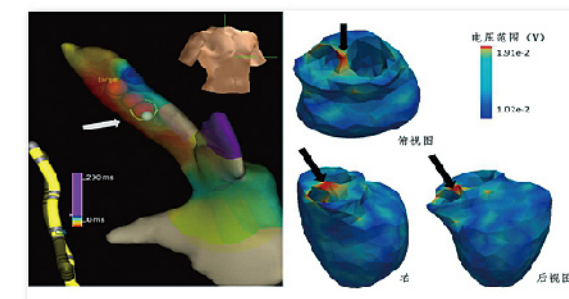
Associate prof. Lin Shisheng from ISEE focused on two research areas: high performance two-dimensional materials heterostructures based solar cells and two-dimensional Si-C system. Through several years' independent research, Dr. Lin achieved records of graphene based heterostructure solar cells (18.5%) and MoS₂ (9.03%) based heterostructure solar cells and two dimensional silicon-carbon system that has become a hot research topic worldwide. Dr. Lin has published more than 60 international peer-reviewed journal papers with over 1000 times citation.



2. 新增国家重大科研项目 New National Important Projects

① 定量医学成像

由光电学院刘华锋教授领衔的该项目2015年获国家自然科学基金杰青项目资助。单凭某一指标难以全面地了解疾病病理生理状态, 需要同时对这些病理生理参数进行成像以综合评价。本项目以获取信息的质量、速度及应用的可靠性为核心, 拟解决以下三大关键问题: 医学成像的稀疏和生理约束问题、多种生理功能参数同时探测与快速采集问题和定量重建问题, 期望建立融合生理模型的稀疏多参数成像全新的理论。



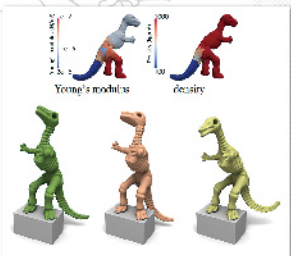
Quantitative Medical Imaging

This project, chaired by Prof. Liu Huafeng in COSE, was supported as the distinguished youth science project by NSFC in 2015. One metric alone is difficult to fully understand the pathophysiology of the disease, it needs to combine all related parameters in a whole picture. To get the quality, speed and reliability of application information as the core, the project intends to address the following key issues: sparse and physiological constraints of medical imaging, a variety of physiological function parameters simultaneously detection and rapid acquisition issues and quantitative reconstruction. The vision of the project is to create multi-parameter imaging theory with incorporating sparsity of the data and the physiological constraints behind the data.

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2 计算机图形学

由计算机学院黄劲教授领衔的该项目2015年获国家优青项目资助。本项目主要研究复杂柔性对象的高效建模与模拟，以复杂柔性对象动力学系统的几何刻画为核心思想，探索复杂柔性对象的物理方程线性化、时空数据的最优降维离散化以及非线性数值计算的可靠性等问题。本项目拟在复杂柔性体高效建模和模拟计算方面获得新颖的理论分析和突破，提出灵活易用、高效可靠的几何处理和物理方程优化求解等创新方法。



Computer Graphics

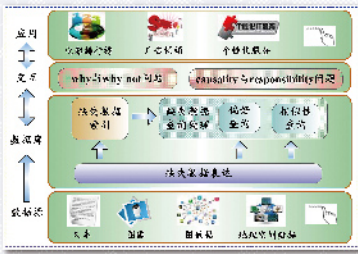
This project, chaired by Prof. Huang Jin in CCST, was supported as the excellent youth science project by NSFC in 2015. It will focus on efficient modeling and simulation of complex elastic object. Based on the geometric viewpoint of the dynamic system, it will explore efficient and reliable linearization and reduction. Aiming at the applications of virtual reality, computer animation, product design and simulation, we are going to propose novel theory and demonstrate its power in geometry processing and physically based simulation.

3 数据库理论与系统

由计算机学院高云君教授领衔的该项目2015年获国家优青项目资助。缺失数据广泛存在于社会生活和科学研究的各个领域。本项目旨在研究缺失数据处理理论与方法，解决实际问题中涉及的缺失数据表达、索引、查询以及交互问题；其研究目标为：针对缺失数据处理挑战，结合缺失数据的多源、异构、海量、高维、不完整/不确定等特性，提出一套高效的缺失数据处理理论与方法，并通过理论分析和实验测试等手段全面评估所设计算法的性能；最终搭建一个典型的缺失数据处理系统。

Database Theory and Systems

This project, chaired by Prof. Gao Yunjun in CCST, was supported as the excellent youth science project by NSFC in 2015. Miss/Incomplete data is ubiquitous in real life and scientific research. This project aims to study the problem of processing incomplete data efficiently and propose a suite of efficient theory and methods to tackle multi-source, heterogeneous, massive, high-dimensional and incomplete/uncertain data. Extensive theoretical analysis and experimental evaluation demonstrates the effectiveness and efficiency of our presented techniques, and based on which a prototype system is to be developed in order to manage and analyze incomplete data.



4 基于水声传感网络的海洋环境参数获取与处理

由信电学院杨子江教授负责的该项目获2015年国家自然科学基金重点项目资助，属于“分布式水声网络定位与探测基础研究”重点项目群。项目结合水声传感网络局部性、协同性、自适应性特性，研究大规模传感器网络下的分布式海洋环境参数声学传感的科学问题，发展方法论与系统框架，并在分布式水声传感理论指导下，通过原型系统研究分布式海洋环境参数测量的水声通信与组网、局部信号处理、节点定位等关键技术，构建基于水声传感网络的海洋环境参数声学传感的理论框架与技术体系，为水下动态传感网络的发展与应用奠定理论与技术基础。



Distributed Ocean Environmental Acoustic Sensing and Signal Processing

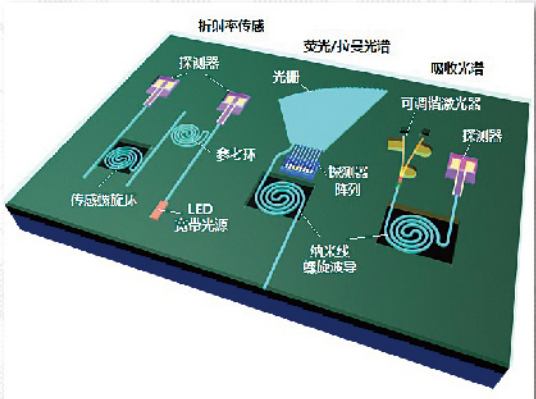
The project, led by Prof. Yang Zijiang in ISEE, was supported as the key project by NSFC in 2015. To resolve the problem of ocean environmental sensing and signal processing, this project will studied distributed environmental sensing using underwater acoustic sensor networks (UASNs). The basic theory and the key technologies, such as underwater acoustic sensor networking, node localization, in-buoysing signal processing, and so on, will be studied and its theoretical framework will be established. Through the theoretical calculation and analysis, simulations, and real sea test, the technologies to be developed will set milestones for the distributed acoustic sensing using UASNs.

5 多功能生物医学传感检测光电子集成芯片研究

由光电学院何建军教授领衔的该项目获2015年国家自然科学基金重点项目资助。项目研究多功能、高灵敏度的光电子传感检测芯片，包括基于折射率探测的双谐振腔传感器，基于芯片光谱仪的荧光光谱和拉曼光谱检测，基于新型可调谐半导体激光器的吸收光谱检测等关键组元，并利用纳米金属颗粒表面等离子增强效应增强与被测分子的相互作用。项目的光电子传感芯片的功能多样性、芯片集成度都将处于国际前沿水平，可以促进我国生物医学传感检测技术和多功能光电子集成芯片技术的融合发展。

Multifunctional Photonic Integrated Chip for Biomedical Sensing

The project, led by Prof. He Jianjun in COSE, was supported as the key project by NSFC in 2015. The proposed research will investigate and develop multifunctional, high sensitivity photonic lab-on-a-chip, including (1) nanowire waveguide double-ring sensors for refractive index based bimolecular detection, (2) surface-enhanced fluorescence spectroscopy and Raman spectroscopy based on spectrometer-on-a-chip and (3) absorption spectroscopy based on novel tunable semiconductor laser. By collecting weak spectral signal through spiral nanowire waveguide with surface plasmon enhancement using metal nanoparticles, a novel, efficient and highly sensitive means is provided for on-chip biomedical sensing. The functionality and integration density of the photonic lab-on-a-chip is at the international advanced level, and will promote the interdisciplinary development of biomedical sensor technology and multifunctional photonic integration technology in China.



6 细梗香草总皂苷肠溶胶囊的开发

生仪学院田奎奎教授2015年与山东新时代药业有限公司签订了合作开发该项目协议，总经费3000万元。该项目连续获得“新药创制国家重大专项”的资助，已经完成了抗肿瘤新药的规范化研究，2016年申报新药临床批件。体内外药效学研究表明细梗香草总皂苷对于前列腺肿瘤、胃癌和卵巢癌等肿瘤疗效确切，毒副作用相对较小，作用机制独特，有望成为抗肿瘤的创新药物；同时研究团队联合福建龙岩农科所建立了20亩规范化的细梗香草种植基地，保证了药材的道地性和新药的产业化进程。

The Development of Enteric Capsule About Total Saponin of Lysimachia Capillipes

Prof. Tian Jingkui from BME has signed the joint development agreement with Shandong New Time Pharmaceutical Co., Ltd in 2015 with the total expenditure of 30 million yuan. This project is also sponsored by the NST Major Project of Drug Discovery. And now, they has successfully conducted the normalized research towards new anti-tumor drug and planning to apply for its approval for clinical trials by the end of 2016. Pharmacodynamics in vitro and in vivo showed that the total saponins of gracilipes vanilla are effective in treating prostate cancer, gastric cancer and ovarian cancer, which have less side effects and unique mechanism of action, what's more, it is expected to become an innovative anti-tumor drug. Meanwhile, research team joint with Fujian Longyan Agricultural Science established a 20 acres of standardized gracilipes vanilla planting base, which ensured the authenticity and the process of industrialization of the drugs.



7 炼油生产过程全局优化运行的实验平台与应用验证

由控制学院卢建刚教授领衔的该项目为2015年国家自然科学基金重大项目的课题。该课题将研发与大型炼油厂实际生产运行平台相对接的炼油生产全流程实验验证平台，验证生产过程全局优化运行的集成模型并提供模型在线校正的实时数据；针对实际生产状态与运行数据实施全局优化运行算法的在线跟踪，验证优化算法的有效性；实现炼厂生产流程的动态模拟，对于实际生产系统的运行状态进行监控与在线分析，为实际生产优化与调度提供依据；形成炼油生产过程全局优化运行的工程应用软件，并在大型炼油厂应用验证。

Experimental Platform and Application Verification for Refinery Plant-wide Optimization

The project, led by Prof. Lu Jiangang in CSE, is one of the projects in the major program approved by NSFC in 2015. It will develop a refinery process experiment platform, verify the integration model of plant-wide optimization, and provide real-time online calibration data of the model. Then it will implement plant-wide online tracking optimization algorithm and verify the validity of the optimization algorithm with the actual production and operation data. Moreover, it will simulate the dynamic operation of actual refinery process, monitor the running status of actual production system and analyze the on-line status. Finally, a software package of refinery plant-wide optimization will be provided and be tested on a large-scale Petrochemical Refinery.

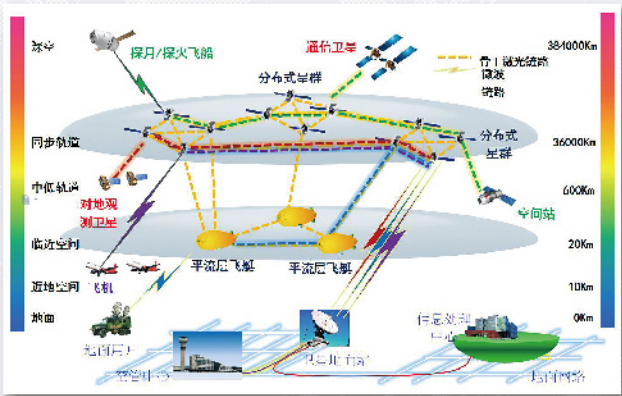


8 空基通信与导航定位融合设计方法研究

该课题负责人是信电学院赵民建教授。空基通信与导航定位融合设计是空间信息网络研究的关键技术和重点优化方向之一。针对卫星-空间站-飞机等组成的空间信息网络，课题以提升空间信息网络的通信效率、可靠性和定位精度，减小资源占用为目标，研究空基通信与导航定位融合设计方法。课题基于空间信息网络高动态、大传输延迟、稀疏分布等特性，研究建立空基通信与导航定位融合理论模型，提出调制波形、信号处理、组网协议、协作定位等各层次融合设计和相互辅助方法，并分析推导其理论性能。

The Joint Design of Space Communication and Navigation Positioning Technologies

This project, led by Prof. Zhao Minjian from ISEE, will study the joint design of space communication and navigation positioning technologies. It is one of the key technologies and main optimizing directions in the research of spatial information network. Based on the spatial information networks, the project aims at improving the efficiency and reliability of spatial information network, enhancing the accuracy of navigation positioning, and optimizing the system resource efficiency. The research will establish the theoretical model of integration of space communication and navigation positioning. We put forward the methods of integration and mutual assisted at all levels such as waveforms, signal processing of transceivers, protocols, multi-node cooperative positioning, etc.



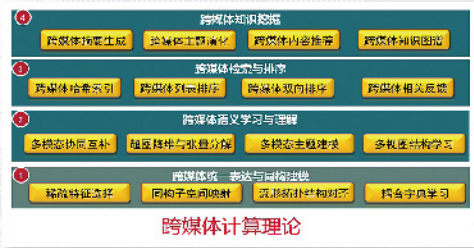
3. 重大科研成果及进展 Research Achievements and Significant Progress

1 跨媒体计算理论与方法

负责人计算机学院庄越挺教授，获2015年浙江省科学技术奖自然科学一等奖。媒体语义理解是新一代搜索引擎、数字内容产业和公共安全等国家重大需求的共性基础。从1997年起，经过近20年刻苦研究，在对单一类型媒体数据深入研究的基础上，项目组首次提出了“跨媒体”原创性特色理论，其利用不同类型媒体数据综合表达高层语义这一新思路来解决“异构鸿沟”和“语义鸿沟”科学难点问题。遵循“模态互补、逐层抽象、结构约束”思想，创造性提出了跨媒体语义学习新方法，形成了完善的跨媒体计算新模型和新方法。

The Theory and Approach of Cross-media Computing

Prof. Zhuang Yueting in CCST was the Principle Investigator of the project which won the first prize of Natural Science Award of Zhejiang Province in 2015. Nowadays, there are lots of heterogeneous and homogeneous media data from multiple sources, such as news media websites, social networking websites, and photo/video sharing websites. This project studies the fundamental problems in cross-media research. A series of new theories and techniques have been studied and proposed, which together reveal the internal structural information and external semantic correlation of cross-media data. The research provides a new computational model for bridging the heterogeneity-gap and the semantic-gap, and initiates cross-media retrieval (the query examples and the returned results can be of different modalities, e.g., to query images by an example of audio.).

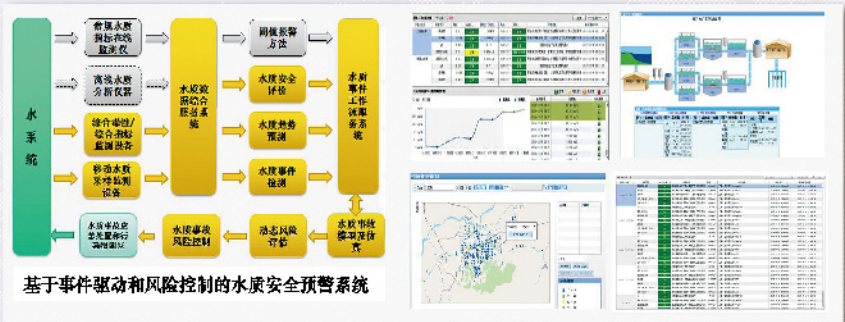


2 水质安全评价及预警关键技术研究与应用

负责人控制学院张宏建教授，获2015年浙江省科学技术一等奖。该项目针对当前水污染事故频发问题，研发了具有高集成度、可扩展性的城市饮用水水质安全预警系统平台，提出了基于事件驱动和风险评估的水质安全预警控制技术理论体系，研究突破水质安全评价、水质组合预测、水质事件检测、动态风险预警等系列关键技术并实现系统集成，平台成果在国内多个重要城市获得了示范应用，为我国水质安全保障技术研究提供有力支撑。

The Research on Risk Assessment & Techniques to Protect Water Quality Safety and Its Application

Prof. Zhang Hongjian in CSE was the Principle Investigator of the project which won the first prize of Scientific and Technological Award of Zhejiang Province in 2015. In accordance with the stern situation of frequent water pollution accidents, the project developed a highly-integrated, extensible water quality safety early-warning system platform for urban drinking water supply. The platform was designed with the proposed architecture of water quality safety early-warning control system based on event-driven and risk assessment. An integrated water quality safety early-warning system was finally implemented with the breakthrough of safety evaluation, combining prediction, event detection and a series of key techniques. The developed platform has been deployed and demonstrated in several important cities in China, and provided strong support for the research on the techniques to protect water quality safety.

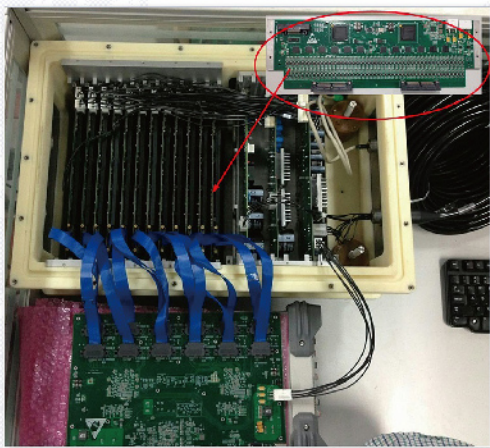


3 相控阵三维声学摄像声纳实时信号处理和图像构建关键技术

负责人为生化学院陈耀武教授，获2015年浙江省技术发明一等奖。项目提出了适用于近场和远场条件下的换能器阵列稀疏方法、分布式子阵波束形成实时处理算法和动态三维图像构建方法以及基于大规模FPGA的并行处理系统架构，成功研制了高分辨率相控阵三维声学摄像声纳系统。项目的成果打破了国外的技术垄断，填补了国内空白，作为国家重大科技成果参加了“十一五”国家重大科技成就展。

Key Technologies of Real-time Signal Processing and Image Reconstruction for Phased-array 3D Imaging Sonar

This project is chaired by Prof. Chen Yaowu from BME, which won the first prize of Award for Technology Invention in Zhejiang Province in 2015. The research group proposed the method of constructing sparse transducer array suitable for both near field and far field, invented the distributed sub-array real-time beamforming algorithm and the method of dynamic 3D image reconstructing, invented the parallel processing system architecture based on large scale FPGA, and finally developed high resolution phased-array 3D imaging sonar successfully.

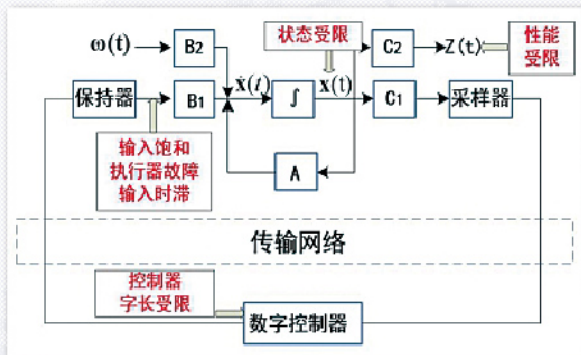


4 复杂受限系统的鲁棒性分析与控制

项目负责人控制学院苏宏业教授，获2015年高等学校自然科学一等奖。实际控制系统的输入/输出、状态和动态性能常常因环境、装备、工艺及安全等因素受到限制，控制器在数字化实现过程中还存在精度约束，传统的控制理论和方法往往无法满足实际工程设计和性能需求，因此面向受限系统的鲁棒控制理论与技术研究具有十分重要的理论意义与应用价值。本项目针对系统输入/输出/状态受限、性能约束和控制器精度有限等问题，通过深入、系统地研究，提出了受限复杂控制系统的鲁棒性分析与综合设计理论及方法体系。

The Robust Performance Analysis and Control Research in The Constrained Complex Systems

The project directed by Prof. Su Hongye from CST was awarded the first Prize of University Natural Science in 2015. The system performances on input/output, system state, and dynamics are usually constrained by various factors, such as environment, equipment, craftwork, and security. Moreover, the accuracy constrain also occurs in the digital implementation of controller. While, the traditional control theories and techniques fail to meet the requirements of engineering design and performance. Therefore, the studies on the robust control theory and methods for the constrained systems are of great significant both from the points of theoretical and practical views. This project focuses on the issues of controller accuracy as well as constraints on input/output, system state, dynamics, and performance. By comprehensive and systematic researches, the framework is proposed on the robust performance analysis and synthesis for the constrained complex systems.

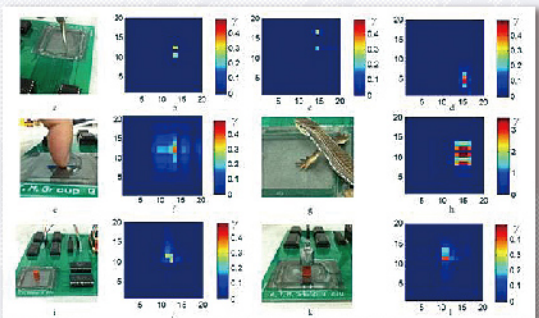


5 基于可延展柔性电子技术的人造皮肤

该项目为电子、计算机和高分子交叉合作研究成果，负责人为信电汪小知副教授。项目利用碳纳米材料与微加工技术，制作出世界最小的单元传感器，构成世界最高的类皮肤神经传感网络分辨率。利用传感器网络，首次实现了比人体皮肤更为灵敏的多种类皮肤感觉信号同时分辨，基于此，结合图像识别技术，得到了复杂曲面的形变复原。将温度、湿度、血糖等柔性传感技术集成到了电子皮肤系统中，通过移动终端的控制实现了对体表伤口恢复过程的实时监控和干预。项目还对系统的延展柔性材料进行了革新，开发了纸质衬底材料、蛋白衬底材料等可降解绿色材料应用技术。

The Skin-like Sensor System Based on Stretchable Electronics

The work, chaired by associate Prof. Wang Xiaozhi from ISEE, achieved progress in such interdisciplinary area as Electronic engineering, computer science and Polymer science. Based on carbon nano-materials and micro-fabrication technology, a skin-like sensor network with the highest resolution has been fabricated. Multi-sensation detection including touching, pressure, temperature and pain has become practical. Combined with image recognition algorithm, complex surface profile of a skin can be reconstructed. A wound management system has been built by integrating this skin-like sensor tech with chemical sensors such as humidity and glucose sensors, and a Bluetooth chip. Wireless realtime monitor of wound recovery process has been realized.



4. 新增重要科研基地 New Key Research Bases

1 光子学与技术国际合作联合实验室

浙江大学申建教育部光子学与技术国际合作联合实验室2015年10月通过立项论证。实验室依托浙江大学现代光学仪器国家重点实验室，与美国罗彻斯特大学光学中心、瑞典皇家理工学院林奈先进光子学中心合作共建共同建设，力争建成一个国际一流的光子学与技术实验室。联合实验室实行理事会领导下的主任负责制，设立学术咨询委员会，采取项目负责人制（简称PI制）逐级管理方式。实验室的中方负责人是刘旭教授，外方负责人是Xi-Cheng Zhang 教授。主要研究方向有：光子学器件、集成光子学和先进光子学仪器等。

Joint International Research Laboratory of Photonics

In October 2015, Joint International Research Laboratory of Photonics (JIRLOP) successfully passed the official assessment conducted by the Ministry of Education of China. JIRLOP is a collective force of the world-class research teams on photonics from the State Key Laboratory of Modern Optical Instrumentation of ZJU, the Institute of Optics of University of Rochester and the Linnaeus Center in Advanced Optics and Photonics of Royal Institute of Technology. JIRLOP is supervised by an academic board, an academic advisory committee, and six principal investigators. The current directors of the laboratory are Prof. Liu Xu from Zhejiang University and Professor Xi-Cheng Zhang from University of Rochester. The research of JIRLOP focuses on photonic devices, integrated photonic and advanced photonic instrumentation. The vision of JIRLOP is to become a world leading laboratory of photonics and pursuing discoveries that improve our lives.

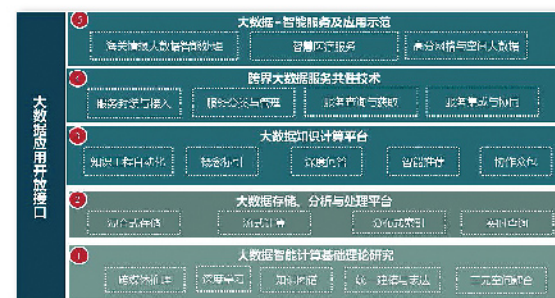


2 浙江省大数据智能计算重点实验室

实验室成立于2015年4月，陈刚教授任实验室主任，周立柱教授任实验室学术委员会主任。实验室针对浙江省经济、科技、公共安全及社会管理的需求，提出大数据定性、定量分析的基础理论与基本方法，研究大数据知识发现与服务技术，最后构建大数据技术平台与整体解决方案，重点以面向“智慧教育”建设所需核心技术为支撑，实现大数据驱动的面向因材施教的在线教育原型系统。

Zhejiang Provincial Key Laboratory for Big Data Intelligent Computing

The Key Laboratory was founded in April 2015. Prof. Chen Gang is now the director of the laboratory, and Prof. Zhou Lizhu is the director of the Laboratory Academic Committee. The laboratory focuses its research contents on the fundamental theories and algorithms of big data as well as their applications in real life. The laboratory aims at proposing a series of efficient theories and methods to analyze big data quantitatively and qualitatively; presenting a set of proprietary technologies to support knowledge discovery for big data. Also, an online education system is to be developed by using the proposed techniques.



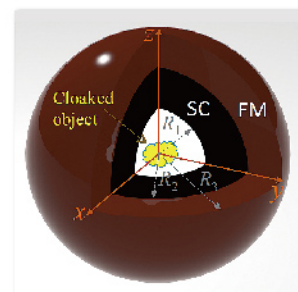
5. 年度TOP论文 Recommended Papers

1 Three-dimensional Magnetic Cloak Working from d.c. to 250 kHz

作者：Zhu, Jianfei; Jiang, Wei; Liu, Yichao; 等.

来源：NATURE COMMUNICATIONS 卷: 6 文献号: 8931 出版年: Nov. 2015

It will be advantageous and technologically instrumental to design cloaking devices for applications at low frequencies where electromagnetic components are favorably uncoupled. In this work, under the quasi-static approximation, we demonstrate a perfect magnetic cloaking device composed of ferromagnetic and superconductor bilayer with a large frequency band from zero to 250 kHz. The practical potential of our device is experimentally verified by using a commercial metal detector, which may lead us to having a real cloaking application where the dynamic magnetic field can be manipulated in desired ways.



2 Subspace Dynamic Simulation Using Rotation-Strain Coordinates

作者：Pan, Zherong; Bao, Hujun; Huang, Jin 等.

来源：ACM TRANSACTIONS ON GRAPHICS 卷: 34 期: 6 文献号: 242 出版年: Nov. 2015

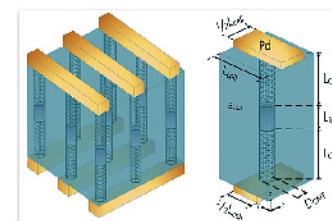


We propose a full featured and efficient subspace simulation method in the rotation-strain (RS) space for elastic objects. Sharply different from previous methods using the rotation-strain space, our method correctly formulates the kinetic energy, centrifugal and Coriolis forces which significantly reduces the dynamic artifacts. Carefully designed experiments show that the equation of motion in RS space has less non-linearity than its Euclidean counterpart, and as a consequence, our method has great advantages of lower dimension and computational complexity than state-of-the-art methods in the Euclidean space.

3 Electrothermal Investigation on Vertically Aligned Single-Walled Carbon Nanotube Contacted Phase Change Memory Array for 3-D ICs

作者：Chen, Wenchao; Yin, Wen-Yan; Li, Erping; 等.

来源：IEEE TRANSACTIONS ON ELECTRON DEVICES 卷: 62 期: 10 页: 3258-3263 出版年: OCT 2015



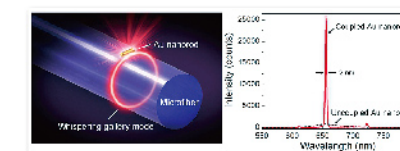
Vertically aligned single-walled carbon nanotube (SWCNT) contacted phase change memory (PCM) has great potential for future 3-D IC. Electrothermal investigation on the memory array is performed by using three-dimensional time-domain finite element method. Thermal coupling between adjacent cells, which can cause current leakage and reliability degradation, is characterized. Thermal boundary resistance and SWCNT diameter affect temperature rise and thermal coupling significantly. Transient temperature responses show unintentional ESD can result in error programming.

4 Single-Band 2-nm-Line-Width Plasmon Resonance in a Strongly Coupled Au Nanorod

作者：Wang, Pan; Wang, Yipei; Yang, Zongyin; 等.

来源：NANO LETTERS 卷: 15 期: 11 页: 7581-7586 出版年: Nov. 2015

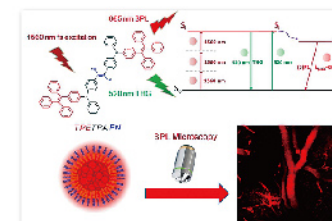
We report a dramatic reduction in plasmon resonance line width of a single Au nanorod by coupling it to a whispering gallery cavity of a silica microfiber. With fiber diameter below 6 μm , strong coupling between the nanorod and the cavity occurs, leading to evident mode splitting and spectral narrowing. Using a 1.46- μm -diameter microfiber, we obtained single-band 2-nm-line-width plasmon resonance in an Au nanorod around a 655-nm-wavelength, with a quality factor up to 330 and extinction ratio of 30 dB. Compared to an uncoupled Au nanorod, the strongly coupled nanorod offers a 30-fold enhancement in the peak intensity of plasmonic resonant scattering.



5 High-Order Non-Linear Optical Effects in Organic Luminogens with Aggregation-Induced Emission

作者：Qian, Jun; Zhu, Zhenfeng; Qin, Anjun; 等.

来源：ADVANCED MATERIALS 卷: 27 期: 14 页: 2332-2339 出版年: Apr. 2015



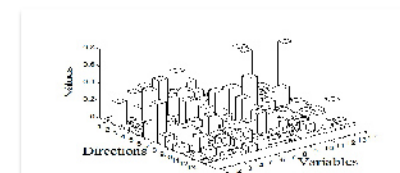
We have demonstrated multi-photon luminescence (MPL, up to four-photon) of molecular-state TTF in organic solution. Simultaneous 3PL/4PL, third harmonic generation (THG), and fifth harmonic generation (FHG) of TTF in the solid state could be observed. In TTF nanoaggregates, we found aggregation induced THG enhancement and aggregation-induced 3PL. TTF-doped-nanoparticles were further used for multimodal non-linear optical (NLO) microscopic imaging of tumor cells, as well as 3PL in vivo imaging of mouse brains.

6 Mixture Bayesian Regularization of PCR Model and Soft Sensing Application

作者：Ge, Zhiqiang

来源：IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS 卷: 62 期: 7 页: 4336-4343 出版年: Jul.2015

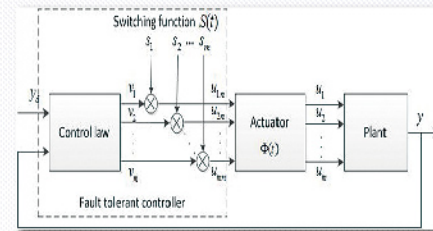
Bayesian regularization mechanism is provided for automatically determining the number of latent variables in the probabilistic principal component regression (PPCR) model. By introducing two hyperparameter vectors, the effectiveness of each latent variable can be well measured and controlled. The Expectation Maximization algorithm is employed for parameter learning of both single and mixture Bayesian regularization models. Two probabilistic soft sensors are then developed for online estimation of key variables in industrial processes, performances of which are evaluated through two case studies.



7 Adaptive Actuator Fault Tolerant Control for Uncertain Nonlinear Systems with Multiple Actuators

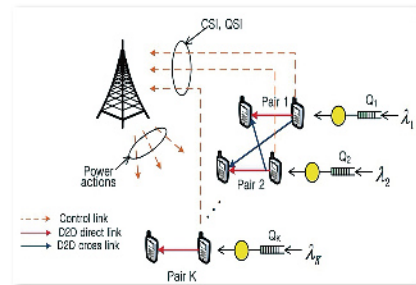
作者: Yang, Qinmin; Ge, Shuzhi Sam; Sun, Youxian
来源: AUTOMATICA 卷: 60 页: 92-99 出版年: Oct.2015

This work introduces a novel adaptive fault tolerant controller design for a class of nonlinear unknown systems with multiple actuators. The controller consists of an adaptive learning-based control law, a Nussbaum gain, and a switching function scheme. The adaptive control law is implemented by a two-layer neural network to accommodate the unknown system dynamics. Without the requirement of additional fault detection mechanism, the switching function is designed to automatically locate and turn off the unknown faulty actuators by observing a control performance index. The asymptotic stability of the system output in the presence of actuator failures is rigidly proved through standard Lyapunov approach, while the other signals of the closed-loop system are guaranteed to be bounded.



8 Dynamic Power Control for Delay-Aware Device-to-Device Communications

作者: Wang, Wei; Zhang, Fan; Lau, Vincent K. N.
来源: IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS 卷: 33 期: 1 页: 14-27
出版年: Jan.2015

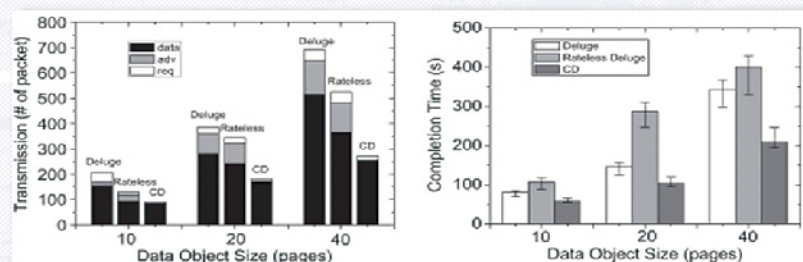


Device-to-device (D2D) communications allow direct communications between nodes without transmitting data via the base stations in cellular systems, which could bring significant performance improvement. Since most applications are delay-sensitive, it is very important to consider delay performance for D2D communications. On the dynamic power control problem for delay-aware D2D communications, we propose a low-complexity asymptotically optimal solution by exploiting the interference filtering property of CSMA-like MAC protocols in the D2D system. This work was also awarded the Best Oral Presentation Award in Hong Kong Scholars Symposium 2014.

9 Link-Correlation-Aware Data Dissemination in Wireless Sensor Networks

作者: Zhao, ZW; Dong, W; Bu, JJ; Gu, Y; Chen, C
来源: IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS 卷: 62 期: 9 页: 5747-5757 出版年: Sep.2015

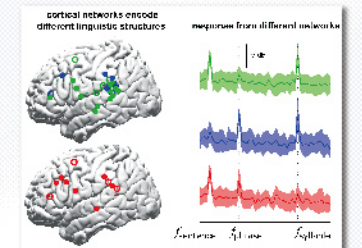
We propose Correlated Dissemination (CD), a fast and energy efficient bulk data dissemination protocol for reprogramming in WSNs. The main contribution of CD is that it disseminates data according to a novel structure called correlated tree which considers both link qualities and link correlations. The construction of correlated tree is lightweight and allows for more efficient data transmission. Besides, it selectively and dynamically employs rateless codes to improve the performance, especially in circumstances where link correlation is inherently weak. We implement CD based on TelosB testbed with both TinyOS and OpenWSN (with 802.15.4e MAC). Evaluation results show that, compared with previous works, CD greatly improves the dissemination performance in terms of completion time, transmission cost and energy efficiency.



10 Cortical Tracking of Hierarchical Linguistic Structures in Connected Speech

作者: Ding, N.; Melloni, L.; Zhang, H.; Tian, X.; Poeppel, D.
来源: NATURE NEUROSCIENCE <http://www.nature.com/neuro/journal/vaop/ncurrent/full/nn.4186.html>

The most critical attribute of human language is its unbounded combinatorial nature: smaller elements can be combined into larger structures based on a grammatical system, resulting in a hierarchy of linguistic units, e.g., words, phrases, and sentences. How the brain parses and represents such structures is a fundamental question in cognitive neuroscience. This study demonstrates that a hierarchy of neural processing timescales underlies grammar-based internal construction of hierarchical linguistic structure.



11 Efficient Metric Indexing for Similarity Search

作者: Lu Chen; Yunjun Gao; Xinhan Li; 等.
来源: One of the Best Papers in ICDE 2015 (ICDE 2015 优秀论文)

This paper proposes an efficient disk-based metric access method, the Space-filling curve and Pivot-based B+-tree (SPB-tree), to support a wide range of data types and similarity metrics. Moreover, we present efficient similarity search algorithms and corresponding cost models based on the SPB-tree. Extensive experiments with both real and synthetic data show that the SPB-tree has much lower construction cost, smaller storage size, and can support more efficient similarity queries with high accuracy cost models than is the case for competing techniques.

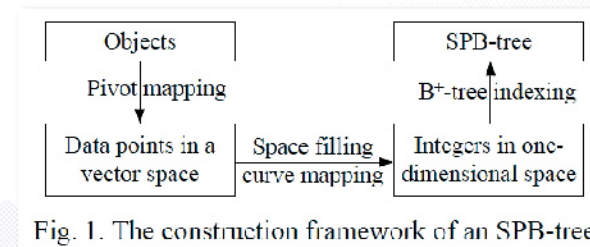
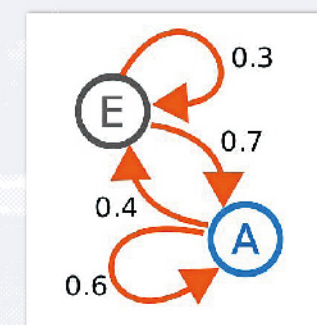


Fig. 1. The construction framework of an SPB-tree

12 Asynchronous I(2)-I(infinity) Filtering for Discrete-time Stochastic Markov Jump Systems with Randomly Occurred Sensor Nonlinearities

作者: Wu, Zheng-Guang; Shi, Peng; Su, Hongye; 等. 2014年度中国百篇最具影响国际学术论文
来源: AUTOMATICA 卷: 50 期: 1 页: 180-186 出版年: JAN 2014



This paper is concerned with the problem of asynchronous I(2)-I(infinity) filtering for discrete-time stochastic Markov jump systems with sensor nonlinearity. The sensor nonlinearity is assumed to occur randomly according to a stochastic variable satisfying the Bernoulli distribution. A sufficient condition is first given such that the resultant filtering error system, which is a kind of nonhomogeneous Markov jump system, is stochastically stable with a guaranteed I(2)-I(infinity) performance index. Then the existence criterion of the desired asynchronous filter with piecewise homogeneous Markov chain is proposed in terms of a set of linear matrix inequalities.



人才培养

Education

学部共有11个本科专业，8个一级学科博士学位授予点，1个一级学科硕士学位授予点，21个二级学科博士学位授予点，22个二级学科硕士学位授予点。在校生（包括本科生和研究生）6424人，在国内外各类学科竞赛中成绩优异，本科生深造率达63%。

There are totally 11 undergraduate programs, 8 doctorate programs of primary discipline, 1 master program of primary discipline, 21 doctorate programs and 22 master programs of secondary discipline. About 6424 full-time undergraduate and graduate students enrolled in the faculty. They have made outstanding achievement in various international and domestic disciplinary competitions. More than 63% undergraduate students can continue their studies at home or aboard.

本科专业 UG Programs

学院 College of	本科专业 UG Program
光电科学与工程学院 Optical Science and Engineering	光电信息科学与工程 Optoelectronic Information Science and Engineering
信息与电子工程学院 Information Science and Electronic Engineering	信息工程 Information Engineering
	电子科学与技术 Electronic Science and Technology
控制科学与工程学院 Control Science and Engineering	自动化 Automation
计算机科学与技术学院 Computer Science and Technology 软件学院 Software Technology	计算机科学与技术 Computer Science and Technology
	数字媒体技术 Digital Media Technology
	软件工程 Software Engineering
	工业设计 Industrial Design
	产品设计 Product Design
生物医学工程与仪器科学学院 Biomedical Engineering & Instrument Science	生物医学工程 Biomedical Engineering
	测控技术与仪器 Measurement and Control Technology and Instruments

学科 Disciplines

光学工程 Optical Engineering

光学工程 Optical Engineering
光通信技术 Optical Communication Technique

仪器科学与技术 Instrument Science and Technology

测试计量技术及仪器 Measuring and Testing Technologies and Instruments
电子信息技术及仪器 Electronic Information Technologies and Instruments

电子科学与技术 Electronics Science and Technology

物理电子学 Physical Electronics
微电子学与固体电子学 Microelectronics and Solid State Electronics
电路与系统 Circuits and Systems
电磁场与微波技术 Electromagnetic Field and Microwave Technology

信息与通信工程 Information and Communication Engineering

通信与信息系统 Communication and Information Systems
信号与信息处理 Signal and Information Processing

控制科学与工程 Control Science and Engineering

控制理论与控制工程 Control Theory and Control Engineering
检测技术与自动化装置 Detection Technology and Automatic Equipment
系统工程 Systems Engineering
模式识别与智能系统 Pattern Recognition and Intelligent Systems
导航、制导与控制 Navigation, Guidance and Control

计算机科学与技术 Computer Science and Technology

计算机应用技术 Computer Applied Technology
计算机系统结构 Computer Systems Organization
数字化艺术与设计 Digital Art and Design
电子服务 Electronic Service

软件工程 Software Engineering

计算机软件与理论 Computer Software and Theory

生物医学工程 Biomedical Engineering

生物医学工程 Biomedical Engineering

设计学 Design

设计艺术学 *Art of Design

*只有硕士点
*Only master program

学生 (人) Students

学 生 Students		学 院 College	光电科学与 工程学院	信息与电子 工程学院	控制科学与 工程学院	计算机科学 与技术学院	软件 学院	生物医学 工程与仪器 科学学院	合计
在校生 Enrollments	博士生 Doctor		239	222	208	473	/	177	1319
	硕士生 (全日制) Master		325	416	397	936	415	287	2776
	本科生 (12级、13级) Undergraduate		280	604	284	827	/	334	2329
招生数 Freshmen	博士生 Doctor		50	45	40	78	/	33	246
	硕士生 (全日制) Master		111	134	127	307	202	100	981
	本科生 (2014级) Sophomore		126	271	114	336	/	155	1002
毕业生 Graduates	博士生 Doctor		43	42	30	68	/	26	209
	硕士生 (全日制) Master		83	127	120	273	221	85	909
	本科生 Undergraduate		146	294	130	360	/	117	1047
本科生深造 与对外交流 Further Study and International Exchange of Undergraduate	毕业生* Graduate*		131	288	118	346	/	113	996
	出国深造率 Ratio of Further Studies Aboard		37.5%	19.40%	33.90%	35.88%	/	9.35%	28.08%
	读研率 Ratio of Further Study at Home		40.18%	38.20%	42.30%	27.35%	/	34.58%	34.77%
	对外交流人次 International Exchange		29	58	43	93	/	32	255

*不包括竺可桢学院学生
*Except the students belong to Chu Kochen Honors College

国际学科竞赛奖 International Disciplinary Competitions

竞赛名称 Competition	奖 项 Award	获奖人员 (及作品) Winners List	指导教师 Advisors
2015年国际大学生程序设计竞赛 ACM International Collegiate Programming Contest Asia Region (ACM-ICPC)	亚洲赛区金牌 (6块) Gold Medalist in Asia Regional Contest	Siunaus: 王夏君 赵越奇 金梦格 The Last Episode: 龚源 张瑞祥 陈泽闽 Singularity: 洗伟钊 木同舟 杨欣豫	王灿 Wang Can
	亚洲赛区银牌 (4块) Silver Medalist in Asia Regional Contest	The Last Episode: 龚源 张瑞祥 陈泽闽 Singularity: 洗伟钊 木同舟 杨欣豫 tdmxtxwd: 梁露 华钦炜 蔡嘉楠 Aurore: 冯竞宜 甘天圣 杨依霖	王灿 Wang Can
	亚洲赛区铜牌 (3块) Bronze Medalist in Asia Regional Contest	Printemps: 冯竞宜 陈亨泓 甘天圣 Niconiconi: 林汉钊 朱稼乐 张瑞祥 Bonjour: 王夏君 梁露 李明	王灿 Wang Can
2015年德国红点概念设计大赛 2015 International Design Competition 'Red Dot Design Award'	红点设计概念奖 (6项) Red Dot Award	Timing Pill: 何鑫 刘文栋 曾泽栋等	陈实 孙凌云 Chen Shi Sun Lingyun
		CLEANSMILE: 张小恋 刘帅 罗琼璐	应放天 陶冶 Ying Fangtian Tao Ye
		Linking green: 李思蒙 徐文彬 齐妹洁等	徐雯洁 陈实 Xu Wenjie Chen Shi
		Insight Glasses: 胡旭升 雷思雨 谢欣航等	徐雯洁 张翰阳 Xu Wenjie Zhang Hanyang
		CLEAN-CARE: 刘泓森 章汉 王弘烈等	徐雯洁 Xu Wenjie
2015年第十九届RoboCup 机器人世界杯赛 The 19 th Robot World Cup (RoboCup 2015)	小仿人组亚军 The 2 nd place in Kid-Size Humanoid League	余冬冬 赵天啸、吴睿等	熊蓉 Xiong Rong
	小型组季军 The 3 rd place in Small Size League	李川 戴萧何 唐文剑等	熊蓉 Xiong Rong
2015年Robocup日本公开赛 RoboCup JAPAN OPEN 2015 FUKUI	小型组冠军 Champion in Small Size League	李川 唐文剑 叶杨笙等	熊蓉 Xiong Rong
	小仿人组亚军 The 2 nd place in Kid-Size Humanoid League	余冬冬 周海燕 留云等	熊蓉 Xiong Rong
2015年国际机器人创意设计大赛 International Design Contest(IDC_Robocon)	冠军 Champion	石拓	朱秋国 王西 Zhu Qiuguo Wang You
	季军 The 3 rd place	高智俊	朱秋国 王西 Zhu Qiuguo Wang You
2015年国际基因工程机器设计大赛 International Genetically Engineered Machine Competition, iGEM	金牌 Gold Medalist	Termite Terminator: 许蒙蒙等	
2015年菲尼克斯电气全球 自动化大奖赛 Phoenix Xplore the Xplore New Automation Award 2015	建筑组第三名 The 3 rd place in Buildings Category	Intelligent Traffic Control System for Crossroads: 孟伟、郑莉红、杨昭鹤等	张光新 黄平捷 Zhang Guangxin Huang Pingjie

国内学科竞赛奖 Civil Disciplinary Competitions

竞赛名称 Competition	奖 项 Award	获奖人员（及作品） Winners List	指导教师 Advisors
2015年浙江省大学生程序设计竞赛 Zhejiang Province Programming Contest (ZJP)	特等奖 Special Prize	Reverse Ideology: 龚源 张瑞祥 陈泽闽	王灿 Wang Can
	一等奖 The 1 st place	ordo: 卢轶 王夏君 钱彦良	王灿 Wang Can
	二等奖 The 2 nd place	RLGL: 肖子沐 张逸瑞 李明哲 Acumen: 杨依霖 赵越奇 朱稼乐 Just Water: 胡滨 周君沛 蔡昭宇 poi: 朱鹤鸣 李明哲 黄璜 EnumLastBrush: 陈祥 徐可添 王俊吉	王灿 Wang Can
2015 中国大学生程序设计竞赛 China Collegiate Programming Contest (CCPC)	金牌（2块） Gold Medal	Siunaus: 王夏君 赵越奇 金梦格 The Last Episode: 龚源 张瑞祥 陈泽闽	王灿 Wang Can
第三届全国虚拟仪器大赛 Virtual Instruments Contest 2015	PC数据采集组一等奖 The 1 st place in Data Acquisition Category	Chart图绘制者团队: 罗海林 黄晓堃 余琦	马永昌 MaYongchang
	PC数据采集组二等奖 The 2 nd place in Data Acquisition Category	“智能象棋助手”团队: 段宇 罗城 高翔等	马永昌 MaYongchang
	嵌入式虚拟仪器平台组三等奖 The 3 rd place in Embedded Virtual Instrument Platform Category	“自动视力表”团队: 王韬 谭拢 李伟	马永昌 MaYongchang

专项奖 Special Awards

获奖学生 Winners	奖 项 Award	学 院 College of
杨陈楹 Yang Chenyin	2014-2015学年浙江大学竺可桢奖学金（研究生） Chu Kochen Scholarship	光电科学与工程学院 Optical Science and Engineering
杨龙志 Yang Longzhi	2014-2015学年浙江大学竺可桢奖学金（研究生） Chu Kochen Scholarship	信息与电子工程学院 Information Science and Electronic Engineering
曹晨 Cao Chen	2014-2015学年浙江大学竺可桢奖学金（研究生） Chu Kochen Scholarship	计算机科学与技术学院 Computer Science and Technology
张迪鸣 Zhang Diming	2014-2015学年浙江大学竺可桢奖学金（研究生） Chu Kochen Scholarship	生物医学工程与仪器科学学院 Biomedical Engineering & Instrument Science
韩宽 Hai Kuan	2014-2015学年浙江大学竺可桢奖学金（本科生） Chu Kochen Scholarship	信息与电子工程学院 Information Science and Electronic Engineering
班旭东 Ban Xudong	2014-2015学年浙江大学竺可桢奖学金（本科生） Chu Kochen Scholarship	控制科学与工程学院 Control Science and Engineering

海外交流

International Exchange and Cooperation

学部2015年教师出访参加学术会议、合作交流383人次，接待183人次国外学者来访进行学术交流，主办国际会议9次，接待英UIUC工学院代表团、哥伦比亚工学院院长和日本早稻田大学等来访。学部各院系与国外著名大学继续加强学生联合培养，推进教师科研合作，进一步提升了学部的科研和教学水平。

In the past year, about 383 persons visited abroad for academic exchange and cooperation. More than 183 world-renowned scholars were invited to visit FIT. Meanwhile, we successfully hosted about 9 international conferences and welcomed the delegations from UIUC Columbia University and Waseda University. The colleges of FIT continue to strengthen the international exchange and cooperation in order to further enhance the level of teaching and scientific research.

主办国际会议 Host International Conferences

序号 No.	会议名称 Conference	时间 Date
1	第八届太平洋可视化国际学术会议 IEEE Pacific Visualization 2015	April 15-17
2	ACM移动自组织网络与计算国际研讨会（MobiHoc 2015） The ACM International Symposium on Mobile Ad Hoc Networking and Computing	June 22-25
3	浙江大学-西门菲莎大学大数据联合研讨会 ZJU-SFU Joint Symposium on Big Data	June 26-27
4	第九届海峡两岸机器人学术研讨会暨机器人技术邀请赛 The 9 th Cross Strait Symposium on Robotics and Robotics Competition	September 5-10
5	第十八届国际爬行与行走机器人大会 The 18 th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines	September 6-9
6	2015第八届先进资讯科技国际学术会议 The 8 th International Conference on Advanced Infocomm Technology (ICAIT 2015)	October 25-27
7	第十一届协同计算国际会议 IEEE International Conference on Collaborative Computing 2015	October 28-30
8	2015第五届光电子与微纳光子进展国际会议 The 5 th conference on Advances in Optoelectronics and Micro/nano-optics (AOM 2015)	October 28-31
9	极限学习机国际学术会议 The International Conference on Extreme Learning Machines (ELM 2015)	December 14-15

2015 要闻

News 2015

1月20日，赛博 (CYBER) 协同创新中心2014年学术委员会会议暨学术论坛隆重召开
On Jan. 20th, Annual academic committee conference and symposium 2014 of Cyber Innovation Joint Research Center were held ceremoniously.



4月3日，信息学部召开2015年度工作会议，总结2014年工作和研讨2015年重点工作
On April 3rd, FIT held the Annual work conference to sum up the work in 2014 and discuss the major tasks in 2015.

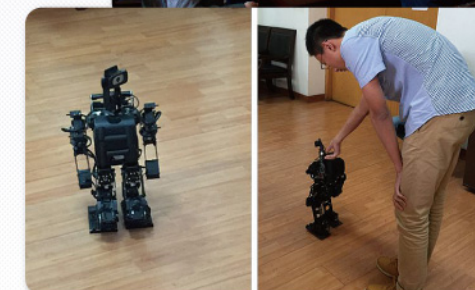
5月15日，党委发〔2015〕26号通知浙江大学信息学部光电信息工程学系等3个学系更名为相应学院
On May 15th, three departments were renamed as college of: optical science and engineering, information science and electronic engineering and control science and engineering in FIT.

中共浙江大学委员会文件

党委发〔2015〕26号

中共浙江大学委员会 浙江大学
关于数学系等五个系更名的通知

5月21日，ZJU-UIUC WEEK系列活动开幕，信息学部牵头承办了信息领域合作交流会
On May 21th, ZJU-UIUC Week series of activities were held on the opening ceremony and FIT undertook the seminar of the information field.



6月12日，浙大科发〔2015〕2号通知赛博 (CYBER) 协同创新中心更名为工业信息物理融合系统协同创新中心 (iCPS)
On June 12th, Cyber Innovation Joint Research Center was renamed as center for industrial cyber-physical system by ZJU.

浙江大学科学技术研究院

浙大科发〔2015〕2号

关于浙江大学赛博 (CYBER) 协同创新中心更名的通知

中共浙江大学委员会文件

党委发〔2015〕27号

中共浙江大学委员会 浙江大学
关于成立浙江大学微电子学院的通知

6月16日，依托信息与电子工程学院，浙江大学微电子学院成立
On June 16th, College of Microelectronics of ZJU, which supported by ISEE, was founded.

9月18日，中国工程院于全院士受聘浙江大学“求是讲座”教授
On September 18th, Prof. Yu Quan, Academician of Chinese Academy Engineering, joined ZJU as the Distinguished Chair Professor of Qiushi Program.



10月17日，信息学部承办的浙江省通信学会2015年会（信号处理在大数据中）顺利召开

Annual meeting 2015 of Zhejiang Province Communications Society with the theme of signal processing on big data undertaken by FIT was held on October 17th.



10月23日，信息学部召开2015年度信息学部高端学术论坛，共6位人工智能领域专家受邀做学术报告

On October 23th the high-level series forum of ZJU academic annual meeting was successfully held by FIT. 6 famous scholars in the field of artificial intelligence were invited to give excellent reports.

浙江大学信息学部文件

信风学博发[2015] 001号

关于表彰第五届信息学部青年教师奖获得者的决定

10月23日，信息学部第五届青年教师奖授予10位40岁以下的青年教师

On October 23th, there were totally 10 excellent people won the 5th Young Teacher Award of FIT.



10月29日，浙江大学—中兴通讯签约共建联合创新中心

On October 29th, the cooperation agreement to build a joint innovation center was signed between ZJU and ZTE.



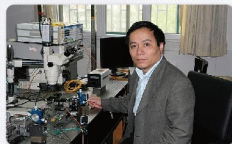
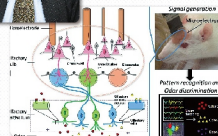
11月25日，光电学院仇昱教授因其在纳米光子学领域的杰出贡献当选2016年IEEE FELLOW

On November 25th, Prof. Qiu Min from COSE was elected to be IEEE FELLOW 2016 for his outstanding contribution to the Nano Photonics field.



生仪学院王平教授细胞传感器的基础和应用研究被评为浙江大学2014年度十大学术进展

The project chaired by Prof. Wang Ping was voted on the list ZJU TOP ten Academic Progress in 2014 for the research in the cell-based biosensors and their application.



光电学院何建军教授入选美国光学学会（OSA）FELLOW

In 2015, Prof. He Jianjun from COSE was elected to be OSA FELLOW.

信电学院李尔平教授获IEEE理查德·斯托达特大奖，

Prof. Lee Erping in ISEE was honored with the IEEE Richard Stoddard Award as the only Chinese scholar since 1979

