

DEPARTMENT OF MECHANICAL ENGINEERING

To achieve excellence in education and research in the discipline of mechanical engineering with global out-reach and impact.

ANNUAL REPORT 2013-14



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF MECHANICAL ENGINEERING
機械工程學系

1 **Vision & Mission**

2 **Introduction**

3 **Head's Foreword**

4 **People**

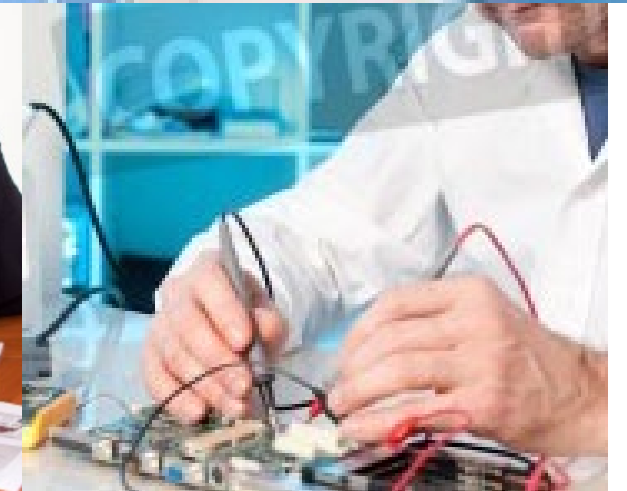
23 **Teaching and Learning**

37 **Research and Consultancy**

76 **Departmental Activities**



TABLE OF CONTENTS



VISION

To achieve excellence in education and research in the discipline of mechanical engineering with global out-reach and impact.

MISSION

To train future leaders, with creativity, broad vision, global outlook, and professional ethics for industry, academia, government and communities, who have sound knowledge in mechanical engineering with effective communication, analytical, and problem-solving skills.

To create knowledge and technologies through fundamental research and its applications in mechanical engineering, in order to serve the societal needs.

About the Department

As one of the founding departments of The Hong Kong Polytechnic University since 1937, the Department of Mechanical Engineering has been the forerunner of the vast evolution of its field. Over the years the Department has pioneered the rapid development in new energy system, transportation, health and biomedical systems and environment improvement.

Enhancing and maintaining excellent teaching quality has always been the major goal of the Department. With the elite teaching team, students will gain professionally recognized qualifications at different levels from the training of programmes offering by the Department, including Doctorates, Master Degrees, and Bachelor Degrees in Mechanical Engineering, and Product Analysis and Engineering Design.

Strategically emphasize on applied research, the Department firmly believes that research is an integral part of academic life. It informs teaching and advances the frontiers of knowledge and technology. The Department's efforts in research contribute to lifting the competitiveness of industry and to provide possible solutions towards a better living in Hong Kong and in the world.

The Department is famous for its international focus and actively encourages collaborations with overseas institutions. To foster international collaboration, the Department has been very active in inviting internationally well-known academic figures to participate as guest lecturers and in organizing international conferences. The Department has also published numerous research reports on world-renowned publications. The Department facilitates international exchange programmes for students through a strong network with various partner institutions all over the world and provides a platform for students to acquire global horizons and invaluable experiences in their university lives.

Main Research Areas

Aerospace Engineering and Aviation
Advanced Materials Technology
Combustion and Pollution Control
Fluid Structure Interactions
Integrated Product Development
Sound, Vibration and Structural Health Monitoring

Major Laboratories

Acoustics Laboratory
Aeronautical Laboratory
Composite Materials Laboratory
Computational Aeroacoustics and Flow Physics Laboratory
Computational and Simulation Laboratory
Control Laboratory
Corrosion & Surface Technology Laboratory
Design Analysis Centre
Dynamics Laboratory
Fluid Mechanics Laboratory
Heat Transfer & Combustion Laboratory
Nano- & Micro- Mechanics Laboratory
Nanoscale Energy Conversion Devices Laboratory
Nonlinear Dynamics and Vibration Control Laboratory
Product Testing & Analysis Centre
Surface Nano-Crystallization Laboratory
Thermodynamics Laboratory
Water Tunnel Laboratory
Wind Tunnel Laboratory

HEAD's Foreword



2013/14 was a highly successful year for the Department with consolidation and accomplishments. Our teaching, research and service during last year were highlighted by major teaching and research-related awards.

It is thrilled to note that the University has been ranked the 42nd in the discipline of Mechanical, Aeronautical and Manufacturing Engineering in The Quacquarelli Symonds (QS) World University Rankings 2014 and the 39th in the subject of Mechanical Engineering in The National Taiwan University Ranking for world universities 2013. This is an impressive testament to the Department's contributions and sustained efforts nationally and internationally.

The Department's reputation for all-round excellence was further fortified through an array of remarkable achievements of its staff members: The Special Award and Gold Medal at the 42nd International Exhibition of Inventions of Geneva; UGC Teaching Award 2013; Several Awards in The Appreciation of Research Achievement by the Committee of Science and Technology Innovation of Shenzhen; The Most Active New Consultant Award of PolyU; The Best Paper Award of the 2013 International Conference of Computer Science and Engineering.

Students shared equally in the accomplishment spotlight last year. Our students clinched top prizes in prestigious international competitions, including The Grand Prize in The National Mitsubishi Electric Automation Cup – the top and the one prize out of 67 participating teams all over the country; The First Place in ASME Student Design Video Competition – an annual design competition inviting tertiary students from all over the world; The Second Runner-up in Taiwan Innovative UAV Design Competition – one of the key UAV events in the world; The Third Place in the IMechE Greater China Design Competition.

The past year marked another major milestone in raising external income to support research projects through 2013 with over HK\$16 million contributed from the government and industry sources. Beyond research funding, the Department continues to strengthen its research profile in the reporting year with high research output of 136 journal articles, 1 monograph, 3 book chapters and 51 conference proceedings published.

This growing reputation and recognition is a credit to the hard work of the Department's staff and the drive of its students. I would like to thank each member of the Department for bringing another year of great achievement in the efforts to deliver the highest quality of education, scholarly research and services to the society.

Hope you find this Annual Report informative and we welcome any feedback that you may have on our programmes and research activities.

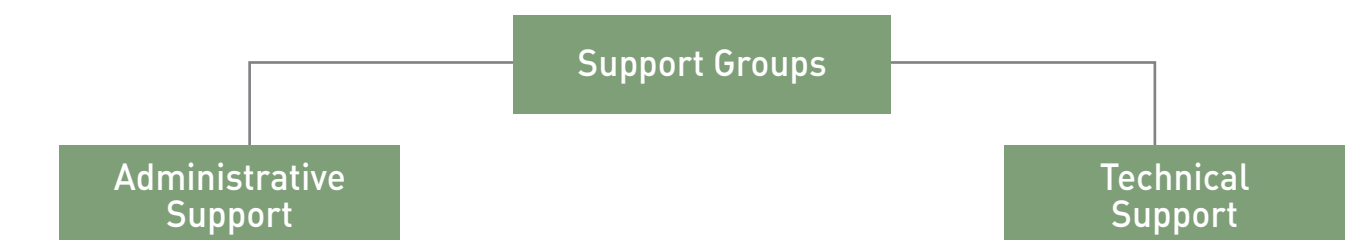
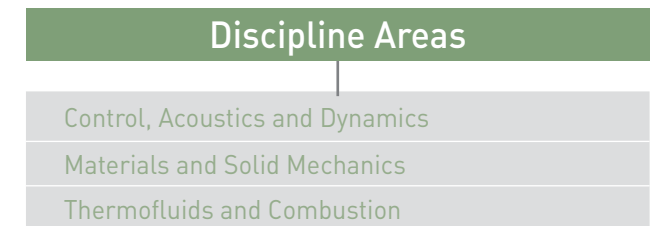
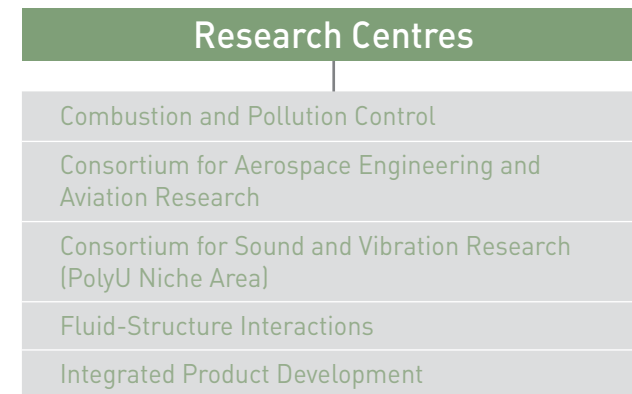
SQ Shi (Prof.)
Interim Head
Department of Mechanical Engineering

OUR PEOPLE

Our professional and passionate staff members, under the support from Departmental Advisory Committee and Academic Advisors, play a vital role in the substantial contributions made both individually and collectively toward the continuous development of the Department, the University and the community.



Department Structure



Advisory Committee

Chairman	Ir Conrad Wong Vice-Chairman Yau Lee Group		Ir Mok Wai Chuen Assistant Director Environmental Protection Department, HKSAR
Ex-officio Members	Prof L Cheng Chair Professor and Head Department of Mechanical Engineering The Hong Kong Polytechnic University		Mr Alex Wong Managing Director Kings Flair (Group) Development Ltd.
	Prof H C Man Dean Faculty of Engineering The Hong Kong Polytechnic University		Dr Daniel Yip President of the Hong Kong Electrical Appliances Manufacture Association Managing Director of G.E.W Corporation Ltd.
Members	Ir Darryl Chan Chun-Hoi Head of Engineering H K Dragon Airlines Ltd		Mr Andrew Young Vice President Marketing and Sales Hong Kong Science and Technology Parks Corporation HKSAR
	Ir Dr Angus H.W. Cheung Chief Executive Officer China Aircraft Services Limited (CASL)	Overseas Members	Prof. Jean-Louis Guyader Laboratoire Vibrations Acoustique INSA de Lyon, Villeurbanne, France
	Ir T C Chew Project Director MTR Corporation Limited		Prof. Tao Zhi Beihang University
	Ir W K Chow Chairman Institution of Mechanical Engineers, North East Asia Region	Student Representatives	Mr Choy Hung Faat Full time BEng in ME Department of Mechanical Engineering The Hong Kong Polytechnic University
	Prof Alan K T Lau Professor Department of Mechanical Engineering The Hong Kong Polytechnic University		Miss Isabel Wong Tsz Ting Full time PhD in ME Department of Mechanical Engineering The Hong Kong Polytechnic University
	Dr Randolph C K Leung Associate Professor Department of Mechanical Engineering The Hong Kong Polytechnic University	Secretary	Ms Lily Tam Senior Executive Officer Department of Mechanical Engineering The Hong Kong Polytechnic University
	Prof Wallace W F Leung Chair Professor Department of Mechanical Engineering The Hong Kong Polytechnic University	Assistant Secretary	Ms Joanne Cheng Executive Officer Department of Mechanical Engineering The Hong Kong Polytechnic University

Departmental Academic Advisor

Prof. Robert O. Ritchie

H. T. & Jessie Chua Distinguished Professor of Engineering
Professor of Materials Science & Engineering
University of California, Berkeley
Professor of Mechanical Engineering
University of California, Berkeley

Overseas Academic Advisor

Prof. Chung K. Law

Robert H. Goddard Professor
Department of Mechanical and Aerospace Engineering
Princeton University

Prof. Teik Lim

Interim Dean, College of Engineering and Applied Science
Herman Schneider Professor of Mechanical Engineering
University of Cincinnati

Departmental Committee Chairmen

Departmental Staffing Committee	Prof. SQ Shi
Departmental Review Committee	Prof. SQ Shi
Departmental Management Committee	Prof. SQ Shi
Departmental Research Committee	Prof. L Cheng
Departmental Learning and Teaching Committee	Prof. CW Leung
Departmental Publicity Committee	Prof. KT Lau
Space Allocation Committee	Prof. SQ Shi
Programme Committees	
• Departmental Undergraduate Programmes Committee	Prof. CW Leung
• Departmental Postgraduate Programmes Committee	Dr ZQ Su
• MSc in ME Award Committee	Dr ZQ Su
Technology Transfer Committee	Prof. WWF Leung
Work-Integrated-Education Committee	Prof. CS Cheung
International Exchange Committee	Dr Y Liu
Departmental Health and Safety Committee	Dr Curtis Ng

Research Centre Director

Combustion and Pollution Control	Prof. CW Leung
Consortium for Aerospace Engineering and Aviation Research	Prof. CY Wen
Consortium for Sound and Vibration Research	Prof. L Cheng
Fluid- Structure Interactions	Dr Y Liu (Deputy)
Integrated Product Development	Prof. SQ Shi

Discipline Areas Group Leader

Control, Acoustics and Dynamics	Prof. L Cheng
Materials and Solid Mechanics	Prof. LM Zhau
Thermofluids and Combustion	Prof. WWF Leung

Academic Staff

Interim Head (with effect from 1 July 2014) and Professor

SHI Sangiang (Prof.) 石三強教授 BSc; MSc (USTB); PhD (McM); MMRS; MTMS; FHKIE	Surface/interface technology; Nuclear materials; Nanotechnology; Environmental degradation of materials; Computer simulation of material properties
--	---

Head (until 30 June 2014) and Chair Professor of Mechanical Engineering

CHENG Li (Prof.) 成利教授 BSc (Xi'an Jiaotong Univ.); DEA; Ph.D. (INSA, Lyon, France); FASA; FASC; FHKIE; FIMechE	Noise and vibration control; Fluid-structure interaction; Damage detection and smart material/structure/products
---	--

Chair Professor of Mechanical Engineering under the Distinguished Chair Professor Scheme

CHENG Ping (Prof.) 鄭平教授 B.S., Mech. Engg. (Oklahoma State University); M.S., Mech. Engg. (M.I.T.); Ph.D., Aeronautics & Astronautics (Stanford University)	Microscale Heat Transfer; Porous Media Heat Transfer; Mesoscale Simulation of Transport Phenomena; and Radiative Gasdynamics
--	--

Chair Professor of Innovative Products & Technologies

LEUNG Wallace Woon Fong (Prof.) 梁煥方教授 BSc(Cornell U.); MSME(MIT); ScD(MIT); FASME, HKIE, AFS and AICHE; Senior Member of AIAA; Member of ACS and SBE	Product innovation, research and development; Physicochemical hydrodynamics; Turbine cooling; Nanofiber technologies for health (wound healing), environment (filtration of nano-aerosols and purification of gaseous pollutants by photocatalysis; water purification), and renewable energy (Dye Sensitized Solar Cells, Perovskite solar cells); Separation & filtration technologies; Biotechnology separation; Membrane separation and processes; Rheology of semi-fluids; Water and wastewater treatment; Centrifugation technologies; Centrifugal microfluidics for micro-reactor, cell culture and cell lysis, and heat transfer in microchannels; Interactive rehabilitation robotic system; Clinical decision support system; Cancer biomarker discovery
--	--

President of PolyU and Chair Professor of Mechanical Engineering

TONG Timothy W. (Prof.) 唐偉章教授 BSc; MSc; PhD; FASME; FHKEng; JP	High performance computing of radiative heat transfer; Heat transfer in porous media; Energy conservation; Thermal insulation systems; Thermal control of aerospace systems; Thermal radiation; Heat transfer in fuel cells
--	---

Visiting Chair Professor of Fluid Dynamics & Aeroacoustics and Professor Emeritus

SO Ronald Ming Cho (Prof.) 蘇銘祖教授 BSc(Hons); MEng; MA; PhD; DSc; Hon DEng; FWF; FIMechE; FASME; MIAA; FRAeS; FAIAA	Turbulence modeling; Fluid-structure interaction; Flow-induced vibration; Direct aeroacoustics simulation; Lattice Boltzmann-type equation
---	--

Associate Head & Professor

LEUNG Chun Wah (Prof.) 梁振華教授 BSc (CNA); MSc (Cran IT); PhD (CNA); CEng; RPE; FHKIE; FIMarEST; FIMechE; MCIBSE	Heat transfer; Fuel and combustion; Internal combustion engine emissions and their control
---	--

Professor	
CHEUNG Chun Shun (Prof.) 張鎮順教授 BSc; MSc (HKU); PhD (HK PolyU); CEng; RPE; MHKIE; MIMarEST	Internal combustion engine; Engine emissions
LAU Alan Kin Tak (Prof.) 劉建德教授 BEng; MEng (RMIT); PhD (HK PolyU); CEng; CPEng; RPE; FIEAust; FIMechE; FIMMM; FIED; FHKIE; FRAeS	Product design and development; Aerospace composites; Smart materials and structures; Nanocomposites; Aerospace and aircraft engineering; Eco-materials and green composites
WEN Chih-Yung (Prof.) 溫志湧教授 BEng (National Taiwan University); MSc (Caltech, U.S.A.); PhD (Caltech, U.S.A.); AFAIAA	Aerodynamics of hypersonic vehicles; Supersonic combustion; Active flow control; Magnetic fluid flows; Fuel cell technologies
ZHOU Limin (Prof.) 周利民教授 BEng; MEng (Harbin); PhD (Syd)	Electrospun nanofibers/nanotubes for energy storages; Dye/quantum-dot sensitized solar cells; Recyclable and reusable high performance structural composites; Functional composites; Structure health monitoring technology

Associate Professor	
CHAN Tat Leung (Dr) 陳達良博士 BSME; MSME; PhD; Eur Ing; CEng; P.E.(Wis, USA); SrMCMES; MHKIE; FIMechE; MASME; MASHRAE; MSAE	Environmental science & technology; Multiphase and multi-component complex systems with micro- and nanoscale; Transport and formation of nano/microparticles and gaseous Pollutants; On-road vehicle emission measurement, Control and modelling techniques; Engine combustion & emissions formation; Thermal-fluids science & engineering
CHOY Yat Sze (Dr) 蔡逸思博士 BEng; PhD (HK PolyU); MIOA	Sound induced vibration; Duct noise control; Building acoustics; Environmental noise measurement and control; Aeroacoustics
FU Ming Wang (Dr) 傅銘旺博士 BEng; MEng (Xi'an Northwestern PolyU); PhD (National Univ. of Singapore)	Product design and development; CAD and CAE; Manufacturing technologies; Nano-processing of bulk materials and micro-realization of micro product/systems
LEUNG Randolph Chi Kin (Dr) 梁志堅博士 PhD; Senior MAIAA; MASME; MIED; MIOA; MHKIE; MHKIOA	Computational aeroacoustics and gas dynamics; Wind turbine aerodynamics; Flow-induced sound and structural vibration; Aviation science; HVAC compressor and system design; Product sound and vibration quality
LIU Yang (Dr) 劉陽博士 BSc (UST, China); MPhil (Beijing Inst of Chem Tech); PhD (Syd); MHKIE	Biomechanics; CFD; Flow-induced vibration and thermal management
SU Zhong Qing (Dr) 蘇眾慶博士 BSc (BUAA); MEng (BUAA); PhD (Syd..)	Structural Health Monitoring (SHM); Non-destructive Evaluation (NDE); Elastic wave propagation; Smart materials & structures; Sensors & sensor networks; Digital signal processing & data fusion; Vibration & noise control; Advanced composite materials
WONG Wai On (Dr) 黃偉安博士 BEng; MSc; PhD (HK PolyU); MIMechE; CEng; MHKIE	Laser diagnostics; Structural dynamics; Signal processing
YUAN Jing (Dr) 袁勁博士 BS (Jiaotong); MS (Akron); PhD (Vic, BC); MHKIE; MIEEE	Adaptive control theory; Active control of vibration noise; Mechantronics
ZHENG Guang Ping (Dr) 鄭廣平博士 BS., MS. (Sun Yat-sen University); Ph.D. (Johns Hopkins University)	Computational materials science (multiscale methods: first-principles, molecular dynamics and phase- field modeling and simulations); Syntheses and applications of functional nanomaterials

Visiting Associate Professor	
FUNG Eric Hoi Kwun (Dr) 馮海堃博士 BSc; PhD (HKU); CEng; RPE; MHKIE; MIMechE; FInstM&C	Dynamics and control; Industrial automation and mechatronics; Intelligent systems; Precision measurement; Robotics
WONG Eric Tsun Tat (Dr) 黃俊達博士 MSc (Lough); PhD (Leics); CEng; RPE; FRAeS; MIMechE; MHKIE; CMILT; FHKQMA	Aviation legislation, airworthiness, and flight operations safety; Human factors and organization culture; Stochastic modelling and optimization of complex systems; Laser surface treatment; Heat transfer; Six sigma; Life cycle costing

Assistant Professor	
JING Xingjian (Dr) 景興建博士 Bsci (Zhejiang Univ.); MEng (CAS); PhD (Univ. of Sheffield)	Frequency domain methods for nonlinear systems; Nonlinear system identification and signal processing; Sound and vibration control including development of new generation of vibration isolators; Robust learning methods; Intelligent computing and optimization
RUAN Haihui (Dr) 阮海輝博士 PhD (HKUST)	Solid mechanics; Plasticity; Constitutive modeling; Amorphous materials; Nanomaterials; Impact; Collision and crashworthiness
TANG Hui (Dr) 唐輝博士 BEng, MEng (Tsinghua University); PhD (University of Manchester)	Aerodynamics; Hydrodynamics; Active flow control; Fluid-structure interaction; Multiphase flow
YAO Haimin (Dr) 姚海民博士 BEng, MEng (Tsinghua University); Dr.rer.nat.(Universität Stuttgart)	Bio-inspired mechanics and materials; Nanomechanics; Contact mechanics; Mechanical characterizations of biomaterials
ZHANG Peng (Dr) 張鵬博士 BSc (USTC); MSc (IMCAS); PhD (Princeton)	Theoretical and numerical combustion; Chemical kinetics; Droplet dynamics; Rarefied gas dynamics
ZHU Jie (Dr) 祝捷博士 BSc, MSc (Nanjing University); PhD (The Pennsylvania State University)	Structured acoustic materials and metamaterials; Acoustic imaging technology and system; Piezoelectric material and acoustic transducers; Experimental acoustics.

Teaching Fellow	
Anand VYAS (Dr) 阿倫韋華斯博士 BSc; MSc (R.D.V, India); MPhil (HKU); PhD (CityU HK)	Thin film; Nanomaterials materials; Materials characterization; Hard multilayer coatings and their mechanical & tribological properties; High temperature superconductivity
TAM Eunice Wai Yin (Dr) 譚慧賢博士 BEng (HK PolyU); MEng (HK PolyU); PhD (UNO)	Composite and application; Composite manufacturing; Nanocomposite (carbon nanotube/polymer) structure

Temporary Full Time Teaching Fellow	
KAHANGAMAGE Udaya (Dr) BSc.Eng (SL); PhD (Uni. of Bristol, UK)	Product design and manufacturing; Risk analysis in early conceptual design; Productivity improvement in manufacturing systems; Cleaner Production; Development of appropriate technology for developing world
LAM Chun Ki (Dr) 林俊祺博士 BEng; PhD (HK PolyU); MION; MASME; MSAE; MIET	Advanced composite structures; Materials characterization; Nanoclay/polymer composites; Nanotechnology, On-road gaseous and particle emissions measurement

NG Tin Yau Ernest (Dr) 吳天佑博士 Civil Dip. (NAIT); Mech Dip. (NAIT); BEng; MASc; PhD (UVic)	Micromechanics; Computational Solid Mechanics; Multi-Scale Modeling of Hybrid Composites
TONG Yu Chee (Dr) 唐宇池博士 BEng (RMIT); Ph.D. (Syd.)	Structural risk and reliability methods; Fatigue and fracture mechanics; Aircraft structures
YUEN David Da Wai (Dr) 袁大偉博士 BSc (Eng); MPhil (H.K.); MBA (C.U.H.K.); PhD[PolyU (H.K.)] MemACM; MemASME; MemIEEE	Mechatronics; Computational intelligence; Computer vision; Product design
ZHANG Yu Fiona (Dr) 章瑜博士 BEng (SJTU); MEng (NUS); PhD (UCR)	Nanostructured biomaterials for tissue engineering and drug delivery; Biomedical applications of nanomaterials; Advanced microscopy characterization on nanomaterials and nano-bio interface; Integrated micro/nanosensing devices

Senior Instructor

TANG Elsa (Ms) 鄧慧芳 BEng (Liverpool, UK); MSc (Liverpool, UK); MSc (HKU)	Computer aided design; Computer aided engineering; Product design and management; Basic scientific computing; Supply chain management
---	---

Administrative Support Staff

TAM Man Yee, Lily (Ms) 譚敏儀	Leader, Senior Executive Officer
WAN CHENG Lai Ying, Lily (Mrs) 溫鄭麗英	Executive Officer II
WONG Yuet Man, Celia (Ms) 王月敏	Assistant Marketing Manager
CHENG Sze Ting, Joanne (Ms) 鄭詩婷	Executive Officer
YUEN Man Hei, Hilary (Miss) 袁汶禧	Executive Assistant
CHAN Bik Ki, Packy (Ms) 陳碧琪	Clerical Officer II
LAI CHAN Sin Fan, Michelle (Mrs) 黎陳倩芬	Clerical Officer II
NGAI Oi Ling, Irene (Miss) 魏愛玲	Clerical Officer II
WONG Sin Hing, Merlin (Ms) 王倩卿	Clerical Officer II
WONG Kam Yan (Ms) 黃錦恩	Clerk

Technical Support Staff

NG Chun 吳駿	Interim Technical Support Group Leader
Ir LO Kok Keung 盧覺強工程師	Visiting Engineer
CHAN Hau Tsang, Raymond 陳孝曾	Scientific Officer II
CHAN Tak Ming 陳德明	Scientific Officer
NG Chun Hung 伍俊雄	Technical Officer
TSANG Kwong Shing 曾廣成	Technical Officer
WONG Kwok Wai 黃國威	Technical Officer
YUEN Ka On 袁家安	Technical Officer
HUI Kin Hung 許健雄	Technician
TANG Kam Keung 鄧錦強	Technician
MAN Ka Fung 文家豐	Assistant Technical Officer
WOO Wai Chiu 胡偉昭	Senior Artisan
MO Chi Wai 毛志偉	Artisan
SHUM Kin Kwok 岑建國	Artisan



Research Personnel

Senior Research Fellow (Full-time)

YUAN Li-bo (Dr) 苑立波
PhD, The Hong Kong Polytechnic University

Research Fellow (Full-time)

ZHEN Hai-sheng (Dr) 甄海生
PhD, The Hong Kong Polytechnic University

Research Fellow (Part-time)

CHEUNG Yan Lung (Dr) 張人龍
PhD, The Hong Kong Polytechnic University

Postdoctoral Fellow (Full-time)

HO Mei Po, Mabel (Dr) 何美寶
PhD, The University of Southern Queensland, Australia

JI Hong-li (Dr) 季宏麗
PhD, Nanjing University of Aeronautics and Astronautics, China

LAM Chi Yan, Garret (Dr) 林志欣
PhD, The Hong Kong Polytechnic University

ZHANG Ying-chao (Dr) 張英朝
PhD, Jilin University, China

Research Associate (Full-time)

FAN Rong-ping (Dr) 范蓉平
PhD, Shanghai Jiaotong University, China

FU Jin (Dr) 付瑾
PhD, Xi'an Jiaotong University, China

HU Qiang 胡強
PhD, Northwestern Polytechnical University, China

LI Wei-kang (Dr) 李維康
PhD, Ecole Centrale Paris, France

LI Xiao-feng (Dr) 李曉峰
PhD, Lanzhou University, China

LIU Chun-chuan (Dr) 劉春川
PhD, Harbin Inst of Tech, China

MENG Bao (Dr) 孟寶
PhD, Beihang University, China

SHEN Hua (Dr) 申華
PhD, Peking University, China

SHI Xing-hua (Dr) 施興華
PhD, Brown University, US

TAM Wai Cheong, Andy 譚偉昌
PhD Student, The Hong Kong Polytechnic University

WANG Jing-chuan (Dr) 王勁川
PhD, The Hong Kong Polytechnic University

XU Hao (Dr) 徐浩
PhD, The Hong Kong Polytechnic University

YANG Cheng (Dr) 楊程
PhD, The Hong Kong Polytechnic University

YANG Li-jun, Sherry (Dr) 楊麗軍
PhD, The Hong Kong Polytechnic University

YU Ming-zhou (Dr) 于明州
PhD, Zhejiang University, China

ZHANG Ji-feng (Dr) 章繼峰
PhD, Harbin Inst of Tech, China

ZHANG Su (Dr) 張肅
PhD, Southeast University, China

ZHAO Jia-quan (Dr) 趙家權
PhD, Dalian University of Tech, China

ZHAO Zhang-long (Dr) 趙張龍
PhD, Northwestern Polytechnical University, China

ZHENG Xiu-cheng (Dr) 鄭修成
PhD, Nankai University, China

Research Associate (Part-time)

LIU Yang, Antony (Dr) 劉洋
PhD, The Hong Kong Polytechnic University

SE Mei King, Camby (Dr) 蘇美琼
PhD, City University of Hong Kong

WONG Chi Wai (Dr) 黃志偉
PhD, The University of Manchester, UK

XIAO Zhi-hua (Dr) 肖知華
PhD, The Hong Kong Polytechnic University

Research Assistant (Full-time)

BIAN Jing 邊菁
Master, Tongji University, China

DONG Wei-zhong 董維中
Master, Northwestern Polytechnical University, China

FAN Shi-wei 范世煒
BSc, Zhejiang Normal University, China

HAN Zhuo 韓卓
Bachelor, Guizhou University, China

JIANG Hao (Dr) 姜昊
PhD, The Hong Kong Polytechnic University

LEI Ming 雷鳴
MSc, The Hong Kong Polytechnic University

LI Long 李璿
BEng, Hunan University, China

LI Wei-qun 李衛群
MSc, The Hong Kong Polytechnic University

LI Xin-ming 李新明
MEng, Tsinghua University, China

LI Yin-zhe 李尹喆
MEng, Northwestern Polytechnical University, China

LIU Hui-jie 劉慧潔
Bachelor, China Jiliang University, China

LIU Liang (Dr) 劉亮
PhD, Qufu Normal University, China

LIU Ming-hui (Dr) 劉明輝
PhD, Harbin Inst of Tech, China

LIU Yu-zhe 劉宇哲
BEng, Central South University, China

LO Kin Shing, Kenneth 盧健誠
BS, Colorado School of Mines, US

MAN Xing-jia 滿興家
Bachelor, Xian Jiaotong University, China

OUYANG De-lai (Dr) 歐陽德來
PhD, Nanjing University of Aeronautics and Astronautics, China

PAN Hui-hui 潘惠惠
MSc, Harbin Inst of Tech, China

QIAN Zeng-xi 喬增熙
MEng, Harbin Inst of Tech, China

SUN Kai 孫凱
BEng, Wuhan U of Tech, China

TANG Jing-jing 唐晶晶
BEng, Central South University, China

WAN Yun 萬雲
MEng, Harbin Engg University, China

WANG Zhi-bo 王志博
BEng, Nanjing Forestry University, China

XIE Zhao-qian 解兆謙
MEng, Dalian University of Tech, China

XU Zhu-tian 徐竹田
Master, Shanghai Jiaotong University, China

XUE Bao-chuan 薛寶川
MSc, The Hong Kong Polytechnic University

XUE Xiao-peng (Dr) 薛曉鵬
PhD, Nagoya University, Japan

YANG He 楊賀
MEng, Harbin Inst of Tech, China

YANG Yi-chun 楊一春
MSc, The Hong Kong Polytechnic University

YU Ho Man 余浩文
BEng, The Hong Kong Polytechnic University

ZHANG Li-dong (Dr) 張李東
PhD, Nanjing University, China

ZHENG Yan (Dr) 鄭燕
PhD, City University of Hong Kong

Project Associate (Full-time)

CHAN Yuen Shan 陳婉珊
BEng, The Hong Kong Polytechnic University

WONG Mei Kwan 黃美筠
BEng, The Hong Kong Polytechnic University

Intern (Full-time)

LI Ka Hin 李嘉軒
MSc student, The Hong Kong Polytechnic University

LIN Xiao-bin 林小斌
MSc, City University of Hong Kong

SUN Yu-hang 孫宇航
Master, City University of Hong Kong

YAO Senna 姚森娜
MSc, The Hong Kong Polytechnic University

PhD Student (Full-time)

CHAN Yui Ho 陳銳豪
BEng, The Hong Kong Polytechnic University

CHEN Kai-guo 陳開果
MEng, Chinese Academy of Engineering Physics, China

CHEN Yu-ming 陳育明
MSc, Fujian Normal University, China

CHEUNG Ka Po 張嘉寶
MEng, University of Salford, UK

FAN Ka Heng 范嘉興
BEng, The Hong Kong Polytechnic University

HE Chong 何冲
BS, Sun Yat-sen University, China

HONG Ming 洪銘
BSc, Lafayette College, US

HU Jing 胡菁
Master, Central South University, China

HUANG Jie-feng, Jeff 黃杰峰
MPhil, The Hong Kong Polytechnic University

JIANG Zhi-yuan 蔣志遠
MSc, The Hong Kong Polytechnic University

LAM King Cheong 林景昌
MPhil, The University of Hong Kong

LEUNG Wing Yan, Maggie 梁詠欣
MPhil, The Hong Kong Polytechnic University

LI Fang-fang 李芳芳
BEng, Tongji University, China

LI Nana 李娜娜
MSc, University of Alberta, Canada

LI Wei-qun 李衛群
MSc, The Hong Kong Polytechnic University

LI Xiao-yan 李小燕
MSc, Fujian Normal University, China

LI Ye-hai 李葉海
MEng, Nanjing University of Aeronautics & Astronautics, China

LIU Meng-long 劉夢龍
MEng, Nanjing University of Aeronautics & Astronautics, China

LIU Qiang 劉強
MEng, Harbin Inst of Tech, China

LIU Shu-yuan 劉殊遠
MEng, University of Chinese Academy of Sciences, China

LU Ming-zhen 路明臻
MEng, Jiangsu University, China

MAK Yi Wah, Eva 麥汜華
MS, Washington University in Saint Louis, US

MIAO Jing 繆婧
BEng, The Hong Kong Polytechnic University

PEI Chun 裴純
MSc, The Hong Kong Polytechnic University

QADRI Muhammad Nafees Mumtaz
MSc, National University of Sci & Tech, Pakistan

RADECKI, Rafai Zbigniew
BSc, AGH University of Science and Technology, Poland

RAN Jia-qi 冉家琪
MSc, The Hong Kong Polytechnic University

SALDIVAR, Heriberto
MSc, National Cheng Kung University, Taiwan

SEID Ka Him 薛家謙
MEng, University of Salford, UK

SHEN Xiao-dong 沈小東
MEng, Jilin University, China

SUN Xiu-ting 孫秀婷
BEng, Tongji University, China

TAM Wai Cheong, Andy 譚偉昌
BSc, University of California, US

WAN Jian-quan 萬建全
MEng, Shanghai University, China

WANG Bin 王斌
MEng, Guangzhou Inst of Energy Conversion, China

WANG Hong 王紅
Master, Shenzhen University, China

WANG Ji-lai 王繼來
MSc, The Hong Kong Polytechnic University

WANG Kai 王凱
MEng, Beihang University, China

WANG Shu 王庶
MSc, Peking University, China

WANG Song 王松
MSc, The Hong Kong Polytechnic University

WANG Tian-gang 王天罡
MEng, China Academy of Space Technology

WANG Xiao-nan 王曉楠
MSc, Nanjing University, China

WANG Zhi-bo 王志博
MEng, Huazhong University of Sci and Tech, China

WONG Tsz Ting 黃芷亭
BEng, The Hong Kong Polytechnic University

WU Di 吳迪
MEng, Northwestern Polytechnical University, China

WU Ke-ming 吳可鳴
MSc, The Hong Kong University of Sci & Tech

XI Qiang 席強
BEng, The Hong Kong Polytechnic University

XIAO Zhen-long 肖珍龍
MEng, Beijing University of Posts and Telecommunications, China

XIAO Zhi-hua 肖知華
MSc, University of Sci & Tech Beijing, China

YU Xiang 余翔
BEng, The Hong Kong Polytechnic University

ZHANG Bing-fu 張炳夫
MEng, Dalian University of Tech, China

ZHANG Hong-ying 張紅英
MEng, Tongji University, China

ZHANG Pei 張培
MEng, Northwestern Polytechnical University, China

ZHOU Jian-hao 周健豪
MEng, Jiansu University, China

ZHU Xu-ren 朱旭仁
MEng, Huazhong University of Sci and Tech, China

ZIAJA, Aleksandra
BSc, AGH University of Science and Technology, Poland

PhD Student (Part-time)

LAM Cheuk Yi, Tracy 林卓怡
MPhil, City University of Hong Kong

NG Chun, Curtis 吳駿
MSc, The Hong Kong University of Sci & Tech

REN Yong 任勇
BEng, Beihang University, China

WANG Zong-rong 王宗榮
MEng, Zhejiang University, China

WONG Yin Wai 黃燕威
BEng, The Hong Kong Polytechnic University

XU Hao 徐浩
MEng, Dalian University of Tech, China

YANG Li-jun, Sherry 楊麗軍
MEng, General Research Inst of Nonferrous Metals, China

MPhil Student (Full-time)

CHIANG Yan Kei 蔣欣岐
BEng, The Hong Kong Polytechnic University

CHOY Hung Faat 蔡鴻發
BEng, The Hong Kong Polytechnic University

FU Ji-min 傅濟民
BEng, Zhejiang University, China

HAO Ming-jun 郝明君
MEng, Shanghai University, China

HAU Wing Yi, Cruie (Ms) 侯詠怡
BEng, The Hong Kong Polytechnic University

LAM Ka Hei 林家熙
BEng, The Hong Kong Polytechnic University

LO Kin Shing, Kenneth 盧健誠
BS, Colorado School of Mines, US

MAO Chen 茅辰
BEng, Zhejiang University, China

MPhil Student (Part-time)

LAM Yat Ken 林日健
BEng, City University of Hong Kong

YU Hoi Fai 余凱暉
BEng, The Hong Kong Polytechnic University

Staff Movement (1 July 2013 – 30 June 2014)

Staff Promotion

Dr Curtis NG was promoted to Interim Technical Support Group Leader

New Appointment

Dr RUAN Haihui, Assistant Professor
Dr TONG Yu Chee, Temporary Full Time Teaching Fellow

Departure

Prof. Y Zhou, Professor
Dr Robin Ma, Temporary Full Time Teaching Fellow
Miss Carmen Hung, Clerk

Honours & Awards (1 July 2013 – 30 June 2014)

Prof. LAU Alan Kin Tak

- UGC Teaching Award 2013

Prof. LEUNG Wallace Woon Fong

- Special Award and Gold Medal, The 42th International Exhibition of Inventions Geneva 2014, Romania Ministry of National Education

Prof. WEN Chih-Yung

- 國家級科技項目獎, The Appreciation of Research Achievement, The Committee of Science and Technology Innovation of Shenzhen (深圳市科技創新委員會)

Dr JING Xing Jian

- Most Active New Consultant, PteC's Annual Outstanding Professional Services Awards 2013
- 國家級科技項目獎, The Appreciation of Research Achievement, The Committee of Science and Technology Innovation of Shenzhen (深圳市科技創新委員會)

Dr SU Zhong Qing

- 國家級科技項目獎, The Appreciation of Research Achievement, The Committee of Science and Technology Innovation of Shenzhen (深圳市科技創新委員會)

Dr ZHANG Peng

- 市級科技項目獎, The Appreciation of Research Achievement, The Committee of Science and Technology Innovation of Shenzhen (深圳市科技創新委員會)

Dr ZHENG Guang Ping

- 市級科技項目獎, The Appreciation of Research Achievement, The Committee of Science and Technology Innovation of Shenzhen (深圳市科技創新委員會)

Dr TAM Eunice Wai Yin

- Faculty of Engineering Merit Award (Individual) in Teaching



Professional Services

Prof. CHENG Li

- Vice-president: Hong Kong Society of Theoretical and Applied Mechanics
- Committee Member: Institution of mechanical Engineers (IMechE), Hong Kong Branch
- Executive Committee Member: Hong Kong Society of Theoretical and Applied Mechanics
- Advisor: The AMSS-PolyU Joint Research Institute for Engineering and Management Mathematics
- Member: The Panel on Engineering and Science, The University of Macau
- Member: The Noise Control Appeal Board Panel, Secretary for the Environment, HKSAR
- Member: The Noise Technical Briefing Group, Airport Authority Hong Kong
- Member: Expert Panel, Automotive Parts and Accessory Systems R&D Centre

Prof. LAU Alan Kin Tak

- International Vice President and Trustee Board member: The Institution of Mechanical Engineers, UK
- Professional Review Panel member: Hong Kong Green Building Council
- Committee Member: The Hong Kong Electrical Appliance Industries Association
- Committee Member: University Grant Committee (UGC) Teaching Excellence Award 2014

Prof. LEUNG Wallace Woon Fong

- RGC, Engineering Panel Member (specialize in Mechanical & Environmental)

Prof. ZHOU Limin

- RGC, Engineering Panel Member
- Vice President: Chinese Society for Composite Materials

Prof. WEN Chih-Yung

- Member of International Advisory Committee: 30th International Symposium on Shock Waves, Israel
- Advisory Committee Member: The 7th Across-Strait Shock/Vortex Interaction Workshop, Taiwan
- Departmental Academic Advisor: Department of Aeronautical and Astronautical Engineering, National Cheng Kung University, Taiwan
- Departmental Academic Advisor: Department of Aerospace and System Engineering, Feng Chia University, Taiwan

Dr CHAN Tat Leung

- Specialist: Engineering, and Science & Technology Disciplines of Hong Kong Council for Accreditation of Academic & Vocational Qualifications (HKCAAVQ), Hong Kong
- Immediate Past Chair: Society of Automotive Engineers (SAE) International Hong Kong
- Faculty Advisor: The first SAE International- Hong Kong Student Collegiate Club at HKPolyU (Appointed by the Headquarter of SAE International, USA)

Dr CHOY Yat Sze

- Section Secretary, American Society of Mechanical Engineers – Hong Kong Section

Dr FU Ming Wang

- Advisory Board Member: The International Journal of Advanced Manufacturing Technology

Dr LEUNG Randolph Chi Kin

- Section Chair, American Society of Mechanical Engineers – Hong Kong Section

Dr WONG Eric Tsun Tat

- Hon. Treasurer of the Royal Aeronautical Society (HK)

Fellowship

Prof. SHI Sanqiang

- Fellow of The Hong Kong Institution of Engineers (FHKIE)

Prof. CHENG Li

- Fellow of Acoustical Society of America (FASA)
- Fellow of Acoustical Society of China (FASC)
- Fellow of The Hong Kong Institution of Engineers (FHKIE)
- Fellow of The Institution of Mechanical Engineers (FIMechE)

Prof. LEUNG Wallace Woon Fong

- Fellow of American Society of Mechanical Engineers (FASME)
- Fellow of American Institute of Chemical Engineers (FAICHE)
- Fellow of The Hong Kong Institution of Engineers (FHKIE)
- Fellow of American Filtration & Separations Society (FAFS)

Prof. LEUNG Chun Wah

- Fellow of The Hong Kong Institution of Engineers (FHKIE)
- Fellow of Institute of Marine Engineering (FIMarEST)
- Fellow of The Institution of Mechanical Engineers (FIMechE)

Prof. LAU Alan Kin Tak

- Fellow of The Institution of Engineers, Australia (FIEAust)
- Fellow of The Institution of Mechanical Engineers (FIMechE)
- Fellow of The Institute of Materials, Minerals and Mining (FIMMM)
- Fellow of The Institute of Engineering Designers (FIED)
- Fellow of The Hong Kong Institution of Engineers (FHKIE)
- Fellow of Royal Aeronautical Society (FRAeS)

Prof. WEN Chih-Yung

- Associate Fellow of The American Institute of Aeronautics and Astronautics (AFAIAA)
- Fellow of The Hong Kong Institution of Engineers (FHKIE)

Dr CHAN Tat Leung

- Fellow of The Institution of Mechanical Engineers (FIMechE)

Dr FUNG Eric Hoi Kwun

- Fellow of The Institute of Measurement and Control (FInstMC)

Dr WONG Eric Tsun Tat

- Fellow of Royal Aeronautical Society (FRAeS)

Journal Editorship

Prof. SHI Sanqiang

- Associate Editor: Science of Advanced Materials
- Associate Editor: Journal of Nanoscience and Nanotechnology
- Associate Editor: Journal of Computational and Theoretical Nanoscience
- Editorial Board Member: International Journal of Minerals, Metallurgy and Materials

Prof. CHENG Li

- Associate Editor: The Journal of the Acoustical Society of America, IOP publishing
- Associate Editor: Structural Health Monitoring, An international Journal. SAGE Ltd. Science
- Editorial Board Member: International Journal of Applied Mechanics, Imperial College Press
- Editorial Board Member: Book series in MATLAB Applications in Engineering and Technology, Springer Verlag GmbH
- Editorial Board Member: International Journal of Mechanics and Solids
- Editorial Board Member: International Journal of Dynamics of Fluids
- Editorial Board Member: ACTA ACUSTICA SINICA
- Editorial Board Member: Chinese Journal of Acoustics

Prof. LEUNG Wallace Woon Fong

- Editorial Board Member: J. of Separation and Purification Technology, Elsevier

Prof. LAU Alan Kin Tak

- Editor of Advanced Materials Research, Trans Tech Publications, USA
- Regional Editor of The American Journal of Applied Sciences, Science Publication, UK
- Associate Editor of Nanomaterials, Hindawi Publishers
- Associate Editor of Structural Health Monitoring, SAGA Publications
- Associate Editor of International Journal of Smart and Nano Materials, Taylor & Francis
- Editorial Board Member: The Proceedings of the Institution of Mechanical Engineers Part L: Journal of Materials: Design and Applications, SAGE Publications
- Editorial Board Member: Fibre, MDPI AG
- Editorial Board Member: The Scientific World Journal, Hindawi Publishing Corporation
- Editorial Board Member: ISRN Mechanical Engineering, Hindawi Publishing Corporation
- Editorial Board Member: Nanoscience and Nanotechnology - Asia, Bentham Science
- Editorial Board Member: Journal of Composites Part B: Engineering, Elsevier

Prof. WEN Chih-Yung

- Editor: Shock Waves, Springer

Dr CHAN Tat Leung

- Editor: Aerosol and Air Quality Research, Taiwan Association for Aerosol Research
- Editorial Advisory Board Member: Automotive Engineering International (Chinese Edition) (Editorial Partner: Society of Automotive Engineers (SAE) International, USA), SAE International in cooperation with Ringer Trade Media Ltd.

Dr FU Ming Wang

- Regional Editor (North-Asia) of the Int. J. of Computer Aided Engineering and Technology, Interscience Publisher
- Editorial Board Member, The International Journal of Advanced Manufacturing Technology, Springer
- Editorial Board Member, Chinese Journal of Mechanical Engineering-English, Springer
- Editorial Board Member, Chinese Journal of Mechanical Engineering-Chinese, Springer
- Editorial Board Member, International Journal of Metals, Hindawi Publishing Corporation

Dr LEUNG Randolph Chi Kin

- Editorial Board Member: Engineering Applications of Computational Fluid Mechanics
- Editorial Board Member: Advances and Applications in Fluid Mechanics
- Associate Editor in Chief: Journal of Technical Acoustics

Dr SU Zhong Qing

- Associate Editor of Structural Engineering and Mechanics, Techno-Press
- Associate Editor of Coupled Systems Mechanics, Techno-Press

Dr WONG Wai On

- Editorial Board Member: The Scientific World Journal, Hindawi Publishing Corporation
- Editorial Board Member: ISRN Mechanical Engineering, Hindawi Publishing Corporation

Dr JING Xingjian

- Editorial Board Member: The Scientific World Journal, Hindawi Publishing Corporation
- Editorial Board Member: International Journal of Mechanic Systems Engineering, American V-King Scientific Publishing
- Editorial Board Member: Modern Mechanical Engineering, Scientific Research Publishing Inc., Scientific Research Publishing Inc.

Distinguished Lecture / Keynote Speech at International Conference / Symposium**Prof. SHI Sanqiang**

- "Competitive Adsorption Model for Pb²⁺, Ca²⁺ and Mg²⁺ on Alloy 800 in Simulated Crevice Chemistry at High Temperature", NACE International Annual Conference & Expo 2014, May 19-22, 2014, Beijing, China.
- "Overview of the Application of Phase-field Method in Hydrogen Embrittlement and Localized Corrosion", China Environmental Fracture Conference 2013, Oct. 9-12, 2013, Wu Yuan, China.

Prof. CHENG Li

- "Micro-perforates in Vibroacoustic Systems", The 18th Annual Conference of HKTAM 2014, 10th Shanghai-Hong Kong Forum on Mechanics and its Applications, 15 March 2014, Hong Kong.
- "Acoustic Design and Noise Control inside the Aircraft Cabin", 3rd International Symposium on Aircraft Airworthiness (ISAA 2013), 19-21 November 2013, Toulouse, France.
- "Vibroacoustic Analysis and Control of Aircraft Structures", International Conference on Mechanical, Industrial and Materials Engineering (ICMIME2013), 1-3 November 2013, Rajshahi, Bangladesh.
- "Controlling Flow-Structure-Sound Interaction using Adaptive Structures", 15th Asia Pacific Vibration Conference, 2-6 July 2013, Jesu, Korea.

Prof. LEUNG Wallace Woon Fong

- "Nanofiber filter technologies for removing fine and submicron aerosols and added functions", China International Filtration Summit Forum and Exhibition, 14-17 April 2014, Beijing, China.

Prof. LAU Alan Kin Tak

- "Composites at Cryogenic Condition", The 14th International Conference on Experimental Mechanics, 25-28 Nov 2013, Bangkok, Thailand.
- "Nanocomposites at Extreme (Space) Environment", The 4th Conference on Multifunctional Materials and Structures, 14-17 July 2013, Bangkok, Thailand.
- "Space Materials – Their Survivability at different Harsh Environment", The 1st China International Conference on Composite Materials (CCCM-1), 10-13 September 2013, Beijing, China.

Prof. WEN Chih-Yung

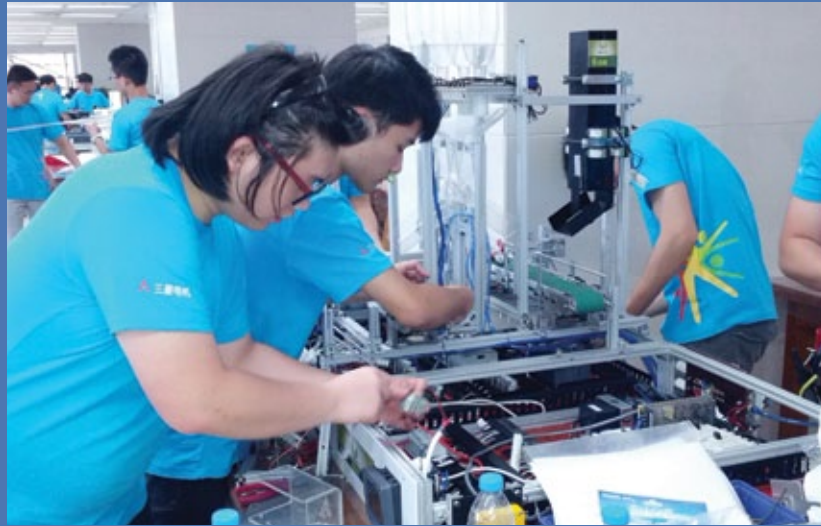
- "Experimental Study on Self-Ignition of a Pre-heated H₂ Transverse Jet in a Supersonic Freestream", 2013 International Workshop on Detonation for Propulsion, 26-28 July 2013, Tainan, Taiwan.

Dr FU Ming Wang

- "Micro-scaled plastic deformation and fracture behaviors, Plasticity, Damage & Fracture", 3-8 January 2014, 14, Freeport, Bahamas.
- "Simulation-enabled prediction and avoidance of flow- and stress-induced defects and quality assurance in the plastically deformed parts", The 11th International Conference on Numerical Methods in Industrial Forming Process, 6-10 July 2013, Shen Yang, China.
- "Some critical technology and process issues in metal forming process", Chinese National Plasticity Engineering Conference, 16-17 October 2013, Wu Han, China.

Dr SU Zhong Qing

- "Guided Wave-based In-situ Structural Health Monitoring for High-speed Train Bogies", The 2013 International Conference on Electrical Engineering and Information Technologies for Rail Transportation (EITRT2013), 7-10 November 2013, Changchun, China.



TEACHING & LEARNING

At ME Department, education is not only imparting knowledge and skills with excellent teaching quality but also nurturing all-round future leaders with creativity, global outlook and professional attributes by providing a holistic and fruitful learning experience.

Enhancing and maintaining excellent teaching quality has always been the major goal of the Department. The Department takes every effort to continuously improve teaching and learning performance to ensure the knowledge and skills students learnt in classrooms are up-to-date and applicable in real life.



Programmes Offered

The Department offers Doctorates, Master Degrees, and Bachelor Degrees. Students gain professionally recognized qualifications at different levels from the vibrant teaching and learning approach.

Undergraduate Programmes

Programme Title	Mode of Study
BEng(Hons) in Mechanical Engineering	Full-time (UGC funded)
BEng(Hons) in Product Analysis and Engineering Design	Full-time (UGC funded)
BEng(Hons) in Mechanical Engineering	Part-time (Self-financed)
BEng(Hons) in Product Analysis and Engineering Design	Part-time (Self-financed)

Postgraduate Programmes

Programme Title	Mode of Study
MSc/PgD in Mechanical Engineering Four specialisms: <ul style="list-style-type: none"> • MSc in Mechanical Engineering (Product Development and Analysis) • MSc in Mechanical Engineering (Air/Noise Pollution Management) • MSc in Mechanical Engineering (Aeronautical Engineering) • MSc in Mechanical Engineering (Aviation) 	Mixed-mode (Self-financed)
MSc/PgD in Automotive Engineering Design	Mixed-mode (Self-financed)
Engineering Doctorate	Mixed-mode (Self-financed)

Performance Indicators

Student Enrollment

Programme	Year 1 Intake	Total no. of Students in 2013/2014
3-year Curriculum Full-time BEng(Hons) in Mechanical Engineering (including Double Degree students)	29	212
4-year Curriculum Full-time BEng(Hons) in Mechanical Engineering (including Double Degree students)	52	122
3-year Curriculum Full-time BEng(Hons) in Product Analysis and Engineering Design	15	103
4-year Curriculum Full-time BEng(Hons) in Product Analysis and Engineering Design	26	58
Part-time BEng(Hons) in Mechanical Engineering	80	283
Part-time BEng(Hons) in Product Analysis and Engineering Design	48	170
MSc/PgD in Mechanical Engineering	65	135
MSc in Automotive Engineering Design	29	29
Part-time Engineering Doctorate	1	4
	Total	1116

Student Feedback Questionnaire (SFQ)

The student feedback questionnaires provide one of the major indicators to assess the effectiveness of teaching.

Item	ME Average	FENG Average
Subjects		
Clear understanding of what I am expected to learn	4.0	3.8
Teaching & learning activities helped me to achieve the subject learning outcomes	4.0	3.8
Assessments require demonstration of knowledge/skills/ understanding of subject	4.0	3.9
Able to understand the criteria for grading	4.0	3.7
Staff		
Willing to provide help when necessary	4.1	3.9
Motivated me to learn	4.1	3.9
Given me/the class feedback for improvement	4.0	3.8
Subject contents organised logically and clearly	4.1	3.9
Enabled me to relate the knowledge taught to my professional career	4.0	3.9
Overall view about the teaching of the staff member		
Provided me with a valuable learning experience	4.0	3.8
Overall, staff member is an effective teacher	4.1	3.9
Grand mean of item on Overall View	4.0	3.8

Student Exchange Programme

With strong commitment to cultivate global outlook, the Department offers student exchange opportunities to enhance students' cultural knowledge, languages skills and personal development. Every year, the Department arranges students to go on exchanges while outstanding students from the mainland and overseas are also recruited to its academic programmes.

Inbound statistics		
University	Country	No. of students
Beihang University	Mainland China	8
Dublin Inst. of Technology	United Kingdom	4
Hochschule Konstanz - University of Applied Sciences	Germany	4
Linköping University	Sweden	3
McGill University	Canada	3
Management Center Innsbruck	Australia	2
National University of Singapore	Singapore	8
The Catholic University of America	United States	2
Tongji University	Mainland China	2
Carnegie Mellon University	United States	1
Technical University of Denmark	Denmark	1
University of Technology of Troyes	France	3
Fudan University	Mainland China	1
Yonsei University	Korea	1
Mikkeli University of Applied Sciences	Finland	1
Huazhong University of Science & Technology	Mainland China	1

Total: 45



Outbound statistics		
University	Country	No. of students
Luleå University of Technology	Sweden	2
Dublin Inst. of Technology	UK	4
Hochschule Konstanz - University of Applied Sciences	Germany	1
Korea Advanced Inst. of Science & Technology	Korea	2
Management Center Innsbruck	Australia	2
National University of Singapore	Singapore	3
Technical University of Denmark	Denmark	4
Seoul National University	Korea	1
Hochschule Konstanz	Germany	5
National Taiwan University	Taiwan	1
University of Technology of Troyes	France	6
McGill University	Canada	1
Shanghai Jiaotong University	China	1
Fontys University of Applied Sciences	Netherlands	1
		Total: 34

Work-Integrated Education (WIE)

To echo with the University's Work-Integrated Education (WIE) programme, the Department has established a close partnership with both local and overseas industrial / educational partners to offer a wide variety of placement opportunities to students who are always encouraged to acquire real world working experience before graduation.

Overseas Placement	
Organization	Country
Amerril Energy Beijing Branch	China
Anhui Heptme Information Technology Company Limited	China
Bank of Communications Schroder Fund Management Company Limited	China
Beijing Petroleum Machinery Factory 北京石油機械廠	China
Chinese Academy of Sciences, Institute of Process Engineering 中國科學院過程工程研究所	China
China Architecture Design and Research Group	China
China Metallurgical Group Corporation 中國冶金科工集團有限公司 - 中冶建築研究總院有限公司	China
China Potevio Company Limited	China
China Power Investment Corporation 中國電力投資集團公司 - 中電投成套公司	China
China State Construction Engineering Corporation 中國建築工程總公司 - 中國建築裝飾集團有限公司	China
COMMON Ltd.-Gas Measurement Systems Equipment	Poland
Dongfang Turbine Company Limited	China
Graduate School of Engineering, Tohoku University	Japan
Glasgow University	UK
Guangdong Electric Power Design Institute	China
Hydron Unipress	Poland
Institut Mihajlo Pupin	Serbia
JiTai Communication Enterprise (AnHui) Company Limited 吉泰交通工業(安徽)有限公司	China
Nari Group Corporation (Nanjing) 南京南瑞集團公司	China
Newcastle University	UK
Shanghai Construction Group Company Limited 上海建工集團	China
Shanghai Potevio Company Limited	China
Shanghai Urban Construction (Group) Corporation 上海城建(集團)公司	China
Shenyang Brilliant Elevator Company Limited (BLT)	China
State Grid Electric Power Research Institute	China
Taihu Basin Authority of Ministry of Water Resource. P.R. China 水利部太湖流域管理局	China
Technical University of Liberec	Czech Republic
TU Berlin Institut für Energietechnik	Germany
TU Clausthal, Institut für Maschinenwesen	Germany
University of Southern Queensland	Australia
中國飛行試驗研究院發動機所	China
上海中楷企業集團	China

Local Placement
Organization
Alliance Construction Material Company Limited
BYME Engineering (HK) Limited
Cathay Pacific Airways
Chinney Construction Company Limited
Chun Wo Development Holdings Limited
CLP Power Hong Kong Limited
Comba Telecom Systems Holdings Limited
Cummins Engine HK Limited
Dalian Ship Building Industry Offshore Company Limited
Emerson Climate Technologies of Emerson Electric Limited
Fukutomi Company Limited
Gammon Construction Limited
Goodwell Property Management Ltd.
GP Batteries International Limited
Hong Kong Aero Engine Services Limited (HAESL)
Hong Kong Aircraft Engineering Company Limited (HAECO)
Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies Limited
Hong Kong Youth Exchange Promotion United Association
Hongkong Land Limited
Hysan Property Management Limited
ITE Smartcard Solutions Limited
Leighton Contractors (Asia) Limited
Mattel Asia Pacific Sourcing Limited
Mitsubishi Elevator (Hong Kong) Limited
MTR Corporation Limited
Nicestar Optical Manufacturer Company Limited
Ocean Park Corporation
OPC Manufacturing Limited
Otis Elevator Company (HK) Limited
REC Engineering Company Limited
RF Tech Limited
Shun Cheong Electrical Engineering Company Limited
Swire Properties Limited
Tate's Cairn Tunnel Company Limited
The Boeing Company
The Government of HKSAR - Water Supplies Department
The Government of HKSAR - Electrical and Mechanical Services Department
The Hong Kong and China Gas Company Limited (Towngas)
The Hong Kong Polytechnic University - Mechanical Engineering Department
Vinci Construction Grands Projets
West Kowloon Cultural District Authority
Wilson Acoustics Limited
Win Hanverky Group
Wing Best Machinery Limited
Yardway Motors Limited
Zhongshan EUROTEC Electronics Limited

IAESTE (Summer Training Exchange Programme)

To nurture students to become all-round global citizens, apart from WIE activities locally, students are also encouraged to take up internships in other parts of the world, while the Department welcomes students from overseas institutions to stay and work in the Department.

Inbound

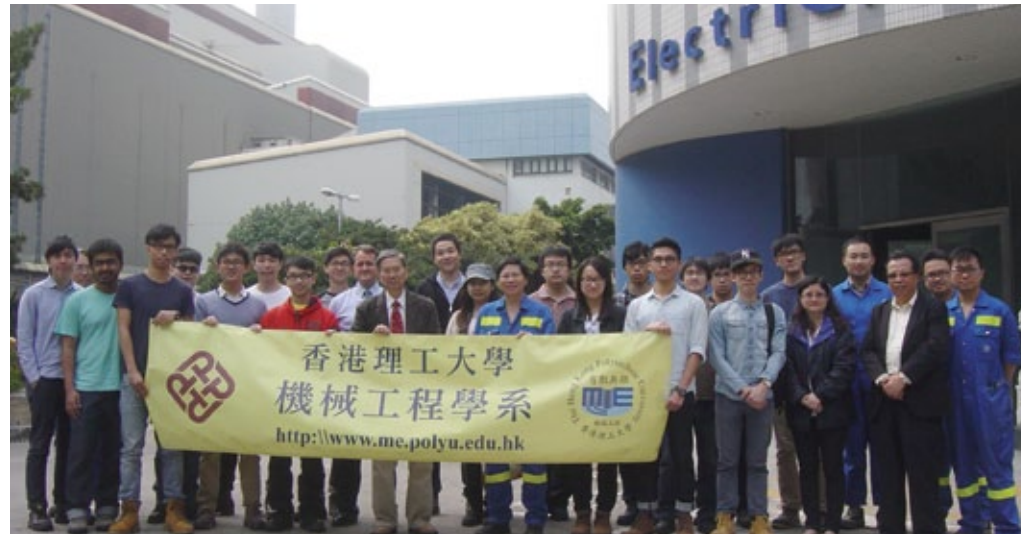
Student Name	Institute	Country
Andreas Michael LAUPER	ETH Zurich	Switzerland
Grzegorz BYTNIIEWSKI	Warsaw University of Technology	Poland
Felix WUSTLICH	Cologne University of Applied Sciences	Germany
Kazumasa KIKUTANI	Hokkaido University	Japan

Outbound

Country Exchanged	Employer
Germany	TU Berlin Institut für Energietechnik, KT2 FG Maschinen- und Energieanlagentechnik
Germany	TU Clausthal Institut für Maschinenwesen
Poland	COMMON Ltd.-Gas Measurement Systems Equipment
UK	Glasgow University

Technical Visits to Local Industries

The Department arranged the following visits to local industries for the students:



Date	Local Industry
29/10/13	KMB, Lai Chi Kok Depot
12/11/13	CLP Power (HK) Ltd.
26/11/13	CLP Power (HK) Ltd.
29/01/14	Ngong Ping 360
12/02/14	The Hong Kong and China Gas Company Ltd.
19/02/14	Drainage Services Department, HKSAR
05/03/14	MTR, Kowloon Bay Depot
26/03/14	KMB, Lai Chi Kok Depot
02/04/14	Hong Kong United Dockyards Limited
16/04/14	Castle Peak Power Station



Mentorship Programme

The Department continued to run the Mentorship Programme aiming at building a caring and supportive relationship between PolyU alumni, partners and friends of PolyU (as mentors) and undergraduates (as mentees) to achieve the following objectives:

- To facilitate the educational, social and personal growth of mentees
- To develop mentees' fullest potential, vision and aspirations for the future
- To enhance mentees' future professional and career development
- To help groom mentees to become preferred graduates
- To empower mentees to face challenges in society

2013/14 marked the 30th anniversary of the commencement of degree programme in the Department, 55 alumni of the Department was invited to share their experience and advice to 120 final year students. A dinner gathering was held on 20 March 2014 to provide a communication platform for mentors and mentees in a relaxing setting.



The Dean's Honours List

The following ME students have satisfied the criteria for being included in the Dean's Honours List in the academic year 2013/2014.

Honours Degree Programme

CHAN Hon Ting	LAU Yan Kit	TANG Kai Chun
CHAN Lok Chun	LAW Chun Fai	TANG Wai Hung
CHAN Ming Ki	LI Haohan	TSANG Tsz Fung
CHEUNG Lek Ka	LING Wudao	TSUI Sing Kin
CHING Wai Kiu	LIU Chun Yeung	WONG Chun
CHOY Kit Lun Ivan	LIU Tsz Kan Martin	WONG Ka Ching
GU Wenhao	LO Siu Pong	WONG Pak Hang
HO Kwok Hung	LUI Pak Yin	WONG Sze Wai
HO Wai Ip	LUK Tsz Ying	WONG Tak Chun
HUNG Pui Yan	MA Hei Lam	WONG Yu Chun
KWOK Yu Fung	MA Ho Yan	YEUNG Katie Man Hei
KWONG Hung Sum	NG Ming To	YOU Yuqi
KWONG Wang Fung	SADLI William	ZHANG Chuqian
LAI Kwok Hing	SHIU Tsz Yan	ZHANG Kedi

Prizes, Scholarships and Bursaries

Prizes and scholarships are honors, and serve to motivate and recognize the performance and contributions of students. Bursaries provide assistance to needy students so that they can concentrate on their studies.

Awards	Recipients
Fong's Industrial Prize	CHAN Pui Ching (FT BEng) CHOY Kit Lun (FT BEng) NG Kar Yee (FT BEng) CHENG Wai Chun (FT BEng) KWONG Lai Yeung (FT BEng) YUEN Wai Ying (FT BEng) CHEUNG Chi Kit (PT BEng) HO Kin Lok (PT BEng)
Scholarships	Recipients
A & P Scholarship	LIU Chun Yeung (FT BEng) MA Hei Lam (FT BEng) TSANG Pak Ho (FT BEng)
Chiang Chen Industrial Charity Foundation Scholarship	HO Wai Ip (FT BEng)
Chiap Hua Cheng's Foundation Scholarship	MA Ho Yan (FT BEng)
Cobelco Industrial Supplies Ltd. Scholarship	LIN Miaoling (FT BEng)
Department of Mechanical Engineering Scholarship for Hall Residents	SHIU Tsz Yan (FT BEng) WONG Ho Yin Eric (FT BEng)
HAESL Scholarship	SHIU Tsz Yan (FT BEng)
HKCC Scholarship	CHAN Wah Chun (FT BEng) CHAN Wai Kai (FT BEng) CHENG Hon Yan Roy (PT BEng) CHUA Yung Yung (PT BEng) LAU Shu Wing (FT BEng) LAU Yuk Lun (PT BEng) LAW Lap Yi (FT BEng) LEUNG Wai Yin (PT BEng) LI Nin Hong (FT BEng) LIU Chun Yeung (FT BEng) MO Tsz Kin (FT BEng) TANG Ka Kei (PT BEng) WONG Tak Chun (PT BEng)
HKEIA Innovation & Technology Project Competition Award	CHAN Wai Fan (FT BEng) KAM Hiu Wa (FT BEng) LAM Ho Yeung (FT BEng) MA Ka Yee (FT BEng) TAM Chun For (FT BEng) WONG Sing Sen Robin (FT BEng)
HKSAR Government Scholarship	CHEN Mufan (FT BEng) TSANG Pak Ho (FT BEng) XUE Yao (FT BEng)
HKSAR Government Scholarship Fund - Endeavour Merit Award	CHU Kwok Hoi (FT BEng)

HKSAR Government Scholarship Fund - Reaching Out Award	ANG Kee Jeng (FT BEng) CHAN Kit Ying (FT BEng) CHAN Po Nam (FT BEng) CHAN Siu Chung (FT BEng) CHAN Yin Yam (FT BEng) CHAU Hei Tung (FT BEng) HUNG Pui Yan (FT BEng) KWOK Ling In (FT BEng) LAU Hon Tung (FT BEng) LAU Tsz Kin (FT BEng) LING Wudao (FT BEng) SIU Shing Ting (FT BEng) TSANG Sau Ping (FT BEng)
HKSAR Government Scholarship Fund - Talent Development Scholarship	CHAN Wah Chun (FT BEng) CHAU Hei Tung (FT BEng) CHEN Mufan (FT BEng) CHOY Kit Lun Ivan (FT BEng)
Innovation and Technology Scholarship Award	KWOK Ying Kit (FT BEng)
Lam Sze Ming Scholarship	ANG Kee Jeng (FT BEng) TSANG Tsz Kan (FT BEng) XUE Yao (FT BEng)
Li & Fung Scholarship	TSANG Sau Ping (FT BEng)
Outstanding Student Award, Department of Mechanical Engineering, 2013	XUE Yao (FT BEng)
Postgraduate Scheme in Engineering Type I Scholarship	CHAN Shuk Ching (FT MSc) CHEN Qinxue (FT MSc) LAM Yat Fung (FT MSc) LI Wenting (FT MSc) LIU Hao (FT MSc) LU Bo (FT MSc) LUI Wing Tai (FT MSc) SHI Chao (FT MSc) SUN Jingxuan (FT MSc) TSANG Sze Ting (FT MSc) WONG Wai For (FT MSc) ZHI Hui (FT MSc)
Rexroth 4EE Scholarship	AU Sing Kwong (FT BEng) CHAN Cheuk Nam (FT BEng) CHAN Ting Him (FT BEng) CHENG Wai Chun (FT BEng) HO Pan Kit (FT BEng) JING Mingyuan (FT BEng) KAM Man Ying (FT BEng) KAN Chun Fu (FT BEng) KWOK Lik Yan (FT BEng) KWONG Lai Yeung (FT BEng) LAM Siu Hung (FT BEng) LIU Yuen Chun (FT BEng) NG Yat Hei (FT BEng) SIU Chi Ho (FT BEng) TONG Chun Hin (FT BEng) WONG Tsz Fung (FT BEng)

Simatelex Charitable Foundation Scholarship	LAI Kwok Hing (FT BEng) LAW Chun Fai (FT BEng) TSANG Sau Ping (FT BEng)
The Hongkong Electric Co. Ltd. Scholarships	SHIU Tsz Yan (FT BEng)
The Hong Kong Polytechnic University Entry Scholarship (Academic)	HU Xianzhi (FT BEng) LAI Jason Poh Hwa (FT BEng) SADLI William (FT BEng) YANG Yijin (FT BEng)
The Hong Kong Polytechnic University Entry Scholarship (Non-Academic)	NG Pak Him (FT BEng)
The Hong Kong Polytechnic University Non-local Students Scholarship (Academic)	JING Mingyuan (FT BEng) ZHANG Weiran (FT BEng)
University Scholarship for Hall Residents	CHAN Wah Chun (FT BEng) CHEUNG Kwok Tung (FT BEng) LAM Chun Kit Andrew (FT BEng) LAW Man Cheong (FT BEng) NGAI Cheuk Ho (FT BEng) SHIU Tsz Yan (FT BEng) WAN Hiu Fung (FT BEng) WONG Ho Yin Eric (FT BEng) WONG Man Fai (FT BEng)
Wong Tit-shing Overseas Exchange Scholarship	CAI Lingfeng (FT BEng) CHEN Mufan (FT BEng) LAI Sze Chun (FT BEng)
Bursary	
Chiap Hua Cheng's Foundation Bursary	
Delong Bursary	
Freetech Technology Bursary	
K.K. Chow Bursary	
The Hongkong Electric Co. Ltd. Bursaries	
Yau Hing Cheung Memorial Bursary	

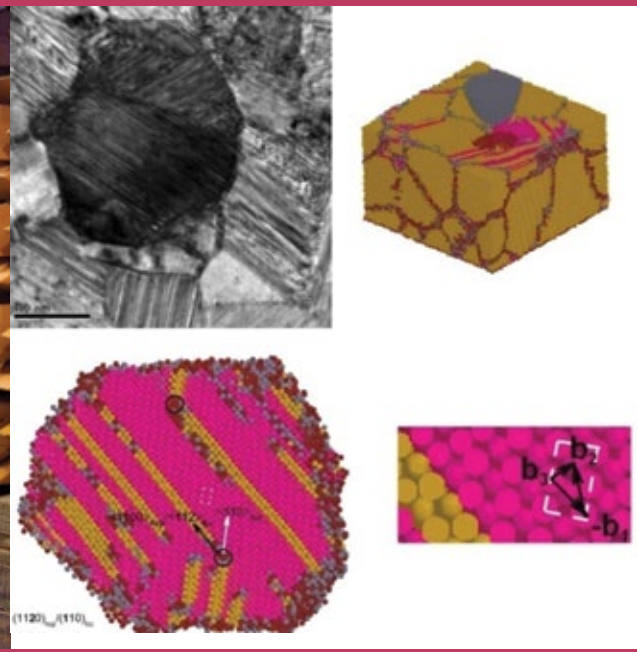
Student Achievements

To maintain the competitiveness of students, the Department has been encouraging its students to actively participate in a wide range of local and international activities and competitions in order to showcase their talents and creativity as well as to build up their skills and confidence.

In the reporting year, ME students shined in many international and national competitions and awards. Their accomplishments offer concrete proof that the Department has succeeded in nurturing students who not only excel in academic areas, but also demonstrate great leadership and problem-solving skills.

Competition	Award Received
Mitsubishi Electric Automation Cup (67 universities)	Grand Prize
ASME Student Design Video Competition 2013	First Place
The Hong Kong Institute of Acoustics (HKIOA)'s Meyer Poon Memorial Award 2013/14	Second Runner-up (Postgraduate Category)
	Second Runner-up (Undergraduate Category)
HKEIA Innovation & Technology Project Competition Award 2013	Gold Award
	Merit Award
2014 Taiwan Innovative Unmanned Aircraft Vehicle (UAV) Design Competition	Second Runner-up (Navigated Flight Category)
The 3 rd IMechE Greater China Design Competition	Second Runner-up
IMechE Best Student Award 2014	IMechE Best Student Award 2014





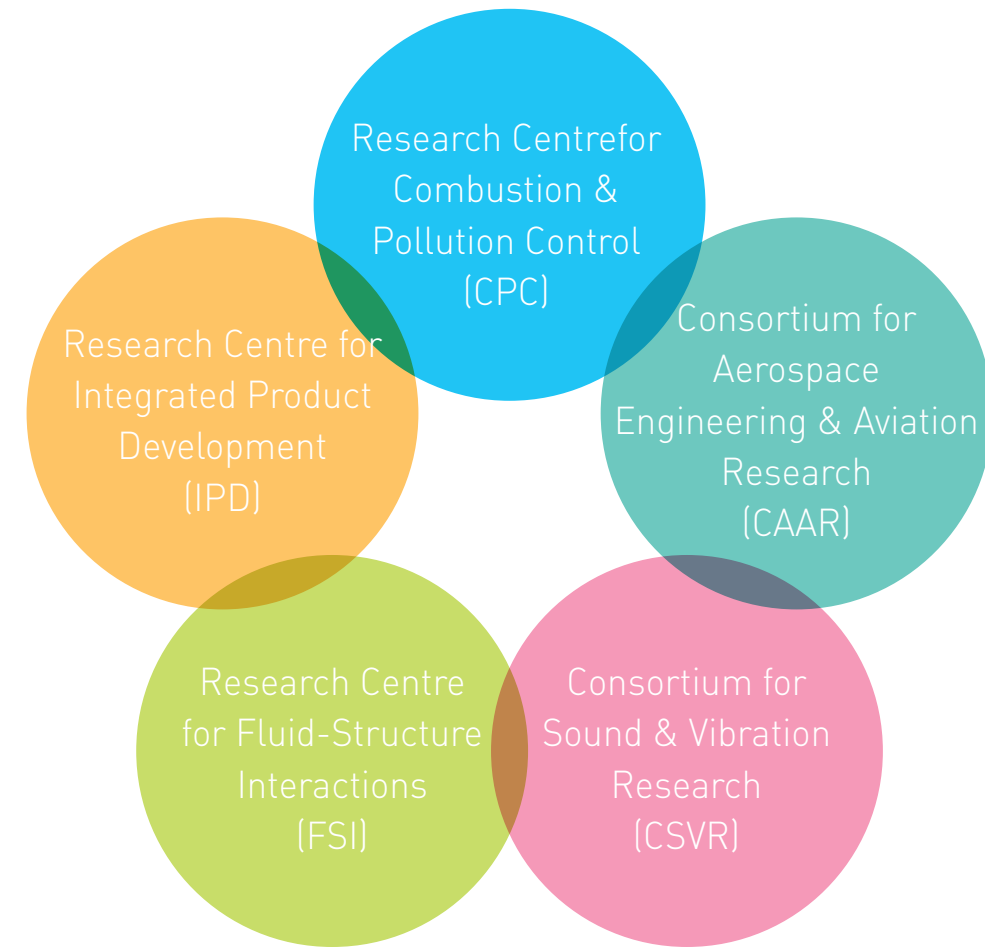
RESEARCH & CONSULTANCY

The Department continues to push the frontiers of knowledge and applications in the discipline of Mechanical Engineering. With the spirit of driving innovation for a better future, members of the Department are playing a significant role in making high-impact contributions to the profession by engaging in fundamental and applied research development; high level consultancies for local and international organizations; and provision of knowledge and technologies to the industry.



Research Centres

With different objectives and targets, the Department aims at all-rounded research efforts that could provide possible solutions towards a better living for the human race. In order to establish better synergy in research, four research areas and one niche area where a critical mass of experts is available in each have been identified.



Research Centre for Combustion & Pollution Control (CPC)

Research and scholarly activities related to combustion and the control of combustion-led air pollution have been actively pursued by members of the CPC Research Centre during this period. Continuous efforts are made to advance research in the following areas:

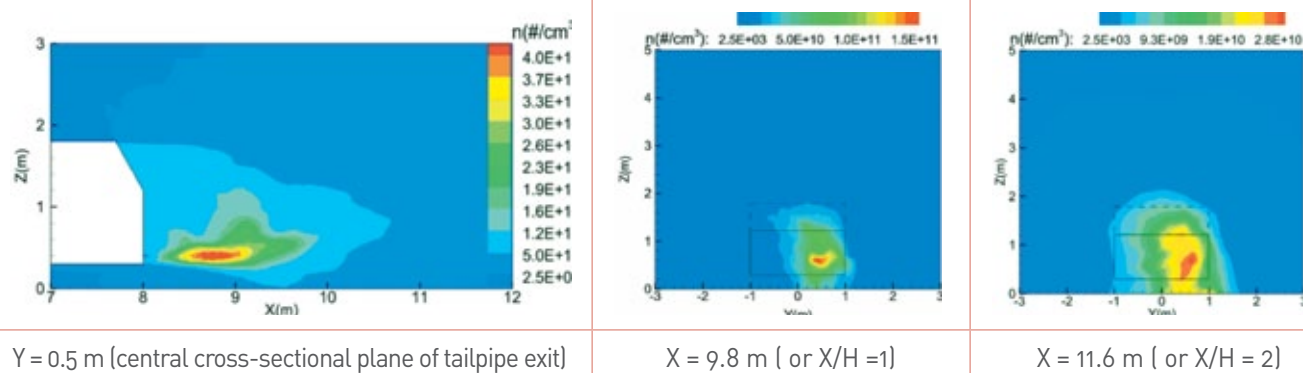
- Development of novel model scheme for solving complex aerosol-related problems.
- Development of alternative fuels of hydrocarbon fuels for diesel engines and open and impinging flame burners.
- Application of the hydrogen enrichment technique to upgrade fuel performance.
- Combustion, heat transfer and pollution characteristics of flame jets, and their applications.
- Development of multilayer-nanofiber-filter for air filtration purpose.
- Development of high performance solar cells.
- Development of detailed reaction mechanism for the combustion of large biodiesel molecules.

Because of our excellent efforts in collaborating with other academic/professional institutions and serving the industry, PolyU is recognized to be the leading institution in dealing with the combustion-led air pollution problems in Hong Kong, perhaps, the Pearl River Delta region.

Some of our recent research works are presented:

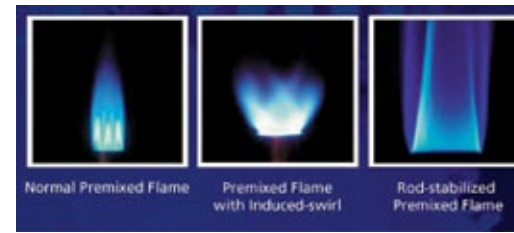
Novel Model Scheme for Solving Complex Aerosol-related Problems

Dr. TL Chan has recently worked on two multi-disciplinary research projects. The first one is the General Research Fund project (funded by the Research Grants Council) which he takes a leading role in developing of novel model scheme for solving complex aerosol-related problems. The second one is the Environment and Conservation Fund project which he plays a supporting role in working with his former research student, Dr. Z Ning (now holding an Assistant Professorship at City University of Hong Kong) on the investigation of primary emissions from on-road vehicles and their impact on the roadside and ambient air quality in Hong Kong. Dr. Chan has also served as Editor of Aerosol and Air Quality Research and Honorary Chair of the Society of Automotive Engineers (SAE) International- Hong Kong.



Typical time-averaged particle number concentration of the studied ground vehicle in the cross-sectional planes, ZX and ZY for vehicle speed at 10 km/h (First published in Aerosol Sci. Technol. 45(8), 1019-1030, 2011).

Hydrogen Enrichment aided Combustion



Experimental Investigations of Alternative Fuels

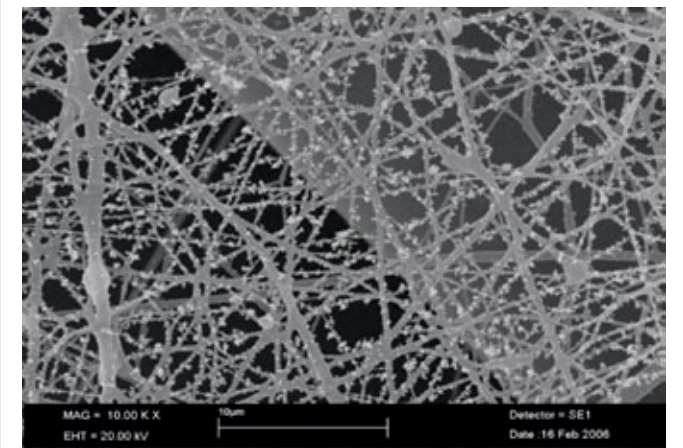


Burner with Different Degrees of Induced Swirl

This research study performed by our group member, Prof. CS Cheung, aims to explore the use of hydrogen, biodiesel and pentanol as fuel for diesel engine. The influences of these alternative fuels on the combustion, performance, gaseous and particulate mass-number emissions, as well as the physico-chemical properties of the particulates are investigated. The application of these alternative fuels is able to reduce significantly the particulate mass-number emissions and rendered the particulates easier to be oxidized. The test rig used for this study is shown on the attached diagram. Some of these projects are carried out with joint effort of leading Mainland Universities and PolyU.

Air Filtration: Multilayer Nanofiber Filter

In Prof. Wallace Leung's research group, Chitosan: an antibacterial natural material made from crustaceans, has been electrospun into nanofibers with diameter 100-200 nm for use as a depth filter. Efficiency of the multilayer nanofiber filter is comparable to the filter with all the chitosan nanofibers deposited in a single layer, yet the pressure drop across the filter can be as much as 50+% smaller. This is especially beneficial for high-efficiency filter with 90+% capture efficiency of 0.3-micron sodium chloride (NIOSH standard). This US patented technology is timely for developing N95 respirators for contagious viruses (Ebola, H7N9, SARS etc.) and for developing face masks for combating pollutants such as virgin diesel pollutants which are typically 10-100 nm, that are the building blocks of the well-known PM2.5 particles.

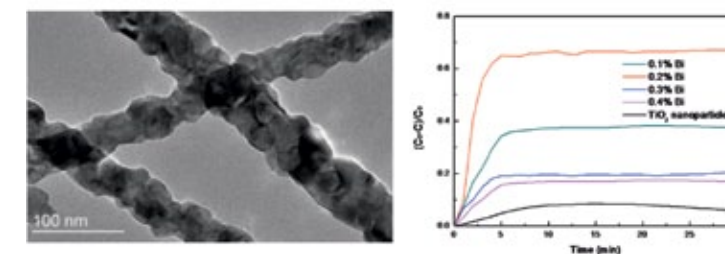


Multilayer Nanofiber Filter

Air Filtration: Loading/Cleaning of Nanofiber Filter

We are also interested to increase the particle loading in a nanofiber filter and the cleaning of the filter for reuse by back-pulsing and back-blowing the trapped nano-aerosols, which are simulated using sodium chloride.

Air-and Water Purification

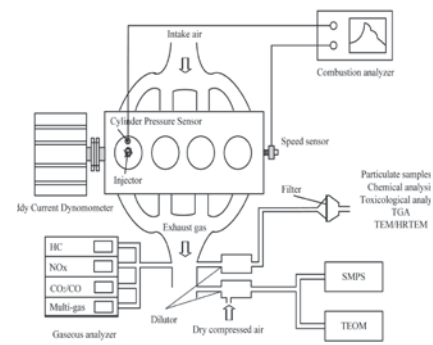


Composite Inorganic Nanofibers

Research has been conducted in Prof. Wallace Leung's group on composite inorganic nanofibers to improve the photocatalyst performance, with applications to (a) convert pollutant gas, such as NO to NO₂ and subsequently to HNO₃ or VOC to harmless CO₂ and H₂O, and (b) to break-down harmful organics (including herbicide etc.) dissolved/ suspended in water to harmless substances.

Application of Alternative Fuels to Diesel Engine

This research study performed by our group member, Prof. CS Cheung, aims to explore the use of hydrogen, biodiesel and pentanol as fuel for diesel engine. The influences of these alternative fuels on the combustion, performance, gaseous and particulate mass-number emissions, as well as the physico-chemical properties of the particulates are investigated. The application of these alternative fuels is able to reduce significantly the particulate mass-number emissions and rendered the particulates easier to be oxidized. The test rig used for this study is shown on the attached diagram. Some of these projects are carried out with joint effort of leading Mainland Universities and PolyU.



Experimental Investigations of Alternative Fuels

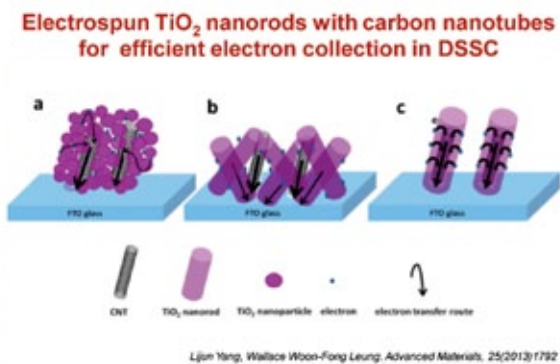
Photovoltaics: Perovskite Solar Cell

By controlling morphology of crystal growth and refining the crystal deposition procedure, Prof. Leung has been able to produce high-quality solar cells with single-layer perovskite crystals (about 500-nm thickness) that has excellent performance in the power conversion efficiency reaching 15+%, that is slightly lower compared to the world record registered at 17+%.



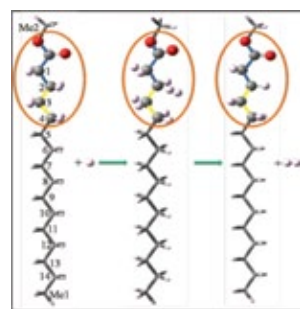
Dye Sensitized Solar Cells (DSSC)

Research on DSSC in Prof. Wallace Leung's group have focused on use of TiO₂ nanofibers as the photoanode in three areas: (a) co-sensitizing harvesting the entire visible light wave spectrum, (b) incorporating various innovative scattering layer configurations to trap the incident light, and (c) effectively transporting electrons built-in the TiO₂ nanofibers in the photoanode.



Dye Sensitized Solar Cells (DSSC)

Combustion Chemical Kinetics of Large Biodiesel Molecules



Theoretical Model

Development of detailed reaction mechanism for the combustion of large biodiesel molecules is crucial to the utilization of biodiesel, while it has been hampered by the formidably time-consuming quantum chemistry computation of the molecules. Recently, a significantly efficient theoretical method has been developed by our group member, Dr. P Zhang, to accurately calculate the reactions of large biodiesel molecules with hydrogen radical. The method is expected to make a strong impact on the current theoretical study of biodiesel combustion. This work has been sponsored by the RGC/ECS project: "Ab initio chemical kinetics for key reactions in biodiesel combustion".

Consortium for Aerospace Engineering and Aviation Research (CAAR)

The newly established Consortium for Aerospace Engineering and Aviation Research (CAAR) has witnessed a successful second year, showing the strong commitment of ME, PolyU in developing the aerospace and aviation researches. The group has begun to gain international recognition in a number of aspects.

The CAAR members were successful in applying research funds internally and externally in the past year. The CAAR members secured 4 GRF funded and 5 fundable projects, 1 Hong Kong PDF Scheme project, 2 ITF projects, 1 research project supported by Chinese Academy of Science and 2 NSFC research projects with a total amount of more than HK\$10 million, plus some consultancy projects for industry.

During the reporting period, two new laboratories have been set up in CAAR: Aeronautic laboratory and Hypersonic Aerodynamics laboratory organized by Prof. CY Wen.

The research works carried out by the CAAR members have been shown consistently well, which is evidenced by the large number of quality papers published in the top notch journals in the area, such as AIAA journal, Journal of Fluid Mechanics, Physics of Fluids, Journal of Acoustical Society of America, Structural Health Monitoring: An International Journal, Nature Materials, Advanced Materials, Physical Review Letters, Carbon, Acta Materialia, Applied Physics Letters, ...etc. Prof. CY Wen was also appointed as an Editor of the Journal of Shock Waves – An International Journal on Shock Waves, Detonations and Explosions, which is well accepted as the most prestigious journal in Shock Wave Dynamics. This appointment is the recognition of the research excellence of the group.

The CAAR members were actively involved in international scholarly exchange activities. Close liaison with a few renowned international aero/MAE programs has been established during the past year, eg., The Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology, Center of Excellence for Micro Air Vehicle Research, Wright State University, OH, U.S.A., Department of Aeronautics and Astronautics, National Cheng Kung University, Taiwan, Hokkaido University, Japan, and Korea University.

A student team, supervised by Prof. CY Wen and Dr. ZQ Su, won the second runner-up in the 2014 Taiwan Innovative Unmanned Aircraft Vehicle (UAV) Design Competition (Navigated Flight Category) among 69 participating teams from the universities in different countries and regions. This is the second consecutive year that the PolyU student team won the second runner-up award. The Taiwan UAV competition has now been acknowledged as one of the key UAV events in the world, enjoying the recognition from the community, governmental agencies, universities and industrial partners. The award has led to a successful campaign of publicity for the aero program and attracted the reports of 1 electronic media and 3 newspapers.



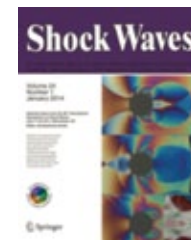
Aircraft Components donated by HAECO (Hong Kong Aircraft Engineering Company Limited) and HAESL (Hong Kong Aero Engine Services Limited) in Aeronautical laboratory



Rolls Royce Dart Turboprop Engine RDa.6 donated by HAESL (Hong Kong Aero Engine Services Limited) in Aeronautical Laboratory

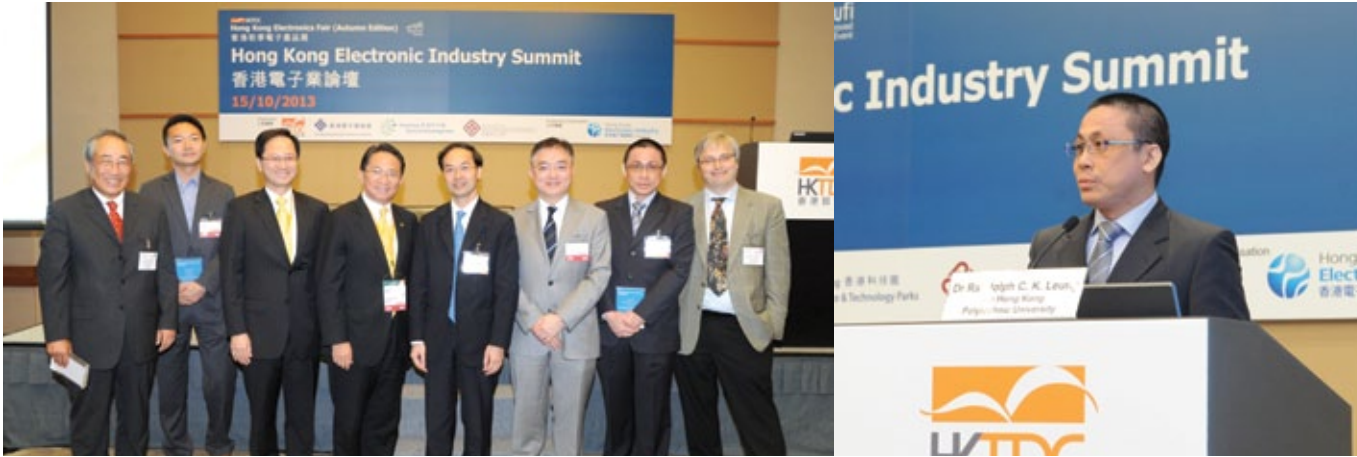


PolyU team won the second runner-up in the 2014 Taiwan Innovative Unmanned Aircraft Vehicle (UAV) Design Competition (Navigated Flight Category). 2014/03/23



Shock Waves – An International Journal on Shock Waves, Detonations and Explosions

Consortium for Sound and Vibration (PolyU Niche Area) (CSVR)



The CSVR enjoys the first-class experimental and computational facilities which allows herself in playing an important role in underpinning PolyU-wise teaching activities where sound and vibration is the concentration in different programmes. It is the only academic unit in Hong Kong that offers a cluster of very comprehensive courses in sound and vibration ranging from undergraduate to postgraduate levels. The CSVR makes use of its expertise and facilities to provide services to local and national industries through a large number of consultancy projects. Her members also actively participate in various opportunities in raising the concerns of noise in the public and in advising on the noise issues in government development projects. Good examples are the public lecture on Latest Acoustic Technology and Product Design in Hong Kong Electronic Industry Summit, and sitting at the official technical briefing meeting on noise for the expansion of Hong Kong International Airport into a three-runway system. On the other hand, under the diligent effort of CSVR members, the PolyU-CAST Joint Laboratory in Mechanics and Space Environment Engineering has run into full operation for the research and development of the cutting technology for the next generation of satellite and spacecraft. In addition, the CSVR has also extended his research capabilities into emerging areas that involve bio-inspired vibration isolation designs and the use of acoustic metamaterial technologies.

Quasi-zero stiffness systems for micro-vibration isolation in aerospace engineering

中国空间技术研究院
China Academy of Space Technology

Onboard micro-vibration isolation for sensitive instruments in aerospace engineering

Quasi-zero stiffness system Resonance peak at around 1Hz

High-performance vibration isolation with a bio-inspired approach

- Biological bone structures demonstrate excellent vibration isolation performance
- Theoretical results reveal that nonlinearity take a significant role in vibration control
- Bio-inspired structures show a great potential to achieve high-performance vibration isolation with pure passive (and/or even linear) components and beneficial inherent nonlinearity
- Comparison with pervious isolators and its advantages

High-performance vibration isolation with a bio-inspired approach

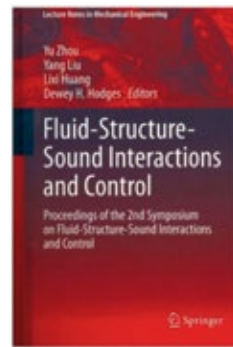
Woodpecker skull structures

Bio-inspired mount system for sensitive electronic devices in drilling systems

Transmissibility Comparison in X-axis

Frequency (Hz)	Original mounting sys	New Bio sys
~10	~10 ⁰	~10 ⁰
~100	~10 ¹	~10 ⁰
~1000	~10 ²	~10 ⁰
~10000	~10 ³	~10 ⁰

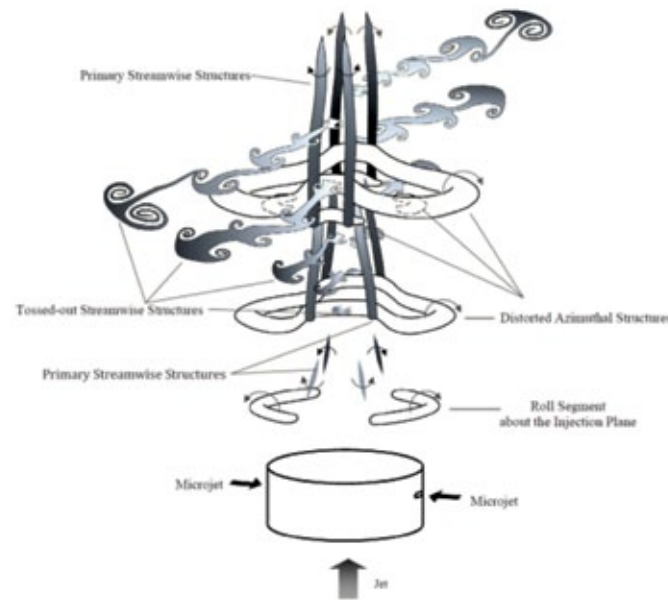
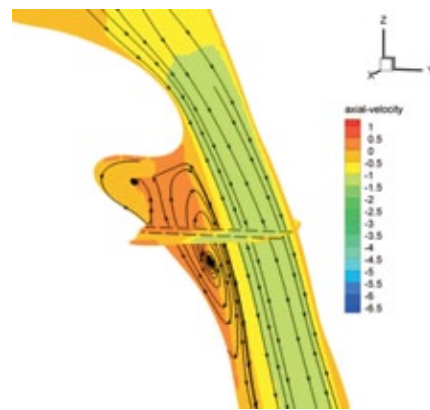
Research Centre of Fluid-Interactions Structure (FSI)



With rapid economic and industrial development in China, India and elsewhere, fluid-related structural vibration and noise problems are widely encountered in many fields, just as they are in the more developed parts of the world, causing increasingly grievous concerns. Turbulence clearly has a significant impact on many such problems. On the other hand, new opportunities are emerging with the advent of various new technologies,

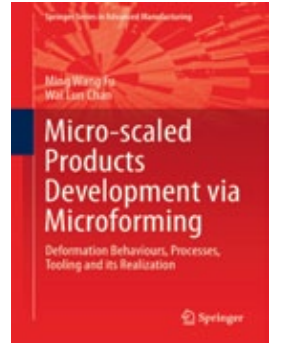
such as signal processing, flow visualization and diagnostics, new functional materials, sensors and actuators, etc. These have revitalized interdisciplinary research activities, and the Research Center focuses on turbulent flows (including wakes, jets, boundary layers and complex flows), biofluids, flow-induced vibration, and their control in relation to wings, wind turbines, buildings, cable-stayed bridges, moving vehicles, biomedical engineering, power equipment, heat-exchangers, micro and nano-scale structures, household appliances and products with innovation and technology values. Our research in fluid-structure interaction is world-class and our experimental/computational facilities are at the scientific frontier.

After successfully organized the 2nd symposium on fluid-structure-sound interactions and control (FSSIC) in 2013, Dr. Yang LIU and other co-editors have edited the book of "Fluid-Structure-Sound Interactions and Control" which was published by Springer in 2014. This book is the Proceedings of the 2nd Symposium on Fluid-Structure-Sound Interactions and Control which largely focuses on advances in the theory, experimental research and numerical simulations of turbulence in the contexts of flow-induced vibration, noise and their control. This includes several practical areas for interaction, such as the aerodynamics of road and space vehicles, marine and civil engineering, nuclear reactors and biomedical science etc. One of the particular features of these proceedings is that it integrates acoustics with the study of flow-induced vibration, which is not a common practice but is scientifically very helpful in understanding, simulating and controlling vibration. This offers a broader view of the discipline from which readers will benefit greatly.

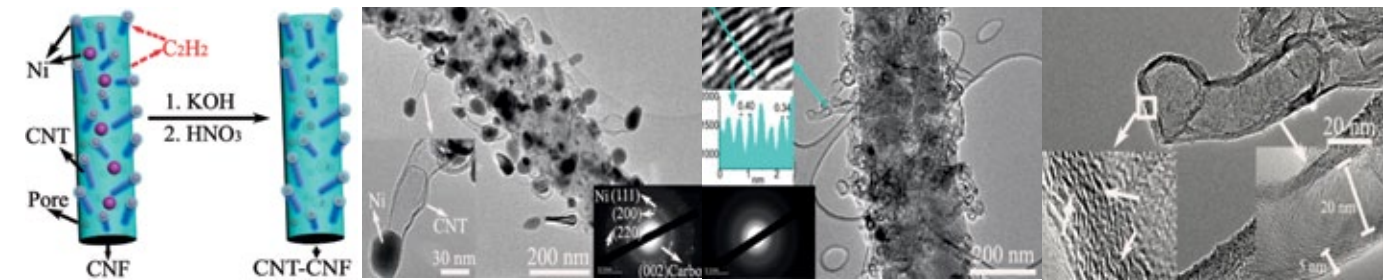


Research Centre for Integrated Product Development (IPD)

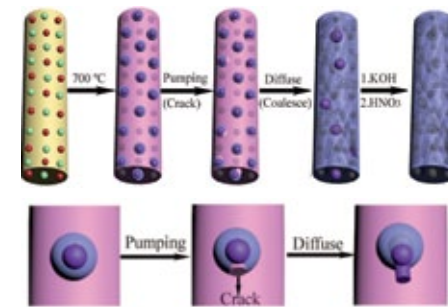
The research activities of the Research Center for Integrated Product Development (IPD) are mainly in the area of advanced materials sciences and engineering covering nanomaterials & technology, materials design & simulation, surface & interface technology, structure-property relationships, biomaterials, functional and energy-related materials, composite materials, smart materials & structures, manufacturing technologies, product design and analysis.



The research works carried out by the IPD members during this period resulted in one monograph by Springer-Verlag London Ltd, 70 referred publications in international journals and 8 conference papers/bookchapters. The journals covered a wide variety and included many prestigious journals such as Advanced Materials, Carbon, Acta Materialia, Organic Electronics and Applied Physics Letters.



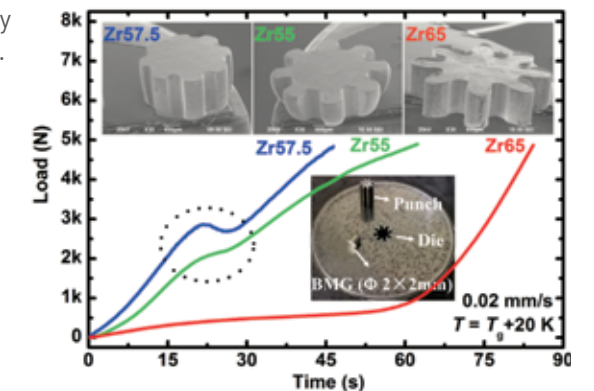
In recognition of their research achievements, 4 awards were granted to the IPD members during the past year – Teaching Award by UGC to Prof. K.T. Lau; one Highly Cited Paper in Engineering by Essential Science Indicators of Thomson Reuters (Dr. M.W. Fu); Research Grant Achievement Award by Faculty of Engineering of PolyU (Prof. L.M. Zhou); The Appreciation Award for Research Achievement by the Committee of Science and Technology Innovation of Shenzhen (Dr. G.P. Zheng).



In addition, the IPD members were successful in applying external research funds in the past year. The IPD Research Centre has secured two GRF funded projects (HK\$1.2 million), another four GRF proposals rated at 3.5, one research project being funded by the Science, Technology and Innovation Committee of Shenzhen Municipality (equivalent to around HK\$633K) and another project being funded by 中國科技部港澳臺科技合作專項基金 (equivalent to around HK\$310K). Apart from these externally competitive bidding projects, one IPD member has also secured two research fundings provided by the Harbin Engineering University (RMB588K). The IPD members were also active in conducting consultancy projects for industry.



The IPD members also actively participated in organization of international conferences and journal editorial boards. Meanwhile, IPD members collaborated with various external organizations either on an individual basis or on a collective basis. Some major collaborators are Massachusetts Institute of Technology (MIT), Johns Hopkins University, Pennsylvania State University, Sydney University, University of Alberta, Tsinghua University, Zhejiang University, Beijing University of Aeronautics & Astronautics (Beihang University), University of Science & Technology Beijing, Shanghai Jiaotong University, Tongji University, Shanghai University, Harbin Institute of Technology, Harbin Engineering University, Dalian University of Technology. These collaborations resulted in journal publications, consultancy projects and awards of research projects.



On-going Research Projects

The Department has been very successful in recent years in winning research grant income from major sources including industry and the Government.

Externally funded projects

Project Title	Investigators	Source of Funding	Amount Sponsored
Development of a Novel Bimodal Moment Method (BMM) Model Scheme for Solving Complex Aerosol-Related Problems	TL Chan	RGC General Research Fund	HKD 622,000
Investigation of Primary PM and NO ₂ Emissions from On-road Vehicles and Their Impact on the Roadside and Ambient Air Quality in Hong Kong	Z Ning (City U of HK), TL Chan and NYF Lam (City U of HK)	Environment and Conservation Fund	HKD 499,000
A Hierarchical Diagnosis Strategy and Integrity Monitoring Technique for Space Structures and Systems	L Cheng, ZQ Su, YS Choy and XJ Jing	Beijing Institute of Spacecraft Environment Engineering, China Academy of Space Technology	HKD 4,026,900
Perturbed Local Dynamic Equilibrium for Structural Damage Identification: Theory and Methodology (由微元動力平衡擾動辨識結構損傷的理論與方法)	L Cheng, WO Wong, JL Guyader (Inst National des Sci Appl. De Lyon, France), S Zhang, C Mao and H Xu	國家自然科學基金	RMB 820,000
Quantification of Window-reveal Isolation for Aircraft Noise Transmission (由微元動力平衡擾動辨識結構損傷的理論與方法)	L Cheng, ZQ Su, YS Choy and XJ Jing	LORD Asia Pacific Limited	HKD 325,000
Vibroacoustic Analyses and Design of Cavity Backed Micro-perforated Panel Absorbers for Environmental Noise Abatement	L Cheng and J Pan (The University of Western Australia, Australia)	RGC General Research Fund	HKD 700,880
Vibrating Structures Coupled to Open/Close Acoustic Cavities with Application to Micro-perforated Panels	L Cheng and JL Guyader (Inst National des Sci App de Lyon, France)	RGC General Research Fund	HKD 525,000
Simulation, Monitoring and Control of Vibroacoustic Coupled Systems	L Cheng	State Key Laboratories of Mechanics and Control of Mechanical Structure, NUAA, China	RMB 200,000
Interior Noise and Vibration Control of Spacecraft Enclosure (面向載人航天器密封艙的噪音與振動控制理論方法及應用技術研究)	L Cheng, XJ Jing, YS Choy and ZQ Su	China Academy of Space Agency (CAST)	RMB 1,194,000
Influence of Biodiesel on Physical and Chemical Properties of Particulate Matter Emitted from A Diesel Engine	CS Cheung and Z Ning (City University of Hong Kong, HK)	RGC General Research Fund	HKD 525,000
Fan Noise Control in the Duct by Tensioned Membrane Covered with Cavity (帶背腔的薄膜結構用於管道風扇噪音控制的研究)	YS Choy, Y Liu, XN Wang and Q Xi	國家自然科學基金	RMB 250,000
Suppression of Fan Noise in A Short Duct via Vibro-acoustic Coupling	YS Choy and SK Tang (BSE)	RGC General Research Fund	HKD 525,000
Acoustic Behavior of Parallel-arranged Perforated Panel Absorber at High Sound Pressure Level	YS Choy	RGC General Research Fund	HKD 525,000
Online Sound Sources Identification for Space Vehicles (Sub-a/c of H-ZG2A)	YS Choy, L Cheng, ZQ Su, XJ Jing and SK Tang (BSE)	Beijing Institute of Spacecraft Environment Engineering, China Academy of Space Technology	HKD 600,000
Investigation on Ductile Fracture Behavior and Ductile Fracture Defects in Micro-scale Plastic Deformation	MW Fu	RGC General Research Fund	HKD 525,000
Squeezing Superplastic Forming of Bulk Metallic Glasses for Fabrication of Electrical/Electronics Components	MW Fu	Innovation and Technology Fund	HKD 867,500
Deformation Mechanism Research of H62 Sheet in Elettromagnetic Micro Punching	MW Fu	Fuzhou University, China	HKD 36,000

Project Title	Investigators	Source of Funding	Amount Sponsored
Feature Characterization and Fault Detection of Complex-structure Systems Based on Dynamic Response Signals & Initial Development of New Generation Vibration Isolation Technology in Aeronautic Engineering (Sub-a/c of H-ZG2A)	XJ Jing, L Cheng, WO Wong and RCK Leung	Beijing Institute of Spacecraft Environment Engineering, China Academy of Space Technology	HKD 1,200,000
Modeling, Estimation and Analysis of Complex Nonlinear Systems	XJ Jing and L Cheng	RGC General Research Fund	HKD 575,750
Study on vibration isolation and control methods by exploiting nonlinear benefits (利用非線性特性實現振動隔離和控制的方法研究)	XJ Jing	國家自然科學基金	RMB 800,000
Exploration of The Most Feasible Sustainable Green Fuel: Biogas Enriched with Hydrogen	CW Leung, CS Cheung and ZH Huang (Xi'an Jiaotong University, China)	RGC General Research Fund	HKD 670,500
Nonlinear Aeroacoustic-Structure Interaction of Finite Periodically Stiffened Flexible Panels Loaded with Unsteady Flow	RCK Leung	RGC General Research Fund	HKD 934,000
Novel Wave Functional Materials for Manipulating Light and Sound (ME)	RCK Leung	AoE Collaborated Project	HKD 300,000
Novel Acoustic Metamaterial Liner Technology for Low Frequency Ventilation Noise Absorption	RCK Leung, GCY Lam and ZY Yang (The Hong Kong University of Science and Technology, HK)	Innovation and Technology Fund	HKD 1,116,367
Passive Control of Train-Tunnel Interaction Aeroacoustics in High-Speed Railway	RCK Leung	RGC General Research Fund	HKD 706,195
高升力翼型氣動噪聲及其降噪方法研究	RCK Leung	機械系統與振動國家重點實驗室開放課題	RMB 150,000
Innovation in Wound Dressing for Improved Wound Healing with Minimized Infection	WWF Leung	Innovation and Technology Fund	HKD 879,661
Loading and Cleaning of A Nanofiber Depth Filter for Capturing Submicron Aerosols	WWF Leung	RGC General Research Fund	HKD 725,000
Hydro-mechanical Properties of Fluid-structure Interaction Problems	Y Liu	Jiangsu University, PR China	HKD 315,000
Active Drag Reduction of a 3D Generic Car Model Using A Combination of Steady and Unsteady Actuators	Y Liu, XJ Jing and Y Li (Institute of Low Speed Aerodynamics, China)	RGC General Research Fund	HKD 930,425
Closed-loop-controlled Turbulent Boundary Layer based on Local Surface Oscillation	Y Liu, XJ Jing, Y Zhou (Harbin Institute of Technology, China) and WJ Li (The Chinese University of Hong Kong, HK)	RGC General Research Fund	HKD 922,600
Effect of Vasomotion on Efficient Flow Delivery in Microvascular Network	Y Liu and XY Luo (University of Glasgow, UK)	RGC General Research Fund	HKD 525,000
Formation and Fracture of Zirconium Hydrides under Temperature Transient and/or Gradient (溫度變化和溫度梯度下結合金中氫氧化物的形成和斷裂)	SQ Shi, GP Zheng, MJ Hao, NN Li and ZH Xiao	國家自然科學基金	RMB 800,000
核電站蒸汽發生器管道材料的應力腐蝕開裂的防護	SQ Shi	深圳市生物、互聯網、新能源產業發展專項資金基礎研究計劃-新能源	RMB 800,000
Formation and Fracture of Hydride Blister in Zirconium	SQ Shi	RGC General Research Fund	HKD 422,000
Online Health Diagnosis and Integrity Monitoring for Space Vehicles based on Elastic Waves and Embeddable Sensor Networks (Sub-a/c of H-ZG2A)	ZQ Su, L Cheng, YS Choy and XJ Jing	Beijing Institute of Spacecraft Environment Engineering, China Academy of Space Technology	HKD 600,000
Trial "Online Health Diagnosis and Prognosis (Online-HD&P) for Train Structures Using a Large-scale Diagnostic Sensor Network"	ZQ Su	Innovation and Technology Fund	HKD 859,000
Online Health Diagnosis and Integrity Monitoring for Space Vehicles based on Elastic Waves and Embeddable Sensor Networks (Sub-a/c of H-ZG2A)	ZQ Su, L Cheng, YS Choy and XJ Jing	Beijing Institute of Spacecraft Environment Engineering, China Academy of Space Technology	HKD 600,000

Project Title	Investigators	Source of Funding	Amount Sponsored
Trial "Online Health Diagnosis and Prognosis (Online-HD&P) for Train Structures Using a Large-scale Diagnostic Sensor Network"	ZQ Su	Innovation and Technology Fund	HKD 859,000
Structural Health Monitoring-oriented Quantitative Characterization of Fatigue Damage Using Nonlinearities of Acousto-ultrasonic Waves: Fundamental Investigation, Algorithm Development and Experimental Validation	ZQ Su	RGC General Research Fund	HKD 525,000
Acoustical Nonlinearity of Structural Fatigue Cracks and Probability-based Characterization and Monitoring (結構疲勞裂紋的非線性波動特征及其概率診斷與監測)	ZQ Su, H Sohn (KAIST, South Korea), H Xu, M Hong, B Wu, JH Wei, BH Wang	國家自然科學基金	RMB 800,000
Characteristics of Damage-induced Nonlinearity of Elastic Waves and Applications to Health Monitoring of Aircraft FRP (損傷誘發彈性波非線性特征的研究及其在飛行器FRP材料健康監測中的應用)	ZQ Su, SF Yuan (Nanjing University of Aeronautics and Astronautics, China)	機械結構力學及控制國家重點實驗室開放課題項目	RMB 200,000
Application of Dielectric Barrier Discharge Plasma Actuators on a Highly Swept Delta Wing	CY Wen	RGC General Research Fund	HKD 670,500
Fragmentation, Vaporization and Combustion of Liquid Fuels in High-speed Flows (液態燃料在高速氣流中的霧化、蒸發和燃燒)	CY Wen	國家自然科學基金	RMB 900,000
JF-12激波風洞六分量測力高精度數據採集系統研製	CY Wen	中國科學院力學研究所	RMB 500,000
Design of Innovative Flapping Micro Air Vehicle	CY Wen, XJ Jing and PGG Huang (Wright State University, USA)	Innovation and Technology Fund	HKD 1,311,119
Experimental Investigation and Replication of Biological Adhesion Structures (多級生物黏附結構的實驗研究和仿製)	H Yao, LL Hu (Sun Yat-sen University, China), XG Lei (Sun Yat-sen University, China), SY Liu (Sun Yat-sen University, China) and Q Ye (Sun Yat-sen University, China)	國家自然科學基金	RMB 450,000
Mechanics of Morphological Optimization of Current Collectors in Li-ion Batteries for Enhanced Adhesion with Si-based Electrode Materials	H Yao and LM Zhou	RGC General Research Fund	HKD 861,450
Exploration of Material Design Principles from the Teeth of Black Carp - A Predator of Shelled Mollusks	H Yao	Early Career Scheme	HKD 763,087
Ab Initio Chemical Kinetics for Key Reactions in Biodiesel Combustion	P Zhang	Early Career Scheme	HKD 814,000
煤油代替模型的裂解化學反應機理研究	P Zhang	中國科學院力學研究所	RMB 150,000
生物柴油燃燒關鍵反應的從頭算化學動力學	P Zhang	深圳市科技創新委員會	RMB 340,000
Cryogenic Processing of Bulk Nanostructured Titanium and Titanium Alloys for Medical Implant Applications	GP Zheng	Innovation and Technology Fund	HKD 998,200
Development of Hybrid Supercapacitors Using Nanofiber Electrodes	LM Zhou and ZG Lu (South University of Science & Technology of China, China)	RGC General Research Fund	HKD 525,000
Corrosion and Fatigue Damage Monitoring in Large Scale Tubular Structures Using Guided Ultrasonic Waves	LM Zhou, L Cheng, ZQ Su, L Ye (University of Sydney, Australia), F Li (Shanghai Jiao Tong University, China), HG Li (Shanghai Jiao Tong University, China) and G Meng (Shanghai Jiao Tong University, China)	RGC Joint Research Scheme	HKD 688,600
Development of Co-sensitized Solar Cells Based on Anodic Titania Nanotube and Nanorod Arrays	LM Zhou and YB Xie (Southeast University, China)	RGC General Research Fund	HKD 868,694
Manufacturing, Testing and Consulting on Ferroelectromagnetic Composites	LM Zhou	The University of Sydney, Australia	HKD 104,853
Residual Stress Measurement Dedicated to Structural Aeronautical Composite Part with Organic Matrix	LM Zhou and J Lu (The City University of Hong Kong, HK)	Airbus UK Limited	HKD 865,180

Projects funded by Central Research Grant

Project Title	Investigators	Amount Sponsored
Modeling of Particle Transport	TL Chan	HKD 622,000
Modeling of Aerosol Dynamics	TL Chan	HKD 150,000
A Multi-scale Aerosol Pollutant Dispersion Model	TL Chan, SC Lee (CEE) and JZ Lin (Zhejiang University, China)	HKD 150,000
Effect of Coherent Structure on Particle Coagulation in the Vehicular Exhaust Pipe	TL Chan and CS Cheung	HKD 120,000
On Propagation Characteristics of Three-dimensional Elastic Waves Guided by Thick-walled Hollow Cylinder and Application to Detection of Damage in Train Axle	L Cheng	HKD 50,000
Detection and Monitoring of Fatigue Cracks in Axles of High-speed Train Bogies Based on Nonlinear Acousto-Ultrasonic Waves and De-centralized Sensing	L Cheng, ZQ Su and YQ Ni (CEE)	HKD 320,000
Damage Detection of Structural Components Based on Local Dynamic Equilibrium with Strong and Weak Formulations	L Cheng, ZQ Su and JL Guyader (Institut National des Sciences Appliquees de Lyon, France)	HKD 189,000
Damage Detection of Structural Components Based on Dynamic Equilibrium with Strong and Weak Formulations	L Cheng, ZQ Su and JL Guyader (Institut National des Sciences Appliquees de Lyon, France)	HKD 150,000
Vibroacoustics Research	L Cheng, ZQ Su, YS Choy, WO Wong, J Yuan and SK Tang (BSE)	HKD 500,000
Acoustic Interactions among Cavities Connected by Small Openings	L Cheng	HKD 150,000
Control and Maintenance of Mechanical System Involving Fluid-Structural Interaction	L Cheng	HKD 1,000,000
Modeling, Monitoring and Control of Vibroacoustic System	L Cheng	HKD 315,000
Fundamental Investigation on Ignition Characteristics, Kinetic Modeling, and Diesel Engine Performance of Selected Biofuels	CS Cheung and ZH Huang (Xi'an Jiaotong University, China)	HKD 150,000
Correlating Physical and Chemical Properties of Particles Emitted by Motor Vehicles with Ambient Air Particles	CS Cheung and Z Huang (Shanghai Jiaotong University, China)	HKD 168,000
Experimental Investigation and Modeling on the Performance and Emissions of a LPG-Diesel Dual Fuel Engine	CS Cheung, PK Wong (University of Macau) and N Zhi (City University of Hong Kong, HK)	HKD 150,000
Flexible Structures in Barriers for Reducing the Impact of Low Frequency Noise	YS Choy and WK Tsui	HKD 189,000
Evaluation of Acoustic Comfort in Urban Soundscape	YS Choy and WK Tsui	HKD 120,000
Investigation on Ductile Fracture Behavior and Ductile Fracture Defects in Micro-Scale Plastic Deformation	MW Fu	HKD 189,000
The Scientific Rationales for Process Determination, Tooling Design, and Defect Prediction and Avoidance in Micro Component Development via Microforming	MW Fu	HKD 150,000
Simulation of Micro/Meso Scaled Plastic Deformation by Using Size Effect Dependent Constitutive Models	MW Fu and J Lu (The City University of Hong Kong, HK)	HKD 150,000
Experimental & Analytical Investigation on the Size Effects of Micro/Meso-scale Thin Metallic Sheet's Forming Limit Based on the Micro Damage Theory	MW Fu and XM Lai (Shanghai Jiaotong University, China)	HKD 168,000
Investigation on Ductile Fracture Behavior and Stress-induced Defects in Micro-Scale Plastic Deformation	MW Fu	HKD 189,000
Meso/Micro-scaled Forming of Ti-alloys at Elevated Temperature for Biomedical Application	MW Fu	HKD 150,000
A Novel Integrated Sensor System for Monitoring Motion Errors of Scanning Coordinate Measuring Machines	HK Fung and WO Wong	HKD 189,000
Development of Integrated Sensor System for Monitoring Dynamic Errors of Scanning Coordinate Measuring Machines	HK Fung and WO Wong	HKD 150,000

Project Title	Investigators	Amount Sponsored
Characterization of Nonlinear Spatio-temporal Behaviors and Its Applications	XJ Jing	HKD 150,000
Nonlinear Analysis and Design in Vibration Suppression Systems: A New Frequency-domain Approach	XJ Jing and L Cheng	HKD 189,000
Design of a New Pneumatic Vibration Isolator	XJ Jing	HKD 50,000
Modelling, Analysis and Design of Nonlinear Spatio-Temporal Systems and Its Application in Sound and Vibration Control	XJ Jing	HKD 150,000
A Frequency Domain Method for Analysis and Design of Nonlinear Systems	XJ Jing	HKD 150,000
A Novel Approach to Identification of Block-oriented Models for Nonlinear Systems	XJ Jing and L Cheng	HKD 225,000
Identification of Wiener Models with Non-invertible Nonlinearity	XJ Jing	HKD 50,000
Identification of Switched Nonlinear Systems: A Robust Control Approach	XJ Jing	HKD 80,000
Characterization of Nonlinear Spatio-temporal Behaviors and Its Applications	XJ Jing	HKD 150,000
Key Issues in Nonlinear Analysis and Design in the Frequency Domain	XJ Jing	HKD 150,000
Development of a Silk Pelade/PLA Bio-degradable and Bio-resorbable Composite for Bone Fixation	KT Lau, XQ Feng (Tsinghua University, China) and HY Ling (Stanford University, US)	HKD 150,000
Development of Smart FRP Bridge Deck Systems	KT Lau, LM Zhou, JH Yin (CEE), JG Teng (CEE), HY Tam (EE) and A Mosallam (University of California, US)	HKD 226,851
Development of a Smart Composite Wind Turbine Blade Using Embedded Sensor and Actuator Technology	KT Lau, HY Tam (EE), HT Huang (AP) and JP Gyekenyesi (NASA Glenn Research Center, US)	HKD 320,000
A Better Alternative Impinging Flame for Domestic and Commercial Applications	CW Leung, CS Cheung and YS Choy	HKD 189,000
Aeroacoustics of High-lift Airfoil with Trapped Vortex Cavity	RCK Leung	HKD 150,000
Simulation of Realistic Acoustic Environment for Optimal Beamformer Design for Hands-Free Communication Products	RCK Leung, KF Yiu (AMA), SK Lau (University of Nebraska-Lincoln, US) and S Nordholm (Curtin University of Technology, Australia)	HKD 150,000
Supersonic Impinging Flow in Cold Spray Materials Deposition: Analysis of Nonlinear Particle-Flow Interaction and Aeroacoustical Control of Particle Transport	RCK Leung and CH Shek (The City University of Hong Kong, HK)	HKD 158,343
Analysis of Acoustofluidics in Microdevices Using Kinetic Model	RCK Leung, Y Wang (AP), KF Lei (RIPT) and M. Hirschberg (Eindhoven University of Technology, Netherlands)	HKD 180,000
Thermoacoustic Generation Mechanisms of an Impinging Premixed Flame Jet	RCK Leung, CW Leung, SK Tang (BSE) and LE Eriksson (Chalmers University of Technology Goteborg, Sweden)	HKD 320,000
Numerical Modeling of Aeroacoustic Generation by Flow Duct Side-Branched at Various Separations	RCK Leung	HKD 150,000
Pressure Drop of a Nanofiber Filter	WWF Leung	HKD 50,000
Investigating Loading and Cleaning of a Nanofiber Depth Filter for Capturing Submicron Aerosols	WWF Leung	HKD 189,000
Submicron Aerosol Filtration Using Electrostatically Charged Nanofibers	WWF Leung	HKD 115,185
Solid-State Dye Sensitized Solar Cells with High Conversion Efficiency using Electrospun TiO ₂ Nanofiber Photoanode	WWF Leung	HKD 150,000

Project Title	Investigators	Amount Sponsored
High Performance Solid State DSSC with Perovskite as Light Absorber	WWF Leung	HKD 153,917
Numerical Model Development for Prediction of Silt Sediment of Yellow River at Delta Based on LIDAR Morphological Database	Y Liu, XL Ding (LSGI) and ZL Li (LSGI)	HKD 130,350
Investigating the Role of Stochastic Resonance in Computational Prediction of Upper Airway Surgery	Y Liu, XY Luo (University of Glasgow, UK) and JY Ye (Beijing Tongren Hospital, China)	HKD 189,000
Computational Prediction for the Upper Airway Surgery	Y Liu, LX Huang (The University of Hong Kong, HK), XY Luo (University of Glasgow, UK) and JY Ye (Beijing Tongren Hospital, China)	HKD 119,989
Effect of Head Postion on Flow Characteristics and Air-Airway Structure Interaction in the Upper Airways of Obstructive Sleep Apnea (OSA) Patients	Y Liu and JY Ye (Beijing Tongren Hospital, China)	HKD 150,000
Simulation of Electrostatically Induced Jet for Electrospinning of Nanofibres	Y Liu, JT Fan (ITC) and XJ Fan (University of Sydney, Australia)	HKD 320,000
Active Drag Reduction of Vehicles	Y Liu and Y Zhou (Harbin Institute of Technology, China)	HKD 315,000
Using Stochastic Resonance to Predict the Outcome of Upper Airway Surgery for OSA Subjects	Y Liu	HKD 150,000
Bio-Inspired Nanocomposite Fibres & Novel Composite Resins Containing	YW Mai	HKD 1,704,000
The Mechanism of Electroplasticity and Its Application for Emerging High-performance Alloys	HH Ruan	HKD 150,000
Nanomaterials and Phase Field Modelling	SQ Shi	HKD 250,000
Vapor Jet Printing Unit for Organic Electronics	SQ Shi and KL Chan (The University of Hong Kong, HK)	HKD 100,000
High Performance Organic Memory	SQ Shi and KL Chan (The University of Hong Kong, HK)	HKD 146,017
Theoretical Study of the High Strength and High Ductility in Bimodal Metals with Nanograins and Nanotwins	SQ Shi, CT Liu (The City University of Hong Kong, HK) and J Lu (The City University of Hong Kong, HK)	HKD 696,000
Phase-field Modeling of Hydride Blisters in Zirconium	SQ Shi	HKD 150,000
Dynamics of Carbon Nanotubes Conveying Fluid with Nanoscale Effects	SQ Shi	HKD 696,000
Development of A Phase Field Modeling Framework for Corrosion Kinetics	SQ Shi	HKD 150,000
Study on the Electrocaloric Effect of Ferroelectric Materials	SQ Shi	HKD 150,000
Quantitative Characterization of Multiple Fatigue Cracks for Structural Integrity Monitoring (SIM) Using Nonlinear Acousto-ultrasonics and Active Sensor Networks	ZQ Su, L Cheng and LM Zhou	HKD 150,000
Modelling Dispersive Properties of Ultrasonic Waves	ZQ Su	HKD 50,000
Nonlinear Acousto-ultrasonics-based Quantitative Identification of Fatigue Cracks in Engineering Structures Using Probability-based Diagnostic Imaging	ZQ Su, L Cheng and LM Zhou	HKD 189,000
Using Nonlinearities of Higher-Order Guided Wave Modes for Detecting Nonlinear Fatigue Damage	ZQ Su	HKD 150,000
An Innovative Three-dimensional Assessment Technique for Cancellous Bone Using the Tuned L(0,1) Mode of Cylindrical Lamb Waves	ZQ Su and L Cheng	HKD 153,893
Sensor/actuator Network and Signal Processing	ZQ Su, L Cheng, WO Wong and J Yuan	HKD 500,000
Damage Identification in Tubular Structures of Train Carriages Using Guided Waves	ZQ Su	HKD 193,000
Development of A Novel Coated CNT-graphene Hybrid Sensor Network for Elastic-wave-based Damage Identification	ZQ Su	HKD 50,000

Project Title	Investigators	Amount Sponsored
Design, Fabrication and Flight Test of Flapping Micro/Unmanned Air Vehicles	CY Wen and XJ Jing	HKD 400,000
Leading Edge Vortex Flow Control on a Delta Wing with Dielectric Barrier Discharge Plasma Actuators	CY Wen	HKD 380,000
Design Optimization of Multiple Viscoelastic Dynamic Absorbers for Floor Vibration Abatement	WO Wong, J Yuan and TY Ng	HKD 189,000
Design Optimization of a Visco-Elastic Dynamic Absorber for Floor Vibration Abatement	WO Wong, J Yuan and TY Ng	HKD 150,000
Complex Power Flow Control in Vibrating Plates with Dynamic Vibration Absorbers	WO Wong	HKD 150,000
Biomimetic Study on the Reaction Chambers of Bombardier Beetles for Aeronautical Applications: Thermal Resistance and Pulsed Jet Propulsion	H Yao and P Zhang	HKD 157,350
Bio-inspired Investigation on the Mechanics of Indentation-induced Cracking Morphologies in Hard Coatings	H Yao	HKD 50,000
Fabrication of Polymer Nano-forest as a Universal and Releasable Dry Adhesive	H Yao	HKD 200,000
Bio-inspired Optimization of Interfacial Strength in Hybrid Materials	H Yao	HKD 199,999
Active Noise Control in Acoustic Wave Guides (AWGs)	J Yuan	HKD 150,000
Active Noise Control in Ducts with Large Cross Sectional Areas	J Yuan	HKD 150,000
Active Noise Control in Acoustic Wave Guides (AWGs) (G-YL55)	J Yuan	HKD 150,000
Active Noise Control in Acoustic Wave Guides (AWGs) (G-YM95)	J Yuan	HKD 150,000
Hypergolic Ignition Mechanism of a Novel "Green" Propellant for Aerospace Propulsion: A Density Functional Theory Study of DMAZ/HNO ₃ System	P Zhang	HKD 100,000
Dynamics of Unequal-size Droplet Collision	P Zhang	HKD 450,000
Computational Study on Slotted Swirl Combustor for Application in Gas Turbine Engines	P Zhang	HKD 150,000
Multi-scale Modeling of Size Effects on Mechanical Behaviors of Metallic Glasses	GP Zheng	HKD 105,000
Experimental and Theoretical Investigations on the Magnetocaloric Behaviors of (Fe, Co) - based Amorphous Alloys	GP Zheng and CT Liu (The City University of Hong Kong, HK)	HKD 150,000
Sensor/actuator Network and Signal Processing	ZQ Su, L Cheng, WO Wong and J Yuan	HKD 500,000
Atomic Structure and Glass Forming Ability of Bulk Metallic Glasses (BMGs)	GP Zheng and CT Liu (The City University of Hong Kong, HK)	HKD 696,000
Atomic-scale Experimental and Simulation Investigations on the Deformation Twinning in Nanostructured Titanium	GP Zheng	HKD 150,000
Multiscale Simulation Studies on the Processing and Mechanical Behaviors of Ultrafine and Nano-size Grained Magnesium Alloys	GP Zheng	HKD 189,000
Development of Hybrid Supercapacitors using Nanofiber Electrodes	LM Zhou and YW Mai (University of Sydney, Australia)	HKD 189,000
ZnO and Patterned Nanostructures for Stable and High-efficiency Inverted Organic Solar Cells	LM Zhou and CW Leung	HKD 624,000
Advanced Hybrid Fibre Reinforced Polymer Composites for Bridge Construction	LM Zhou and JG Teng (CEE)	HKD 495,453
All Solid State Quantum-dot-sensitized Solar Cells Based on Solution Processed Inorganic Semiconductors	LM Zhou	HKD 150,000

Projects with Research Student funded by CRG/GRF/ ITF/ other external grants

Student Name	Project Title	Supervisor
PhD (FT)		
CHAN Yui Ho	Aeroacoustics of Silencing Device in Flow Duct	RCK Leung YS Choy
CHEN Kai-guo	Modeling of Microstructure Evolution and Mechanical Properties of Nano Structured Copper	SQ Shi
CHEN Yu-ming	Electrospun Nanofibres/Nanotubes for Energy Application	LM Zhou
CHEUNG Ka Po	Study of Enhancing Mechanical Properties of Aluminium Sheets for Structural Applications	SQ Shi J Lu (CityU)
CHIANG Yan Kei	Aero-acoustics-structural Interactions and Noise Control in the Fan-ducted System	YS Choy L Cheng KS Tang (BSE)
FAN Ka Heng	Aeroacoustic-structure Interaction of Flexible Panel Loaded with Unsteady Flow	RCK Leung
HAO Ming-jun	Modelling of Hydride Blister in Materials	SQ Shi GP Zheng
HE Chong	Mechanics Learned from Natural Bio-mineralized Materials - Teeth of Black Carp and Mollusc Shells	H Yao SQ Shi
HONG Ming	Structural Health Monitoring-oriented Quantitative Damage Characterization Using Nonlinear Ultrasonic Waves and Active Sensor Networks: Fundamental Analysis, Algorithm Development, and Engineering Applications	ZQ Su L Cheng XL Qing (Beijing Civil Aircraft Technology Research Center of COMAC, China)
HU Jing	TBC	LM Zhou
JIANG Zhiyuan	Structural and Ferroelectric Properties of Graphene-ferroelectric Hybridized Structure Materials	GP Zheng
LAM King Cheong	Properties of Graphene-based Gas Sensor for Methane Gas, Atomic Oxygen and Moisture Detection	SQ Shi
LEUNG Wing Yan, Maggie	Design and Realization of Structural Materials with High Strength and High Ductility	LM Zhou SQ Shi J Lu (CityU)
LI Fang-fang	Research on Key Manufacturing Technologies and Theories for a Hot Stamped B-pillar with Tailored Properties	MW Fu JP Lin (Tongji University, China)
LI Nana	Effect of SMAT on Corrosion Properties of Materials in Steam Generator	SQ Shi J Lu (CityU)
LIU Menglong	A Hybrid Evaluation Approach for Hypervelocity Impact Damage in Spacecraft Structures Based on Passive Acoustic Emission and Active Linear/Nonlinear Guided Waves	ZQ Su L Cheng
LIU Qiang	TBC	Y Liu
LIU Shuyuan	Numerical Simulation of Aerosol Dynamics in Multi-Scale System	TL Chan
LI Wei-quan	Mechanics-Based Investigation into the Durability and Reliability of Energy Storage Materials	H Yao LM Zhou

Student Name	Project Title	Supervisor
PhD (FT)		
WAN Jianquan	TBC	HH Ruan (temp)
WEI Zhilong	TBC	CWL CS Cheung ZH Huang (Shanghai Jiaotong U, China)
WONG Tsz Ting	Development of a UV-protective Glass Fibre Reinforced Epoxy Composite	KT Lau WY Tam
WU Di	TBC	RCK Leung
WU Keming	Design and Analysis of Bio-inspired Flapping Wing UAV	XJ Jing CY Wen
XIAO Zhen-long	Frequency Domain Convergence Criteria of Volterra Series Expansion and the Applications in Nonlinear Analysis and Design	XJ Jing L Cheng
XI Qiang	Analysis and Control of Fan Noise within a Converging Duct Section of Limited Length	YS Choy L Cheng SK Tang (BSE, PolyU)
YU Xiang	Sound Absorption by Micro-perforated Panel in Complex Vibroacoustic Environment	L Cheng
ZHANG Bing-fu	Drag Reduction of a Road Vehicle by Active Flow Control Using Microvalve Actuator	Y Liu Y Zhou (Harbin Institute of Technology, China) S To (ISE)
ZHANG Hao	TBC	CY Wen
ZHANG Pei	Turbulent Round Jet Control Using Dual Pulsed Microjets	Y Liu Y Zhou (Harbin Institute of Technology, China)
ZHOU Jian-hao	Combustion and Emissions of a DI Diesel Engine Fueled with Diesel and Biodiesel Supplemented with Hydrogen	CS Cheung CW Leung Z Ning (CityU)
ZHU Xuren	TBC	P Zhang CW Leung
ZIAJA, Aleksandra	On Propagation Characteristics of Three-dimensional Elastic Waves Guided by Thick-walled Hollowed Cylinder and Application to Damage in Train Axle	L Cheng ZQ Su

Student Name	Project Title	Supervisor
PhD (FT)		
LI Xiao-yan	Electrospun TiO ₂ Based Nanomaterials for Energy Storage	LM Zhou
LI Yehai	TBC	KT Lau
LU Ming-zhen	Simulation of Respiratory Flow in Human Upper Airway Model	Y Liu
MAK Yi Wah, Eva	Chitosan-based Nanofiber Scaffold as Applied to Wound Healing	WWF Leung
MIAO Jing	Combustion, Thermal and Emission Characteristics of Gas-fired Inverse Diffusion Flames Burning Mixed LPG/Hydrogen Fuel	CW Leung CS Cheung ZH Huang (Xi'an Jiaotong University, China)
PEI Chun	Photocatalytic Nanofibers for Degradation of Pollutants in Liquid and Gas Phases	WWF Leung
QADRI Muhammad Nafees Mumtaz	TBC	H Tang
RADECKI, Rafai Zbigniew	Modelling of PZT Elements for Structural Health Monitoring Using Nonlinear Characterization of Acousto-ultrasonic Waves	ZQ Su L Cheng
RAN Jia-qi	Ductile Fracture Investigation in Micro-scaled Plastic Deformation	MW Fu
SALDIVAR Heriberto	Study of Inviscid and Viscous Hypersonic Dissociating Flows Over Blunt Bodies Using the CE/SE Scheme	CY Wen
SEID Ka Him	Optimal Control of Noise Generated within Flow Duct Systems	RCK Leung L Cheng
SHEN Lu	TBC	CY Wen
SUN Xiu-ting	Dynamic Performance and Applications of a New Nonlinear Vibration Isolation	XJ Jing L Cheng J Xu (Tongji University, China)
WANG Hong	Feature Characterization and Fault Detection of Complex-structure Systems Based on Dynamic Response Signals & Initial Development of New Generation Vibration Isolation Technology in Aeronautic Engineering	XJ Jing L Cheng
WANG Ji-lai	Investigation of Defect Formation in Micro-forming Process Using Experiments and Numerical Simulations	MW Fu
WANG Kai	TBC	ZQ Su
WANG Shu	Investigation on Aerodynamics of Airfoil at Low Reynolds Number	Y Liu Y Zhou (Harbin Institute of Technology, China)
WANG Song	Self-Hardening/Softening in Metallic Glass Subjected to Cyclic Elastic Pre-Loading	SQ Shi Y Yang (CityU)
WANG Tiangang	Localization and Characterization of Noise Sources in an Enclosed Space by Microphone Array	YS Choy L Cheng
WANG Zhibo	TBC	YS Choy XJ Jing

Student Name	Project Title	Supervisor
PhD (PT)		
LAM Cheuk Yi, Tracy	Fabrication of Hybrid Solar Cells by Organic-Inorganic Semiconductor Heterojunction Structures	SQ Shi KL Chan (HKU) J Lu (CityU)
WONG Yin Wai	Innovative Design and Optimization Methodology for Product Centrifugal Blower Noise	RCK Leung WQ Gong (Xi'an Jiaotong University, China) KY Law (Raymond Industrial Limited, HK)
MPhil (FT)		
CHOY Hung Faat	Loading Behaviour of a Multilayer Nanofiber Depth Filter for Capturing Nano-aerosols	WWF Leung
FU Jimin	Study on the Wear Properties of Black Carp Teeth Using Molecular Dynamics Simulation	H Yao SQ Shi
HAO Ming-jun	Temperature Effect on the Evolution of Hydride Precipitation in Zirconium	SQ Shi GP Zheng
HAU Wing Yi, Cruie	Backpulse and Backblow Cleaning of Nano-aerosol Loaded, Nanofibrous Depth Filter	WWF Leung
LAM Ka Hei	Low Frequency Duct Acoustic Liner Using Metamaterial Technology	RCK Leung
LO Kin Shing, Kenneth	Characterization of Dye-Sensitized Solar Cells Graphene Integrated TiO ₂ Nanofiber Photoanode	WWF Leung
MA Hei Lam	TBC	KT Lau
YANG Haopeng	TBC	MW Fu S To (ISE)
MPhil (PT)		
LAM Yat Ken	Measurement of Tyre-road Interaction Noise in Urban Environment Using Twin-wheeled CPX Trailer	RCK Leung WT Hung (CSE)
YU Hoi Fai	Bipedal Walking of Humanoid Robot on Inclined Plane with Pitch and Roll Angle	HK Fung XJ Jing

Research Collaborations

In the year of 2013/2014, the Department has worked hard to establish collaborative research activities with the following educational institutions and organizations:

Queensland University of Technology Australia	Australia
The University of Queensland Australia	Australia
The University of Sydney Australia	Australia
University of New South Wales Australia	Australia
Research Lab at Kinectrics Inc. Canada	Canada
University of Alberta Canada	Canada
Beihang University China	China
Beijing Institute of Technology China	China
Bohai University China	China
Capital Medical University China	China
China Academy of Space Technology China	China
China Aerodynamics Research and Development Center China	China
China Oilfield Service Limited China	China
Chinese Academy of Sciences China	China
Fuzhou University China	China
Harbin Institute of Technology China	China
Jiangsu University China	China
Liaoning University of Technology China	China
Northwestern Polytechnic University China	China
Shanghai Jiao Tong University China	China
Shanghai University China	China
Shen Zhen University China	China
Shenyang Institute of Automation China	China
South University of Science and Technology of China China	China
Southeast University China	China
Suzhou Thermal Engineering Research Institute China	China

Taiyuan University of Science and Technology China	China
Tianjing University China	China
Tsinghua University Shenzhen Graduate School China	China
University of Science and Technology of China China	China
University of Science and Technology Beijing China	China
University of Shanghai for Science and Technology China	China
Xi'an Jiaotong University China	China
Zhejiang University China	China
University of Kaiserslautern Germany	Germany
Chinese University of Hong Kong HK	HK
City University of Hong Kong HK	HK
The Hong Kong University of Science and Technology HK	HK
The University of Hong Kong HK	HK
Chiba University Japan	Japan
Institute for the development and Quality, Macau Macau	Macau
University of Macau Macau	Macau
Chalmers University Sweden	Sweden
National Taipei University of Technology Taiwan	Taiwan
University of Glasgow UK	UK
Argonne National Laboratory USA	USA
City College of New York USA	USA
Pacific Northwest National Laboratory USA	USA
Princeton University USA	USA
The University of Texas at Austin USA	USA
University of North Texas USA	USA

Research Outputs (1 January 2012~31 December 2012)

Executive Summary

Issued Patent	2
Published Patent Applications	2
Research Monograph	1
Book Chapter	3
Journal Paper	136
Conference Proceeding	51

Total no. of archival publications 195

Issued Patents

1. LEI K.F. and LEUNG, W.W.F., "Method and System for Quantifying an Intention of Movement of a User", *United States Patent 8,376,968*, 19 February (2013).
2. LEUNG, W.W.F. and HUNG, C.H., "Multilayer Nanofiber Filter", *United States Patent 8,523,971*, 3 September (2013).

Published Patent Applications

1. LEUNG, W.W.F. and YANG, L.J., "Bilayer Dye Sensitized Solar Cell and Fabrication Method Thereof", *United States Patent Application Publication Number 2013/0074913 A1*, 28 March (2013).
2. LEUNG, W.W.F. and YANG, L.J., "Dye-sensitized Solar Cell Based on Indirect Charge Transfer", *United States Patent Application Publication Number 2013/0298981 A1*, 14 November (2013).

Research Monograph

1. FU, M.W., CHAN, W.L., "Micro-scaled Product Development via Microforming: Deformation Behaviors, Processes, Tooling and Its Realization", *Springer-Verlag London Ltd.*, December (2013).

Book Chapter

1. CHENG, L., LU, Z.B. and HALIM, D., "Active Control of Flow-Induced Acoustic Resonance Inside Downstream Cavities Through Surface Perturbation", *New Trends in Smart Technologies*, Edited by Christian Boller, Hartmut Janocha (Eds.), *Fraunhofer Verlag*, ISBN 978-3-8396-0577-6, pp.205-222 (2013).
2. CHEN, Y., JING, X. and CHENG, L., "Frequency Domain Analysis and Design of Nonlinear Vehicle Suspension Systems", (Chapter 12) in *Handbook of Vehicle Suspension Control Systems*, Edited by Honghai Liu, Huijun Gao & Ping Li, *IET control book series*, ISBN: 978-1-84919-633-8, (2013)
3. FU, B.M. and LIU, Y., "Transport of Water and Solutes across Endothelial Barriers and Tumor Cell Adhesion in the Microcirculation", (Chapter 4) in *Transport in Biological Media*, Edited by Becker & Kuznetsov, *Elsevier*, ISBN: 9780124158245 (2013).

Journals

1. WANG, X.W., ZHOU, Y., PIN, Y.F. and CHAN, T.L., "Turbulent Near Wake of an Ahmed Vehicle Model", *Experiments in Fluids*, Vol. 54, No. 4, AN. 1490, pp.19 (2013).
2. CHEN, J.G., CHENG, L., SU, Z.Q. and QIN, L., "Modelling Elastic Waves in Coupled Media: Estimate of Soft Tissue Influence and Application to Quantitative Ultrasound", *Ultrasonics*, Vol. 53, pp.350-362 (2013).
3. LU, Z.B., HALIM, D. and CHENG, L., "Closed-loop Control of Flow-induced Sound in a Flow Duct with Downstream Resonant Cavities", *Journal of the Acoustical Society of America*, Vol. 133, No. 3, pp.1468-1479 (2013).
4. SHEN, C., XIN, F.X., CHENG, L. and LU, T.J., "Sound Radiation of Orthogonally Stiffened Laminated Composite Plates under Airborne and Structure Borne Excitations", *Composites Sciences and Technology*, Vol. 84, pp.51-57 (2013).
5. WANG, W.O., CHENG, Y.L. and CHENG, L., "Modal Power Flow Analysis of a Damaged Orthotropic Plate", *Advances in Structural Engineering*, Vol. 16, No. 1, pp.115-125 (2013).
6. XU, H., CHENG, L., SU, Z.Q. and GUYADER, J.L., "Damage Visualization Based on Local Dynamic Perturbation: Theory and Application to Characterization of Multi-damage in a Plane Structure", *Journal of Sound and Vibration*, Vol. 332, pp.3438-3462 (2013).
7. XU, H., CHENG, L. and SU, Z.Q., "Suppressing Influence of Measurement Noise on Vibration-Based Damage Detection Involving Higher-Order Derivatives", *Advances in Structural Engineering*, Vol. 16, No. 1, pp.233-244 (2013).
8. YANG, C., CHENG, L. and PAN, J., "Absorption of Oblique Incidence Sound by a Finite Micro-perforated Panel Absorber", *Journal of the Acoustical Society of America*, Vol. 133, No. 1, pp.201-209 (2013).
9. YANG, C., PAN, J. and CHENG, L., "A Mechanism Study of Sound Wave-trapping Barriers", *Journal of the Acoustical Society of America*, Vol. 134, No. 3, pp.1960-1969 (2013).
10. DONG, L.L., CHEUNG, C.S. and LEUNG, C.W., "Characterization of Impingement Region from an Impinging Inverse Diffusion Flame Jet", *International Journal of Heat and Mass Transfer*, Vol. 56, pp.360-369 (2013).
11. DONG, L.L., CHEUNG, C.S. and LEUNG, C.W., "Heat Transfer Optimization of an Impinging Port-array Inverse Diffusion Flame Jet", *Energy*, Vol. 49, No. 1, pp.182-192 (2013).
12. LU, T., CHEUNG, C.S. and HUANG, Z., "Influence of Waste Cooking Oil Biodiesel on the Particulate Emissions and Particle Volatility of a DI Diesel Engine", *Aerosol and Air Quality Research*, Vol. 13, pp.243-254 (2013).
13. NING, Z., CHAN, K.L., WONG, K.C., WESTERDAHL, D., MOCNIK, G., ZHOU, J.H. and CHEUNG, C.S., "Black Carbon Mass Size Distributions of Diesel Exhaust and Urban Aerosols Measured Using Differential Mobility Analyzer in Tandem with Aethalometer", *Atmospheric Environment*, Vol. 80, pp.31-40 (2013).
14. WONG, K.I., WONG, P.K., CHEUNG, C.S. and VONG, C.M., "Modelling of Diesel Engine Performance Using Advanced Machine Learning Methods under Scarce and Exponential Data Set", *Applied Soft Computing*, Vol. 13, pp.4428-4441 (2013).
15. WONG, K.I., WONG, P.K., CHEUNG, C.S. and VONG, C.M., "Modeling and Optimization of Biodiesel Engine Performance Using Advanced Machine Learning Methods", *Energy*, Vol. 55, pp.519-528 (2013).
16. WONG, P.K., VONG, C.M., CHEUNG, C.S. and WONG, K.I., "Diesel Engine Modeling Using Extreme Learning Machine under Scarce and Exponential Data Sets", *International Journal of Uncertainty Fuzziness and Knowledge-based Systems*, Vol. 21, pp.87-98 (2013).
17. ZHANG, Z.H., CHEUNG, C.S. and YAO, C.D., "Influence of Fumigation Methanol on the Combustion and Particulate Emissions of a Diesel Engine", *Fuel*, Vol. 111, pp.442-448 (2013).
18. ZHEN, H.S., CHEUNG, C.S., LEUNG, C.W. and LI, H.B., "Thermal and Heat Transfer Behaviours of an Inverse Diffusion Flame with Induced Swirl", *Fuel*, Vol. 103, pp.212-219 (2013).
19. ZHOU, J.H., CHEUNG, C.S. and LEUNG, C.W., "Combustion, Performance and Emissions of ULSD, PME and B50 Fueled Multi-cylinder Diesel Engine with Naturally Aspirated Hydrogen", *International Journal of Hydrogen Energy*, Vol. 38, pp.14837-14848 (2013).
20. ZHU, L., CHEUNG, C.S., ZHANG, W.G., FANG, J.H. and HUANG, Z., "Effects of Ethanol-biodiesel Blends and Diesel Oxidation Catalyst (DOC) on Particulate and Unregulated Emissions", *Fuel*, Vol. 113, pp.690-696 (2013).
21. CHOY, Y.S., ZHEN, H.S., LEUNG, C.W., CHEUNG, C.S. and LEUNG, R.C.K., "Noise Generation by Open Inverse Diffusion Flames", *Journal of Vibration and Control* (Published on-line) DOI: 10.1177/1077546312473317.
22. CHAN, W.L. and FU, M.W., "Meso-scaled Progressive Forming of Bulk Cylindrical and Flanged Parts Using Sheet Metal", *Materials & Design*, Vol. 43, pp.249-257 (2013).
23. FU, M.W. and CHAN, W.L., "Micro-scaled Progressive Forming of Bulk Micropart via Directly Using Sheet Metals", *Materials & Design*, Vol. 49, pp.774-783 (2013).
24. FU, M.W. and CHAN, W.L., "A Review of the State-of-the-art Microforming Technologies", *The International Journal of Advanced Manufacturing Technology*, Vol. 67, pp.2411-2437 (2013).
25. FU, M.W., YANG, B. and CHAN, W.L., "Experimental and Simulation Studies of Micro Blanking and Deep Compound Process Using Copper Sheet", *Journal of Materials Process Technology*, Vol. 213, pp.101-111 (2013).
26. HU, Q., FU, M.W., ZENG, X.R. and MA, C.L., "Thin-walled Ti41.5Zr2.5Hf5Cu42.5Ni7.5Si1 Bulk Metallic Glass Tube: A Promising Energy Absorber and Lightweight Structure", *Journal of Alloys and Compounds*, Vol. 546, pp.180-184 (2013).
27. LI, X., LU, S.Q., WANG, K.L., FU, M.W. and CAO, C.X., "Analysis and Comparison of the Instability Regimes in the Processing Maps Generated Using Different Instability Criteria for Ti-6.5Al-3.5Mo-1.5Zr-0.3Si Alloy", *Materials Science and Engineering A*, Vol. 576, pp.259-266 (2013).
28. LIU, H.S. and FU, M.W., "The Adaptive Reproducing Kernel Particle Method by Using the Strain/Stress Gradient Indicator for Simulation of the Non-linear Elasto-plastic Deformation", *Engineering Analysis with Boundary Elements*, Vol. 37, pp.280-292 (2013).
29. LU, S.Q., LI, X., WANG, K.L., DONG, X.J. and FU, M.W., "High Temperature Deformation Behavior and Optimization of Hot Compression Parameter of TC11 Titanium Alloy with Course Lamellar Original Microstructure", *Transactions of Nonferrous Metals Society of China*, Vol. 23, pp.353-360 (2013).
30. NING, Y.Q., YAO, Z.K., GUO, H.Z. and FU, M.W., "Structural-gradient-materials Produced by Gradient Temperature Heat Treatment for Dual-property Turbine Disc", *Journal of Alloys and Compounds*, Vol. 557, pp.27-33 (2013).
31. RAN, J.Q., FU, M.W. and CHAN, W.L., "The Influence of Size Effect on the Ductile Fracture in Micro-scaled Plastic Deformation", *International Journal of Plasticity*, Vol. 41, pp.65-81 (2013).
32. WANG, G.C., FU, M.W., LI, J., SUN, Q.J., DONG, H.B. and XU, X.F., "Study of the High-efficiency Superplastic Deformation of Ti-6Al-2.5Mo-1.5Cr-0.5Fe-0.3Si Alloy Based on the Strain Rate Sensitivity Index M", *Advanced Engineering Materials*, On-line (2013).
33. WANG, J.L., FU, M.W., RAN, J.Q., "Analysis and Avoidance of Flow-induced Defect in Meso-scaled Plastic Deformation via Simulation and Experiment", *The International Journal of Advanced Manufacturing Technology*, Vol. 68, pp.1551-1564 (2013).
34. ZHAO, Y., GUO, H.Z., FU, M.W., NING, Y.Q. and YAO, Z.K., "Fabrication of Bulk Ultra-fined Ti-alloy by Equal Channel Angular Pressing Combined with the Thermomechanical Treatment", *Materials & Design*, Vol. 46, pp.889-894 (2013).
35. FUNG, E.H.K., ZHANG, X.Z., ZHU, M. and WONG, W.O., "Profile Estimation of Linear Slide in the Presence of Straightness, Yawing and Rolling Motion Errors", *Applied Mechanics and Materials*, Vol. 421, pp.444-448 (2013).
36. FUNG, E.H.K., HOU, N.J., ZHU, M. and WONG, W.O., "A Novel Method for On-Machine Determination of Slide Motion Errors Considering Thermal Effects", *Applied Mechanics and Materials*, Vol. 421, pp.157-162 (2013).
37. JING, X.J. and CHENG, L., "An Optimal PID Control Algorithm for Training Feedforward Neural Networks", *IEEE Transactions on Industrial Electronics*, Vol. 60, No. 6, pp.2273-2283 (2013).
38. LI, Y.M., LI, T.S. and JING, X.J., "Indirect Adaptive Fuzzy Control for Input and Output Constrained Nonlinear Systems Using a Barrier Lyapunov Function", *International Journal of Adaptive Control and Signal Processing*, Vol. 28, No. 2, pp.184-199 (2013).
39. NING, H.W., JING, X.J. and CHENG, L., "Identification of Non-linear Stochastic Spatiotemporal Dynamical Systems", *IET Control Theory and Applications*, Vol. 7, No. 17, pp.2069-2083 (2013).
40. TONG, S.C., LI, Y.M. and JING, X.J., "Adaptive Fuzzy Decentralized Dynamic Surface Control for Nonlinear Large-Scale Systems Using a High-Gain Observer", *Information Sciences*, Vol. 235, pp.287-307 (2013).
41. XIAO, Z.L., JING, X.J. and CHENG, L., "Parameterized Convergence Bounds for Volterra Series Expansion of NARX Models", *IEEE Transactions on Signal Processing*, Vol. 61, No. 20, pp.5026-5038 (2013).
42. XIAO, Z.L., JING, X.J. and CHENG, L., "The Transmissibility of Vibration Isolators with Cubic Nonlinear Damping under Both Force and Base Excitations", *Journal of Sound and Vibration*, Vol. 332, No. 5, pp.1335-1354 (2013).
43. ZHU, X.C., JING, X.J. and CHENG, L., "Optimal Design of Control Valves in Magneto-Rheological Fluid Dampers Using a Non-dimensional Analytical Method", *Journal of Intelligent Material Systems and Structures*, Vol. 24, No. 1, pp.108-129 (2013).
44. ALBDIRY, M.T., YOUSIF, B.F., KU, H. and LAU, K.T., "A Critical Review on the Manufacturing Processes in Relation to the Properties of Nanoclay/polymer Composites", *Journal of Composite Materials*, Vol. 47, No. 9, pp.1093-1115 (2013).
45. GAYAN, K., Epaarachchi, WANG, H. and LAU, K.T., "Extraction and Processing of Real Time Strain of Embedded FBG Sensors Using a Fixed Filter FBG Circuit and an Artificial Neural Network", *Measurement*, Vol. 46, No. 10, pp.4045-4051 (2013).

46. HE, Y.X., LI, Q., KUILA, T. and LAU, K.T., "Micro-crack Behaviour of Carbon Fibre Reinforced Thermoplastic Modified Epoxy Composites for Cryogenic Applications", *Composites Part B*, Vol. 44, No. 1, pp.533-539 (2013).
47. HO, M.P., LAU, K.T., AU, H.Y. and TAM, H.Y., "Monitoring of an Asymmetrical SMA Reinforced Composite Using Embedded FBG sensors", *Smart Materials and Structures*, Vol. 22, No. 12, pp.125015 (2013).
48. HO, M.P., WANG, H. and LAU, K.T., "Effect of Silk Fibre to the Mechanical and Thermal Properties of Its Biodegradable Composites", *Journal of Applied Polymer Science*, Vol. 127, No. 4, pp.2389-2396 (2013).
49. KABIR, M.M., WANG, H., LAU, K.T., CARDONA, F. and ARAVINTHAN, T., "Mechanical Properties of Chemically-treated Hemp Fibre Reinforced Sandwich Composites", *Composites: Part B: Engineering*, Vol. 53, pp.362-368 (2013).
50. KABIR, M.M., WANG, H. and LAU, K.T., "Effects of Chemical Treatments on Hemp Fibre Structures", *Applied Surface Science*, Vol. 276, pp.13-23 (2013).
51. LAU, M.L., LAU, K.T., KU, H. and BHATTACHARYYA, D., "Analysis of Heat-treated Bovine Cortical Bones by Thermal Gravimetric and Nanoindentation", *Composites Part B: Engineering*, Vol. 55, pp.447-452 (2013).
52. LAU, K.T., WONG, T.Z., LENG, J.S. and HUI, D., "Property Enhancement of Polymer-based Composites at Cryogenic Environment by Using Tailored Carbon Nanotubes", *Composites Part B: Engineering*, Vol. 54, pp.41-43 (2013).
53. LI, Q., MISHRA, A.K., HOON, N., LEE, J.H. and LAU, K.T., "Effects of Processing Conditions of Poly(Methylmethacrylate) Encapsulated Liquid Curing Agent on the Properties of Self-healing Composites", *Composites Part B*, Vol. 49, pp.6-15 (2013).
54. SHAMSUDDOHA, Md, MAINUL, Md, ARAVINTHAN, T. and LAU, K.T., "Effectiveness of Using Fibre-reinforced Polymer Composites for under Water Steel Pipeline Repairs", *Composite Structures*, Vol. 100, pp.40-54 (2013).
55. TARAWNEH, M.A., SHMAD, S.H.J., EHNOUM, S.Y. and LAU, K.T., "Sonication Effect on the Mechanical Properties of MWNTs Reinforced Natural Rubber", *Journal of Composites Materials*, Vol. 47, No. 5, pp.579-585 (2013).
56. YAN, Z., WANG, H. and LAU, K.T., "Reinforced of Polypropylene with Hemp Fibre", *Composites Part B*, Vol. 46, pp.221-226 (2013).
57. YU, D., THOMAS, B., HAZIM, J.H. and LAU, K.T., "Multi-response Analysis in the Material Characterisation of Electrospun Poly (Lactic Acid)/Halloysite Nanotube Composite Fibres Based on Taguchi Design of Experiments: Fibre Diameter, Non-intercalation and Nucleation Effects", *Applied Physics A- Materials Science & Processing*, Vol. 112, No. 3, pp.747-757 (2013).
58. ZHEN, H.S., LEUNG, C.W. and CHEUNG, C.S., "Effects of Hydrogen Addition on the Characteristics of a Biogas Diffusion Flame", *International Journal of Hydrogen Energy*, Vol. 38, No. 16, pp.6874-6881 (2013).
59. HO, K.Y., HUNG, W.T., NG, C.F., LAM, Y.K., LEUNG, R.C.K. and KAM, E., "The Effects of Road Surface and Tyre Deterioration on Tyre/Road Noise Emission", *Applied Acoustics*, Vol. 74, pp.921-925 (2013).
60. LAM, G.C.Y., LEUNG, R.C.K. and TANG, S.K., "Aeroacoustics of T-Junction Merging Flow", *Journal of the Acoustical Society of America*, Vol. 133, No. 2, pp.697-708 (2013).
61. FU, S.C., LEUNG, W.W.F. and SO, R., "A Lattice Boltzmann and Immersed Boundary Scheme for Model Blood Flow in Constricted Pipes: Part 1 - Steady Flow", *Communication in Computational Physics*, Vol. 14, No. 1, pp.126-152 (2013).
62. FU, S.C., SO, R. and LEUNG, W.W.F., "A Lattice Boltzmann and Immersed Boundary Scheme for Model Blood Flow in Constricted Pipes: Part 2 - Pulsatile Flow", *Communication in Computational Physics*, Vol. 14, No. 1, pp.153-173 (2013).
63. LEUNG, W.W.F. and REN, Y., "Crossflow and Mixing in Obstructed and Width-constricted Rotating Radial Microchannel", *International Journal of Heat and Mass Transfer*, Vol. 64, pp.457-467 (2013).
64. PEI, C.C. and LEUNG, W.W.F., "Enhanced Photocatalytic Activity of Electrospun TiO₂/ZnO Nanofibers with Optimal Anatase/rutile Ratio", *Catalyst Communications*, Vol. 37, pp.100-104 (2013).
65. PEI, C.C. and LEUNG, W.W.F., "Photocatalytic Degradation of Rhodamine B by TiO₂/ZnO Nanofibers under Visible Light Irradiation", *Journal of Separation and Purification Technology*, Vol. 114, pp.108-116 (2013).
66. REN, Y. and LEUNG, W.W.F., "Flow and Mixing in Zigzag Channel", *Chemical Engineering*, Vol. 215-216, pp.561-578 (2013).
67. REN, Y. and LEUNG, W.W.F., "Experimental and Numerical Investigation on Flow and Mixing in Batch-mode Rotating Microfluidics", *International Journal of Heat and Mass Transfer*, Vol. 60, pp.95-104 (2013).
68. REN, Y., CHOW, L.M.C. and LEUNG, W.W.F., "Pichia Pastoris Culture on Centrifugal Microfluidic Platform", *Biomedical Microdevice*, Vol. 15, Issue 2, pp.321-337 (2013).
69. REN, Y. and LEUNG, W.W.F., "Vortical Flow and Mixing in Rotating Microfluidics", *Computers and Fluids*, Vol. 79 (2013).
70. YANG, L.J. and LEUNG, W.W.F., "Electrospun TiO₂ Nanorod with Carbon Nanotube for Efficient Electron Collection in Dye Sensitized Solar Cell", *Advanced Materials*, Vol. 25, No. 12, pp.1792-1795 (2013).
71. YANG, L.J., LEUNG, W.W.F. and WANG, J.C., "Improvement of Light Harvesting in Dye Sensitized Solar Cell Based on Cascade Charge Transfer", *Nanoscale*, Vol. 5, No. 16, pp.7493-7498 (2013).
72. YANG, L.J. and LEUNG, W.W.F., "A Novel Scattering Layer Composed of Electrospayed Polydispersed-size Nanocrystallite TiO₂ for High Efficiency Dye Sensitized Solar Cell", *RSC Advances*, Vol. 3, pp.25707-25710 (2013).
73. LIN, Y.F., LAM, K., ZOU, L. and LIU, Y., "Numerical Study of Flows Past Airfoils with Wavy Surfaces", *Journal of Fluids and Structures*, Vol. 36, pp.136-148 (2013).
74. LIU, Z.G., LIU, Y. and LU, J., "Numerical Simulation of the Fluid-structure Interaction for Two Simple Fuel Assemblies", *Nuclear Engineering and Design*, Vol. 258, pp.1-12 (2013).
75. ZHOU, X.Y., WU, F.M., KOU, J.L., NIE, X.C., LIU, Y. and LU, H.J., "Vibrating-Charge-Driven Water Pump Controlled by the Deformation of the Carbon Nanotube", *The Journal of Physical Chemistry B*, Vol. 117, No. 39, pp.11681-11686 (2013).
76. GUO, S., HU, Q., NG, C. and LIU, C.T., "More than Entropy in High-entropy Alloys: Forming Solid Solutions or Amorphous Phase", *Intermetallics*, Vol. 41, pp.96-103 (2013).
77. GUO, S., NG, C. and LIU, C.T., "Anomalous Solidification Microstructures in Co-free Al_xCrCuFeNi₂ High-entropy Alloys", *Journal of Alloys and Compounds*, Vol. 557, pp.77-81 (2013).
78. LIU, M., RUAN, H.H. and ZHANG, L.C., "Variation of Crystal Quality and Residual Stresses in Epitaxially Grown Thin Film Systems Induced by Ion Implantation and Annealing", *Journal of Materials Research*, Vol. 28, No. 11, pp.1413-1419 (2013).
79. LIU, W.D., RUAN, H.H. and ZHANG, L.C., "Atomic Rearrangements in Metallic Glass: Their Nucleation and Self-organization", *Acta Materialia*, Vol. 61, pp.6050-6060 (2013).
80. LIU, W.D., RUAN, H.H., ZHANG, L.C., "Understanding the Low Temperature Plasticity in Metallic Glass", *Philosophical Magazine Letters*, Vol. 93, No. 3, pp.158-165 (2013).
81. LIU, W.D., RUAN, H.H. and ZHANG, L.C., "Plastic Deformation Clusters with High Kinetic Energy in Metallic Glass", *Key Engineering Materials*, Vol. 535, pp.152-155 (2013).
82. MORIDI, A., RUAN, H.H., ZHANG, L.C. and LIU, M., "Residual Stresses in Thin Film Systems: Effects of Lattice Mismatch, Thermal Mismatch and Interface Dislocations", *International Journal of Solids and Structures*, Vol. 50, pp.3562-3569 (2013).
83. RAHAMAN, M.L., ZHANG, L.C. and RUAN, H.H., "Understanding the Friction and Wear Mechanisms of Bulk Metallic Glass under Contact Sliding", *Wear*, Vol. 304, No. 1-2, pp.43-48 (2013).
84. RUAN, H.H. and ZHANG, L.C., "Modeling of Random Relaxation Paths of Amorphous Material", *Journal of the American Ceramic Society*, Vol. 96, No. 6, pp.1772-1778 (2013).
85. RUAN, H.H. and ZHANG, L.C., "Viscosity of Amorphous Materials during Glass-Forming: More from the Adam-Gibbs Law", *Key Engineering Materials*, Vol. 535, pp.223-226 (2013).
86. CHEN, K.G., SHI, S.Q. and LU, J., "Deformation Twins Induced by Multi-mode Deformation in Nanocrystalline Copper", *Philosophical Magazine Letters*, Vol. 93, No. 8, pp.490-497 (2013).
87. HE, C., ZHOU, W., WANG, H.T., SHI, S.Q. and YAO, H.M., "Mechanics of Pharyngeal Teeth of Black Carp (Mylopharyngodon piceus) Crushing Mollusk Shells", *Advanced Engineering Materials*, Vol. 15, No. 8, pp.684-690 (2013).
88. HUANG, H.B., MA, X.Q., LIU, Z.H., ZHAO, C.P., SHI, S.Q. and CHEN, L.Q., "Simulation of Multilevel Cell Spin Transfer Switching in a Full-Heusler Alloy Spin-valve Nanopillar", *Applied Physics Letters*, Vol. 102, pp.042405 (2013).
89. HUANG, H.B., MA, X.Q., LIU, Z.H., MENG, F.Y., SHI, S.Q. and CHEN, L.Q., "Micromagnetic Simulation of Critical Current Density of Spin Transfer Torque Switching in a Full-Heusler Co₂FeAl_{0.5}Si_{0.5} Alloy Spin Valve Nanopillar", *Journal of Magnetism and Magnetic Materials*, Vol. 330, pp.16-20 (2013).
90. WANG, J.P., XU, C.H., ZHU, Z.B., WEN, C.S., LU, J. and SHI, S.Q., "Growth Behaviors of ZnO Nanostructure on SMAT Cu_{0.62}Zn_{0.38} during Oxidation", *The European Physical Journal - Applied Physics*, Vol. 62, pp.20401 (2013).
91. WANG, J.P., XU, C.H., YOU, Y.F., SI, Z.S., LI, D.L. and SHI, S.Q., "Fast Synthesis of Cu-doped ZnO Nanosheets at Ambient Condition", *Crystal Research and Technology*, Vol. 48, No. 5, pp.273-278 (2013).
92. WANG, Z.R., REN, X.C., LEUNG, C.W., SHI, S.Q. and CHAN, P.K.L., "A UV-ozone Treated Amorphous Barium-strontium Titanate Dielectric Thin Film for Low Driving Voltage Flexible Organic transistors", *Journal of Materials Chemistry C*, Vol. 1, Issue 24, pp.3825-3832 (2013).

93. XIAO, Z.H., SEMENOV, A.A., WOO, C.H. and SHI, S.Q., "Single Void Dynamics in Phase Field Modeling", *Journal of Nuclear Materials*, Vol. 439, pp.25-32 [2013].
94. ZHOU, Q.L., MENG, F.Y., LIU, Z.H. and SHI, S.Q., "The Thermal Conductivity of Carbon Nanotubes with Defects and Intramolecular Junctions", *Journal of Nanomaterials*, Vol. 2013, article ID 842819, pp.7 [2013].
95. ZHU, R.F., TANG, G.Y., SHI, S.Q. and FU, M.W., "Effect of Electroplastic Rolling on the Ductility and Superelasticity of TiNi Shape Memory Alloy", *Materials and Design*, Vol. 44, pp.606-611 [2013].
96. ZHU, R.F., TANG, G.Y., SHI, S.Q. and FU, M.W., "Microstructure Evolution of Copper Strips with Gradient Temperature in Electropulsing Treatment", *Journal of Alloys and Compounds*, Vol. 581, pp.160-165 [2013].
97. ZHU, R.F., TANG, G.Y., SHI, S.Q., FU, M.W. and GROMOV, E., "Effect of Electropulsing Treatment on the Microstructure and Superelasticity of TiNi Alloy", *Applied Physics A – Materials Science & Processing*, Vol. 111, pp.1195-1201 [2013].
98. ZHU, R.F., TANG, G.Y., SHI, S.Q. and FU, M.W., "Effect of Electroplastic Rolling on Deformability and Oxidation of NiTiNb Shape Memory Alloy", *Journal of Materials Processing Technology*, Vol. 213, pp.30-35 [2013].
99. CAO, M.S., SU, Z.Q., CHENG, L. and XU, H., "A Multi-scale Pseudo-force Model for Characterization of Damage in Beam Components with Unknown Material and Structural Parameters", *Journal of Sound and Vibration*, Vol. 332, pp.5566-5583 [2013].
100. CHEN, J., SU, Z., CHENG, L. and TA, D.A., "Exploring and Calibrating Local Curvature Effect of Cortical Bone for Quantitative Ultrasound (QUS)", *Structural Engineering and Mechanics: An International Journal*, Vol. 48, No. 4, pp.501-518 [2013].
101. FAN, R., SU, Z. and CHENG, L., "Modeling, Analysis, and Validation of an Active T-shaped Noise Barrier", *Journal of the Acoustical Society of America*, Vol. 134, No. 3, pp.1990-2003 [2013].
102. HONG, M., ZHOU, C., SU, Z., CHENG, L. and QING, X., "Nonlinear Properties of Lamb Waves under Modulation of Fatigue Damage: Finite Element Simulation with Experimental Validation", *Key Engineering Materials*, Vol. 558, pp.195-204 [2013].
103. LU, W., TENG, J., XU, Y. and SU, Z., "Identification of Damage in Dome-like Structures Using Hybrid Sensor Measurements and Artificial Neural Networks", *Smart Materials and Structures*, Vol. 22, No. 105014, 10pp [2013].
104. LU, Y., LU, M., YE, L., WANG, D., ZHOU, L.M. and SU, Z., "Lamb Wave Based Monitoring of Fatigue Crack Growth Using Principal Component Analysis", *Key Engineering Materials*, Vol. 558, pp.260-267 [2013].
105. MARZANI, A., SU, Z. and BARTOLI, I., "Editorial: New Strategies and Challenges in SHM for Aerospace and Civil Structures", *Mathematical Problems in Engineering*, Vol. 2013, No. 614050, 2pp [2013].
106. XU, W., CAO, M., REN, Q. and SU, Z., "Numerical Evaluation of High-order Modes for Stepped Beam", *Journal of Vibration and Acoustics*, Vol. 136, No. 1, pp.014503 [2013].
107. XU, H., SU, Z., CHENG, L., GUYADER, J.L. and HAMELIN, P., "Reconstructing Interfacial Force Distribution for Identification of Multi-debonding in Steel-reinforced Concrete Structures Using Noncontact Laser Vibrometry", *Structural Health Monitoring: An International Journal*, Vol. 12, No. 5-6, pp.507-521 [2013].
108. ZHOU, C., HONG, M., SU, Z.Q., WANG, Q. and CHENG, L., "Evaluation of Fatigue Cracks Using Nonlinearities of Acousto-ultrasonic Waves Acquired by an Active Sensor Network", *Smart Materials and Structures*, Vol. 22, No. 1, pp.015018 (12pp) [2013].
109. WEN, C.Y., YEH, S.J., LEONG, K.P., KUO, W.S. and LIN, H., "Application of a Valveless Impedance Pump in a Liquid Cooling System", *IEEE Transactions on Components, Packaging and Manufacturing Technology*, Vol. 3, No. 5, pp.783-791 [2013].
110. CHEUNG, Y.L., WONG, W.O. and CHENG, L., "Optimization of a Hybrid Vibration Absorber for Vibration Control of Structures under Random Force Excitation", *Journal of Sound and Vibration*, Vol. 332, pp.494-509 [2013].
111. WONG, W.O., CHEUNG, Y.L. and CHENG, L., "Modal Power Flow Analysis of a Damaged Orthotropic Plate", *Advances in Structural Engineering*, Vol. 16, pp.115-125 [2013].
112. TSO, M.H., YUAN, J. and WONG, W.O., "Design and Experimental Study of a Hybrid Vibration Absorber for Global Vibration Control", *Engineering Structures*, Vol. 56, pp.1058-1069 [2013].
113. LIU, D., ZHANG, P., LAW, C.K. and GUO, Y.C., "Collision Dynamics and Mixing of Unequal-size Droplets", *International Journal of Heat and Mass Transfer*, Vol. 57, No. 1, pp.421-428 [2013].
114. ZHANG, P., KLIPPENSTEIN, S.J. and LAW, C.K., "Ab Initio Kinetics for the Decomposition of Hydroxybutyl and Butoxy Radicals of n-Butanol", *The Journal of Physical Chemistry A*, Vol. 117, No. 9, pp.1890-1906 [2013].
115. CHAN, K.Y., YE, W.W., ZHANG, Y., XIAO, L.D., LEUNG, P.H.M., YI, L. and YANG, M., "Ultrasensitive Detection of E coli O157:H7 with Biofunctional Magnetic Bead Concentration via Nanoporous Membrane Based Electrochemical Immunosensor", *Biosensors and Bioelectronics*, Vol. 15, No. 41, pp.532-7 [2013].
116. LI, J.S., LI, Y., ZHANG, Y., LIU, X., ZHAO, Z., ZHANG, J., HAN, Y.X. and ZHOU, D.X., "Toxicity Study of Isolated Polypeptide from Wool Hydrolysate", *Food And Chemical Toxicology*, Vol. 57, pp.338-345 [2013].
117. LI, J.S., LI, Y., LIU, X., ZHANG, J. and ZHANG, Y., "Strategy to Introduce an Hydroxyapatite-keratin Nanocomposite into a Fibrous Membrane for Bone Tissue Engineering", *Journal of Materials Chemistry B*, Vol. 1, pp.432-437 [2013].
118. KAN, J.C. and ZHENG, G.P., "Preparation of Silver Doped PMN-PZT Ceramics and Their Energy and Materials Engineering Applications", *Advanced Materials Research*, Vol. 625, pp.181 [2013].
119. LI, J., YANG, Z.Z., QIU, H.X., DAI, Y.G., ZHENG, Q.B., ZHENG, G.P. and YANG, J.H., "Microwave-assisted Simultaneous Reduction and Titanate Treatment of Graphene Oxide", *Journal of Materials Chemistry A*, Vol. 1, pp.11451-11456 [2013].
120. LI, Y.K., LIU, F., ZHENG, G.P., PAN, D., ZHAO, Y.H. and WANG, Y.M., "Strength Scaling Law, Deformation Kinetics and Mechanisms of Nanostructured Ti", *Materials Science and Engineering: A*, Vol. 573, pp. 141 [2013].
121. LI, Y.K., LIU, F. and ZHENG, G.P., "Mechanical Properties of Nano-grained Titanium Obtained by Cryorolling", *Journal of Plasticity Engineering*, Vol. 20, No. 6, pp.17-20 [2013].
122. UDDIN, S., ZHENG, G.P., IQBAL, Y., UBIC, R. and YANG, J., "Unification of Negative Electrocaloric Effect in Bi_{1/2}Na_{1/2}TiO₃-BaTiO₃ Solid Solutions by Ba_{1/2}Sr_{1/2}TiO₃ Doping", *Journal of Applied Physics*, Vol. 114, pp. 200120 [2013].
123. YU, C.Y., LIU, X.J., LU, J., ZHENG, G.P. and LIU, C.T., "First-principles Prediction and Experimental Verification of Glass-forming Ability in Zr-Cu Binary Metallic Glasses", *Scientific Reports*, Vol. 3, pp. 2124 [2013].
124. ZHANG, H.Y. and ZHENG, G.P., "Shear Banding in BMG Composites Consisting of Dendrite Phase", *Journal of Alloys and Compounds*, Vol. 586, pp. S262 [2013].
125. ZHANG, L., ZHAO, B., WANG, X.Y., LIANG, Y.X., QIU, H.X., ZHENG, G.P. and YANG, J.H., "Gas Transport of Vertically-aligned Carbon Nanotube/Parylene Composite Membranes", *Carbon*, Vol. 66, pp.11-17 [2013].
126. ZHENG, X.C., ZHENG, G.P., LIN, Z. and JIANG, Z.Y., "Thermal and Dynamic Mechanical Analyses on Bi_{0.5}Na_{0.5}TiO₃-BaTiO₃ Ceramics Synthesized with Citrate Method", *Ceramics International*, Vol. 39, pp.1233 [2013].
127. CHEN, Y.M., LI, X.Y., PARK, K., SONG, J., HONG, J.H., ZHOU, L.M., MAI, Y.W., HUANG, H.T. and GOODENOUGH, J.B., "Hollow Carbon-Nanotube/Carbon-Nanofiber Hybrid Anodes for Li-ion Batteries", *Journal of the American Chemical Society*, Vol. 135, Issue 44, pp. 16280-16283 [2013].
128. LI, Y., LIU, S., HU, N., HAN, X., ZHOU, L.M., NING, H.M. and WU, L., YAMAMOTO, A.G., CHANG, C., HASHIDA, T., ATOBE, S. and FUKUNAGA, H., "Pull-out Simulations of a Capped Carbon Nanotube in Carbon Nanotube-reinforced Nanocomposites", *Journal of Applied Physics*, Vol. 113, Issue 14, pp.1-7 [2013].
129. LIN, J., GUO, M., YIP, C.T., LU, W., ZHANG, G.G., LIU, X.L., ZHOU, L.M., CHEN, X.F. and HUANG, H.T., "High Temperature Crystallization of Free-Standing Anatase TiO₂ Nanotube Membranes for High Efficiency Dye-Sensitized Solar Cells", *Advanced Functional Materials*, Vol. 23, Issue 47, pp.5952-5960 [2013].
130. NING, H.M., HU, N., KAMATA, T., QIU, J.H., HAN, X., ZHOU, L.M. and CHANG, C., "Improved Piezoelectric Properties of Poly(Vinylidene Fluoride) Nanocomposites Containing Multi-walled Carbon Nanotubes", *Smart Materials and Structures*, Vol. 22, Issue 6, Article Number 065011, pp.1-7 [2013].
131. WANG, M.C., YAN, C., GALPAYA, D., LAI, Z.B., MA, L., HU, N., YUAN, Q., BAI, R.X. and ZHOU, L.M., "Molecular Dynamics Simulation of Fracture Strength and Morphology of Defective Graphene", *Journal of Nano Research*, Vol. 23, pp.43-49 [2013].
132. WANG, S.M., ZHAO, X.R., ZHOU, S.M., ZHOU, L.M. and XAI, G.D., "Enhanced Luminescent Properties of Solution Combustion Synthesized Nanocrystalline Y₃Al₅O₁₂:Eu³⁺ Phosphors", *Current Nanoscience*, Vol. 9, Issue 2, pp.183-186 [2013].
133. WANG, X.Q., ZHANG, J.F., WANG, Z.Q., LIANG, W.Y. and ZHOU, L.M., "Finite Element Simulation of The Failure Process of Single Fiber Composites Considering Interface Properties", *Composites Part B: Engineering*, Vol. 45, Issue 1, pp.573-580 [2013].
134. WANG, Z.Q., LIU, F., LIANG, W.Y. and ZHOU, L.M., "Nanoscale Analysis of Tensile Properties and Fracture of Nanoreinforced Epoxy Polymer Using Micromechanics", *Journal of Reinforced Plastics and Composites*, Vol. 32, Issue 16, pp.1224-1233 [2013].
135. WANG, Z.Q., LIU, F., LIANG, W.Y. and ZHOU, L.M., "Study on Tensile Properties of Nanoreinforced Epoxy Polymer: Macroscopic Experiments and Nanoscale FEM Simulation Prediction", *Advances in Materials Science and Engineering*, Article Number 392450 [2013].
136. XIA, G.D., WANG, S.M., ZHAO, X.R. and ZHOU, L.M., "High-performance Low-voltage Organic Transistor Memories with Room-temperature Solution-processed Hybrid Nanolayer Dielectrics", *Journal of Materials Chemistry C*, Vol. 1, Issue 20, pp.3291-3296 [2013].
137. ZHANG, J.N., DENG, S.Q., WANG, Y.L., YE, L., ZHOU, L.M. and ZHANG, Z., "Effect of Nanoparticles on Interfacial Properties of Carbon Fibre-epoxy Composites", *Composites Part A: Applied Science and Manufacturing*, Vol. 55, pp.35-44 [2013].

Conference Proceeding

1. CAO, M.S., CHENG, L. and SU, Z.Q., "A Weak Formulation for Detection of Debonding in Steel-reinforced Concrete Structures Based on Locally Perturbed Structural Vibration", *15th Asia Pacific Vibration Conference, Jeju, Korea, 2-6 June (2013)*.
2. CHENG, L., "Controlling Flow-Structure-Sound Interaction Using Adaptive Structures" (Keynote), *15th Asia Pacific Vibration Conference, Jeju, Korea, 2-6 June (2013)*.
3. LU, Z.B., HALIM, D. and CHENG, L., "Flow-induced Noise Control Behind Bluff Bodies with Various Leading Edges", *6th ECCOMAS Thematic Conference on Smart Structures and Materials (SMART'13), Torino, Italy, 24-26 June (2013)*.
4. XU, H., CHENG, L., SU, Z. and GUYADER, J.L., "Identification of Structural Damage Based on a "Weak" Formulation of Locally Perturbed Structural Vibration", in *Structural Health Monitoring 2013: A Roadmap to Intelligent Structures - Proceedings of the 9th International Workshop on Structural Health Monitoring (IWSHM-9)*, Stanford, CA., USA, 10-12 September (2013).
5. YU, X., CHENG, L. and GUYADER, J.L., "Vibroacoustic Modelling of Cascade Panels System Involving Aperture and Micro-perforated Elements", *The 20th International Congress on Sound and Vibration, Bangkok, Thailand, 7-11 July (2013)*.
6. WEI, L.J., CHEUNG, C.S. and HUANG, Z.H., "Experimental Study on Performance and Emissions of Diesel/n-pentanol Blends on a Diesel Engine", *The 9th Asia-Pacific Conference on Combustion, Gyeongju, Korea, 19-22 May (2013)*.
7. ZHOU, J.H., CHEUNG, C.S. and LEUNG, C.W., "Combustion and Emission of a Compression Ignition Engine Fueled with Diesel and Hydrogen-methane Mixture", *World Academy of Science, Engineering and Technology Conference, Amsterdam, The Netherlands, 8-9 August (2013)*.
8. ZHOU, J.H., CHEUNG, C.S. and LEUNG, C.W., "Performance and Emission Characteristics of a Diesel Engine Fueled with ULSD-H2 and PME-H2", *The 9th Asia-Pacific Conference on Combustion (the 9th ASPACC), Gyeongju, Korea, 19-22 May (2013)*.
9. BRISTOW, A.L., CHAU, C.K., HOROSHENKOV, K.V. and CHOY, Y.S., "Assessing Valuing Restorative Space on Campus: A Comparison between the UK and Hong Kong", *Internoise 2013, Innsbruck, Austria, 15-18 September (2013)*.
10. NG, H.T., TANG, S.K. and CHOY, Y.S., "Noise Barrier with Acoustical Cavity Structure", *Internoise 2013, Innsbruck, Austria, 15-18 September (2013)*.
11. XI, Q., CHOY, Y.S., TANG, S.K. and CHENG, L., "Noise Control of Monopole Source in Short Duct by Using Micro-perforated Panel", *The 20th International Congress on Sound and Vibration, Bangkok, Thailand, 7-11 July (2013)*.
12. RAN, J.Q. and FU, M.W., "A Hybrid Fracture Prediction Models of Multi-phase Metals in Micro-scaled Forming Processes", *International Conference on MicroManufacturing 2013, Victoria, Canada, 26-29 March (2013)*.
13. SUN, X.T., JING, X.J., XU, J. and CHENG, L., "Study on the Performance and Mechanism of an Isolation Platform with Linear Friction", *The 9th International Conference on Vibration Engineering and Technology of Machinery (VETOMAC-IX), Nanjing, PRC, 20-23 August (2013)*.
14. XIAO, Z.L., JING, X.J. and CHENG, L., "Parametric Convergence Bounds for Volterra Series Expansion of Nonlinear Multi-Degree-of-Freedom Systems", *The 9th International Conference on Vibration Engineering and Technology of Machinery (VETOMAC-IX), Nanjing, PRC, 20-23 August (2013)*.
15. XIAO, Z.L., JING, X.J. and CHENG, L., "Computation of Parametric Convergence Bound and Parametric Convergence Margin for Volterra Series Expansion", *The 9th Asian Control Conference (ASCC 2013), Istanbul, Turkey, 23-27 June (2013)*.
16. TSE, H., LEUNG, C.W. and CHEUNG, C.S., "Influence of Intake CO₂ Charge Dilution on the Performance and Emissions of a Diesel Engine Fueled with Diesel-biodiesel-ethanol Fuel", *The 9th Asia-Pacific Conference on Combustion (the 9th ASPACC), Gyeongju, Korea, 19-22 May (2013)*.
17. FAN, H.K.H., LEUNG, R.C.K. and LAM, G.C.Y., "A Time-Domain Analysis for Aeroacoustics-Structure Interaction of Flexible Panel", *The 19th AIAA/CEAS Aeroacoustics Conference, Berlin, Germany (2013)*.
18. HUNG, W.T., LAM, Y.K., NG, C.F. and LEUNG, R.C.K., "The Impacts of Tyre Hardness and Tread Depth on Tyre/Road Noise", *The 20th International Congress on Sound and Vibration (ICSV20), Bangkok, Thailand (2013)*.
19. AK, E.Y.W. and LEUNG, W.W.F., "A Novel Nanofibrous Scaffold to Improve Wound Healing", *International Mechanical Engineering Congress and Exposition (IMECE), San Diego, California, USA, 15-21 November (2013)*.
20. LEUNG, W.W.F. and REN, Y., "Scale-up Laws on Mixing of Two Fluids in a Rotating Microchannel", *International Mechanical Engineering Congress and Exposition (IMECE), San Diego, California, USA, 15-21 November (2013)*.
21. LEUNG, W.W.F. and REN, Y., "Numerical Investigation of Flow and Heat Transfer in Passages for Jet Impingement in Cooling of Rotating Turbine Blade", *International Mechanical Engineering Congress and Exposition (IMECE), San Diego, California, USA, 15-21 November (2013)*.
22. PEI, C.C. and LEUNG, W.W.F., "Enhanced Photocatalytic Activity on the Removal of NO by Electrospun TiO₂/ZnO Nanofibers with Optimal Anatase/rutile Ratio", *The 19th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, San Diego, California, USA, 17-21 November (2013)*.
23. PEI, C.C. and LEUNG, W.W.F., "Visible-light Induced Photocatalytic Degradation of Rhodamine B by TiO₂/ZnO Composite Nanofibers", *The 19th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, San Diego, California, USA, 17-21 November (2013)*.
24. PEI, C.C. and LEUNG, W.W.F., "Solar photocatalytic degradation of NO by electrospun TiO₂/ZnO nanofiber mats for enhancement of indoor air quality", *The 19th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, San Diego, California, USA, 17-21 November (2013)*.
25. REN, Y. and LEUNG, W.W.F., "Vortical Flow and Mixing in Rotating Milli/micro Chambers", *International Mechanical Engineering Congress and Exposition (IMECE), San Diego, California, USA, 15-21 November (2013)*.
26. YANG, L.J. and LEUNG, W.W.F., "Electrospun TiO₂ Nanorod with Carbon Nanotube for Efficient Electron Collection in Dye Sensitized Solar Cell", *International Mechanical Engineering Congress and Exposition (IMECE), San Diego, California, USA, 15-21 November (2013)*.
27. LIU, Y., CHOY, Y.S., HUANG, L. and CHENG, L., "Noise Control of Subsonic Axial Fan in a Duct", *The 20th International Congress on Sound and Vibration, Bangkok, Thailand, 7-11 July (2013)*.
28. LIU, Z.G., LIU, Y. and LU, J., "Instability of Axial-flow Induced Vibrations of Cylindrical Clusters", *The 5th International Symposium "Instabilities and Bifurcations in Fluid Mechanics", Haifa, Israel, July 8-11 (2013)*.
29. LIU, Z.G., LIU, Y. and LU, J., "Numerical Simulation for Axial-flow Induced of a Cylindrical Cluster", *The 5th International Symposium on Physics of Fluids (ISPF5), Changbaishan, China, 10-13 June (2013)*.
30. LIU, Z.G., LIU, Y. and LU, J., "The Numerical Simulation of Fluid-Structure Interaction on a Simple Cluster in an Axial Flow", *2nd Symposium on Fluid-Structure-Sound Interactions and Control, Hong Kong and Macau, 20-23 May 2013*.
31. LIU, Z.G., LIU, Y. and LU, J., "Axial-flow-induced Vibrations of Cylindrical Clusters", *The 17th Annual Conference of HKSTAM 2013, Hong Kong and Macau, 22-23 March (2013)*.
32. LU, M.Z., LIU, Y. and YE, J.Y., "Flow Pattern Comparison in Upper Airways of Two OSA Subjects before and after Surgery", *The 19th Congress of the European Society of Biomechanics (ESB2013), Patras, Greece, 25-28 August 2013 (2013)*.
33. LU, M.Z., LIU, Y. and YE, J.Y., "Prediction of Surgical Outcome on Patients with Obstructive Sleep Apnea Using Large Eddy Simulation", *WACBE World Congress on Bioengineering 2013, Beijing, China, 5-8 August (2013)*.
34. LU, M.Z., LIU, Y. and YE, J.Y., "Numerical Investigation of the Flow in the Upper Airway with Obstructive Sleep Apnea", *The 17th Annual Conference of HKSTAM 2013, Hong Kong and Macau, 22-23 March (2013)*.
35. KUANG, Y.D. and SHI, S.Q., "Velocity Analysis of the Axial Oscillation of Water Chain in a [6, 6] Single-walled Carbon Nanotube", *3rd International Conference in Nanotechnology, Toronto, Canada, 12-14 August (2013)*.
36. SHI, S.Q., "Overview of the Application of Phase-field Method in Hydrogen Embrittlement and Localized Corrosion", *Keynote Talk at China Environmental Fracture Conference, Wu Yuan, Jiangxi, China, 9-12 October (2013)*.
37. SHI, S.Q., "Hydride Blister in Zirconium", *The 21st International Conference in Nuclear Engineering, Chengdu, China, 27 July-2 August (2013)*.
38. SHI, S.Q., "Quantitative Modeling of Hydride Blister in Zirconium", *Keynote Talk at the 13th International Conference on Fracture, Beijing, China, 17-22 June (2013)*.
39. HONG, M., WANG, Q., SU, Z., CHENG, L. and NI, Y., "In-situ Guided-wave-based Health Monitoring for Train Bogie Structures: Technique Development and Application to Beijing-Shanghai High-speed Railway", in *Structural Health Monitoring 2013: A Roadmap to Intelligent Structures - Proceedings of the 9th International Workshop on Structural Health Monitoring (IWSHM-9)*, Stanford, CA., USA, 10-12 September (2013).

40. HONG, M., ZHOU, C., SU, Z.Q., CHENG, L. and QING, X.L., "Nonlinear Properties of Lamb Waves under Modulation of Fatigue Damage: Finite Element Simulation with Experimental Validation", *The 4th Asia-Pacific Workshop on Structural Health Monitoring*, Melbourne, Australia, 5-7 December [2013].
41. WANG, Q., SU, Z. and HONG, M., "Lamb Wave Based Structural Health Monitoring Technique and Its System Validation for High-speed Train", *The 32nd Chinese Control Conference*, Xi'an, P. R. China, 26-28 July [2013].
42. WANG, Q., HONG, M., SU, Z. and XU, J., "A Guided Wave Based Online Health Monitoring Technique for High-speed Train Bogie Structures", *The 2013 International Conference on Electrical Engineering and Information Technologies for Rail Transportation*, Changchun, P. R. China, 7-10 November [2013].
43. XU, H., SU, Z., CHENG, L., GUYADER, J.L., "Identification of Damage in Structural Components Using Multi-scale Pseudo-Force Model", *15th Asia Pacific Vibration Conference*, Jeju, Korea, 2-6 June [2013].
44. XU, H., SU, Z., CHENG, L., GUYADER, J.L. and HAMELIN, P., "Debonding Detection for Steel-Reinforced Concrete Structures Based on Locally Perturbed Structural Vibration", in *Structural Health Monitoring for Infrastructure Sustainability - Proceedings of the 6th International Conference on Structural Health Monitoring of Intelligent Infrastructure (SHMII-6)*, The Hong Kong Polytechnic University, Hong Kong, 9-11, December [2013].
45. XU, W., OSTACHOWICZ, W., CAO, M. and SU, Z., "Detection of Damage in Beams Using Teager Energy Operator", *SPIE Conference on Smart Structures/ Non-Destructive Evaluation*, San Diego, CA., USA, 10-14 March [2013].
46. XU, Y., ZHU, S., XIA, Y., NI, Y.Q., LAW, S.S., YIN, J.H. and SU, Z., "Structural Health Monitoring for Infrastructure Sustainability", *Proceedings of the 6th International Conference on Structural Health Monitoring of Intelligent Infrastructure (SHMII-6)*, The Hong Kong Polytechnic University, Hong Kong, 9-11, December [2013].
47. SALÍVAR MASSIMI, H., CHEN, Y.S., LIAN, Y.Y., SU, C.C., LO M.C., WEN, C.Y., WU, J.S., BONDAR, Y.A., IVANOV, M.S., and LIANG, S.M., "Assessment of Hypersonic Reentry Flow Modeling with Thermal Nonequilibrium Air Chemistry", *International Conference on Flow Dynamics*, Sendai, Japan, 25-27 November [2013].
48. WEN, C.Y., CHANG, Y.C., SU, Y.H. and YUAN, H.F., "The Effect of the Recombination Shock behind a Backward Step on the Mixing Characteristics of an Inclined Sonic Methane Jet in a Supersonic Crossflow", *The 29th International Symposium of Shock Waves*, Madison, Wisconsin, U.S.A., 14-19 July [2013].
49. YANG, A.S., WEN, C.Y., WU, Y.C., JUAN, Y.H., and SU, Y.M., "Wind Field Analysis for a High-rise Residential Building Layout in Danhai, Taiwan", *The World Congress on Engineering 2013 Vol II*, London, U.K., 3-5 July [2013].
50. MAO, C., WONG, W.O. and CHENG, L., "A Modal Energy Method for Dynamic Force Identification", *The 15th Asia Pacific Vibration Conference*, Jeju, Korea, 2-6 June [2013].
51. ZHANG, H.Y. and ZHENG, G.P., "Size Effects on Mechanical Properties of Amorphous Alloys", *ISMANAM*, Turino, Italy [2013].

Consultancy Projects

Member of the Department continued to make contributions to be the profession by engaging in high level consultancies for international organizations, government departments, private sector firms and community groups.

Below are some of our clients:

- Avalon Respiratory (Hong Kong) Limited
- Chan, Evans, Chung & To
- Cheung & Choy Solicitors
- Chui & Lau Solicitors & Notaries
- Customs and Excise Dept., HKSAR
- Ekfair Limited
- Electrical and Mechanical Services Dept., HKSAR
- Emerson Network Power
- Gansu Long Zhi Filter Co. Ltd.
- Heliservices (HK) Limited
- Institute for the Development and Quality, Macau (IDQ)
- Kenneth Poon & Co. Solicitors
- Lau & Ngan, Solicitors
- Li, Wong, Lam & WI Cheung Solicitors Company
- Linklaters
- Lodige Asia Ltd.
- MTR
- Philips Electronics Hong Kong Limited
- The China Oilfield Service Limited
- The Hong Kong Jockey Club
- Tung, Ng, Tse & Heung Solicitors

Departmental Seminar Series

Date	Speaker/Affiliation	Title
18 July 2013	Prof. Jörn Sesterhenn Department of Numerical Fluid Dynamics, Institute for Fluid Dynamics and Technical Acoustics, Technical University of Berlin, Germany	DNS and Data Assimilation of compressible jets and shear layers
22 July 2013	Prof. Tribikram Kundu Department of Civil Engineering and Engineering Mechanics, University of Arizona, USA	Ultrasonic and Electromagnetic Waves for NDE and SHM
23 July 2013	Dr. Rong Zhu GAN School of Aerospace & Mechanical Engineering and OU Bioengineering Center, University of Oklahoma, USA	Biomechanical Measurement and Modeling of Sound Transmission in Normal, Diseased, Implanted Ears
23 July 2013	Dr. Julie Ying Hui Ji Department of Biomedical Engineering, Purdue School of Engineering and Technology, Indiana University-Purdue University Indianapolis, USA	How cells respond to their mechanical environment: from substrate to nucleus
26 July 2013	Dr. Zongmin Hu State Key Laboratory of High-temperature Gas Dynamics, Institute of Mechanics, China	Ground-based Study on Hypervelocity Flows
26 July 2013	Dr. Chun Wang State Key Laboratory of High-temperature Gas Dynamics, Institute of Mechanics, China	The Progress in Shock Dynamics
21 August 2013	Su Zhongdi and Yan Weiwei China Jiliang University, China	Draw Resistance of Cigarette and Effect of Non-isothermal Condition on Heterogeneous Flow in porous Media Pressure
26 September 2013	Dr. Yu Dong Department of Mechanical Engineering, Curtin University, Australia	Electrospinning Nanofibres/Nanocomposites: An Alternative Material Fabrication
02 October 2013	Dr. Jean-Daniel Chazot University of Technology of Compiègne, France	Numerical simulation of acoustic waves in air and poroelastic media using the partition of unity finite element method
08 October 2013	Dr. Shen-Min Liang Department of Computer Application Engineering, Far East University, Tainan, Taiwan	Development and Performance Evaluation of Electromagnetic Shock Wave Generator for Lipolysis
11 October 2013	Dr. Pizhong Qiao Department of Civil & Environmental Engineering, Washington State University, USA	Dynamics-based Damage Identification of Composite Structures
14 October 2013	Prof. Gang Chen Mechanical Engineering Department, Massachusetts Institute of Technology, Cambridge, USA	Challenges and Recent Advances in Computation of Turbulent Jet Impingement Heat Transfer
10 December 2012	Prof. George Huang Department of Mechanical and Materials Engineering, Wright State University, USA	Nanoscale Heat Transfer and Energy Conversion
06 December 2013	Prof. Siew Hwa CHAN Division of Thermal and Fluids Engineering, School of Mechanical & Aerospace Engineering, College of Engineering, Nanyang Technological University, Singapore	Introduction to Energy Research Institute at NTU
13 December 2013	Dr. Fei Duan Division of Thermal and Fluids Engineering, School of Mechanical & Aerospace Engineering, College of Engineering, Nanyang Technological University, Singapore	Complexity on droplet evaporation

Date	Speaker/ Affiliation	Title
21 January 2014	Prof. Hongtao WANG Institute of Applied Mechanics, Zhejiang University, China	In-situ TEM study on the carbon coating for lithium ion battery application
27 January 2014	Professor Mingxing Zhang School of Mechanical and Mining Engineering, The University of Queensland, Australia	New Approaches to Surface Engineering and Grain Refinement of Metals, and the Future of Metal Research
26 February 2014	Dr. Zhirui Wang Department of Materials Science and Engineering, University of Toronto, Canada	Cyclic Deformation Response and Fatigue Crack Initiation of Polycrystalline OFHC Copper Under Pure Compression Fatigue Condition
24 March 2014	Dr. Ru Lin Peng Department of Management and Engineering, Linköping University, Sweden	Micromechanical Behavior of Super Duplex Stainless Steels
27 March 2014	Prof. Zishun Liu Int. Center for Applied Mechanics, Xi'an Jiaotong University, China	Mechanics of Soft Materials-Large Deformation Kinetics of Hydrogels and Predicting Mechanical and Physical Properties of Silica Aerogels using Molecular Dynamics Simulations and Analytical Approach
02 April 2014	Prof. Ken Elder Department of Physics, Oakland University, USA	Modeling the solidification, growth and properties of multiferroic polycrystalline materials
07 April 2014	Professor Hua-Xin Peng Advanced Composite Center for Innovation and Science (ACCIS), Department of Aerospace Engineering, University of Bristol, UK	Multifunctional composites containing ferromagnetic microwires
22 April 2014	Dr. Yi-Kuen Lee Department of Mechanical and Aerospace Engineering, Division of Biomedical Engineering, Hong Kong University of Science and Technology, Hong Kong	MEMS and Microfluidics Research at HKUST
12 May 2014	Dr. Yumei Wang Institute of Engineering Mechanics (IEM), China Earthquake Administration, China	Base Isolation using nonlinear mode localization and modal LQG control
15 May 2014	Dr. Chi L. Chow Department of Mechanical Engineering, University of Michigan-Dearborn, USA	Damage Mechanics, Material Modelling and Forming Limit Diagram of sheet metals
24 June 2014	Prof. Han Huang School of Mechanical and Mining Engineering, Faculty of Engineering, Architecture and Information Technology, The University of Queensland (UQ), Australia	Nanomechanics and nano-manufacturing research at The University of Queensland
20 July 2012	Prof. Wei Li Professor, Department of Energy Engineering, Zhejiang University, Yuquan Campus	Micro Two-phase Heat Transfer
02 August 2012	Professor X. Y. Luo S School of Mathematics & Statistics, University of Glasgow, UK	Structure-based finite strain modelling of the human left ventricle in diastole
16 August 2012	Professor Su Zhongdi China Jiliang University	Numerical Simulation of Internal Flow in the Flowmeters
16 August 2012	許友生, Yousheng XU 浙江師範大學物理系 Department of Physics, Zhejiang Normal University, China	非常規頁岩氣資源開發的基礎滲流問題研究 Basic Research on Problems of Flow in Porous Media for Exploration of Unconventional Shale Gas Resources
01 November 2012	Prof. Mok-Soon KIM Division of Materials Science and Engineering, Inha University, Incheon, Korea	Processing and Mechanical Properties of Advanced Al-Si Based Alloys

Date	Speaker/Affiliation	Title
08 November 2012	Dr. Xinrui Niu Department of Mechanical and Biomedical Engineering, City University of Hong Kong Kowloon, Hong Kong	Bio-inspired Design of Dental Structures
08 November 2012	Prof. Chang-Hsien Tai Department of Vehicle Engineering National Pingtung, University of Science and Technology, Taiwan	New Concepts of Regenerative Resources Development and Usage
09 November 2012	Prof. LI Jiachun Institute of Mechanics, Chinese Academy of Science, China	Progresses and Perspective of Applied Mechanics
13 November 2012	Prof. LI Jiachun Institute of Mechanics, Chinese Academy of Science, China	Application of Fuel Cell Systems for Long Endurance UAV-Past, Present & Future
15 November 2012	Prof. Qingping SUN Department of Mechanical Engineering, The Hong Kong University of Science and Technology, Hong Kong, China	Effects of time scales on spatiotemporal evolution of thermomechanical fields during cyclic phase transition
22 November 2012	Dr. Baoling Huang Assistant Professor, Department of Mechanical Engineering, Hong Kong University of Science and Technology	Thermal Transport in Nanoporous Si: Anisotropy and Size effects
07 December 2012	Prof. Anupam Dewan Department of Applied Mechanics, Indian Institute of Technology Delhi, Hauz Khas, New Delhi - 110016, India	Challenges and Recent Advances in Computation of Turbulent Jet Impingement Heat Transfer
10 December 2012	Prof. George Huang Professor and Chair, Department of Mechanical and Materials Engineering, Wright State University (WSU)	From Insects to MAV - the Next Grand Challenge in Aerodynamic Designs
11 December 2012	Prof. Wieslaw J. Staszewski Ph Ph.D. Professor of Mechanical Engineering, Department of Robotics and Mechatronics, Faculty of Mechanical Engineering and Robotics, AGH University of Science and Technology, Poland	Structural Health, Usage and Condition Monitoring - Examples of Industrial Applications
11 December 2012	Prof. Tadeusz Uhl Ph Ph.D. Professor of Mechanical Engineering, Department of Robotics and Mechatronics, Faculty of Mechanical Engineering and Robotics, AGH University of Science and Technology, Poland	Department of Robotics and Mechatronics University of Science and Technology AGH - Current research activities in SHM area
18 December 2012	Professor De-Liang Zhang Institute of Mechanics, Chinese Academy of Sciences, Beijing, China	Improved CESE Method and its Application
11 January 2013	Dr. Ning Xiang, Ph.D. Chair of Graduate Program in Architectural Acoustics, School of Architecture Rensselaer Polytechnic Institute, New York	Bayesian Inference in Acoustical Applications
28 January 2013 (Cancelled)	Dr. Jianliang Xiao Department of Mechanical Engineering, University of Colorado Boulder	Research and Development in the Aerospace Engineering Division, MAE, NTU, Singapore
20 February 2013	Dr. Stuart Laurence German Aerospace Center, Goettingen, Germany	Introduction to Energy Research Institute at NTU
13 December 2013	Dr. Fei Duan Division of Thermal and Fluids Engineering, School of Mechanical & Aerospace Engineering, College of Engineering, Nanyang Technological University, Singapore	Applications of high-speed imaging for compressible flows

Date	Speaker/Affiliation	Title
14 March 2013	Dr. Jin Qian Department of Engineering Mechanics & Soft Matter Research Center, Zhejiang University, China	Probing Mechanical Principles of Cell-Matrix Interaction
09 April 2013	Dr. Yang Lu Department of Mechanical and Biomedical Engineering (MBE), City University	Probing Size-Dependent Mechanical Properties of Metallic Nanomaterials and Biological Structures by In Situ Nanomechanical Characterization
10 April 2013	Dr. Stephen A. Hambric Associate Director Penn State's Center for Acoustics and Vibration (CAV)	Symposium on the Penn State Center for Acoustics and Vibration, along with recent work on the vibroacoustics of sandwich panels
10 April 2013	Dr. Stephen A. Hambric Associate Director Penn State's Center for Acoustics and Vibration (CAV)	Symposium on the Penn State Center for Acoustics and Vibration, along with recent work on the vibroacoustics of sandwich panels
07 May 2013	Prof. Yang-Hann Kim Director Center for Noise and Vibration Control(NOVIC), KAIST	Sound Visualization
24 May 2013	Dr. Avraham Seifert Mechanical Engineering at Tel Aviv University, Israel	Drag reduction with suction and pulsed blowing actuator
24 May 2013	Prof. Chih-Keng Chen Professor, Department of Mechanical and Automation Engineering, Da-Yeh University, Changhua, Taiwan	Modeling and Path-Tracking Control for a Riderless- Bicycle System
07 June 2013	Prof. Debes Bhattacharyya Department of Mechanical Engineering, The University of Auckland, New Zealand	Sustainable composites for commercial aviation and building infrastructure sectors
10 June 2013	Dr. Libo Yuan Harbin Engineering University, China	How to prepare a high quality NFSC proposal?

Teaching Activities and Student Achievements

DEPARTMENTAL ACTIVITIES



Career Sharing by Senior Professionals from the Environmental & Acoustics Related Industries



To provide graduating students with an opportunity and a platform to learn more about the prospect of the environmental and acoustics related industries, PolyU Student Branch of Hong Kong Institute of Acoustics (HKIOA) organized a career sharing activity on 19 July 2013 on PolyU campus with invited elites from various disciplines of the industry as the guest speakers.

The invited speakers include Chairman of HKIOA, Dr. K. W. Cheng, Environmental Compliance Support Manager of Leighton Contractors (Asia) Ltd., Ms. Lighting Chan, Associate Director of AECOM, Mr. Laurent Cheung, Environmental Manager of Gammon Construction Ltd., Mr. Brian Kam, Environment Manager of MTR Corporation Ltd., Mr. Richard Kwan, Vice President of Industrial Acoustics Co. (H. K.) Ltd., Mr. Tommy Wan, Senior Consultant of Wilson Acoustics Ltd., Mr. Banting Wong, Senior Environmental Protection Officer of Environmental Protection Department, Mr. C. L. Wong, Chairman of Construction Noise SC of HKIOA, Mr. M. K. Cheung and Chairman of PolyU Student Branch of HKIOA, Mr. Ken Y. K. Lam.

In addition to speakers' sharing on their experiences, expectations on students and views on the prospect in different fields, it was also a very fruitful interaction between speakers and participating students.



**Departmental Activities -
Teaching Activities and Student Achievements**

Grand Prize in National Competition



A team undergraduate students showed their prowess in creativity and knowledge in Mechanical Engineering by winning the Grand Prize in a national innovation competition. This is the top and the only one Grand Prize out of 67 participating teams from all over the country.

The 7th "Mitsubishi Electric Automation Cup" National Automation Contest & Automation Innovative Design Contest, held in Nanjing, China from 5 to 9 August 2013, was co-organized by the Chinese Association of Automation and Mitsubishi Electric (China) Co. Ltd. along with the coordination of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Based on the theme "eManufacturing" this year, contesting teams have to design and setup a set of innovative devices or models which should be able to apply relevant automation products of Mitsubishi Electric. The designed product was supposed to go along with the development trend of automation technology, with a practical significance and an application background.



During the contest, all the teams made live demonstrations of their designs and provided answers to the questions raised. They were praised by the judges in the automation industry for their outstanding performance, passion and practical abilities.



The team formed by eight undergraduate students from the BEng in Mechanical Engineering programme, including CHAN Cheuk Nam, CHAN Ting Him, JING Mingyuan, KAN Chun Fu, NG Yat Hei, SIU Chi Ho, TONG Chun Hin and WONG Tsz Fung, with their design "eManufacturing Line for Canned Plant" to illustrate the integration between enterprise information management systems and Factory Automation (FA) control systems with the datasharing among the Manufacturing Execution System (MES), Enterprise Resources Planning (ERP) systems and the FA field control system.

Through the system, customers can order the canned plants with their preference (including selecting plant species and pattern), and then the order could be sent to ERP order management system which will then generate manufacturing plan based on the BOM and the manufacturing process. According to the manufacturing plan, MES will control a series of machines to execute manufacturing processes, including arraying recycled cream cans, placing soil, seeds and fertilizer into the can, packaging, and sort the finished products. Thus, the system automates the manufacturing processing with customization.

As the Grand Prize winner, the team will go on a sponsorship field trip to visit the Mitsubishi Electric manufacturing facilities in Japan.

The 1st National Automation Contest for the College Students was initiated and organized by Mitsubishi Electric (China) Co. Ltd. in 2007. The contest provides an innovative and practical platform for the students to realize their creative ideas with the advanced Mitsubishi Electric automation products. The contest also aims at improving the students' comprehensive abilities of automation product application and enhancing their practical abilities with the purpose of applying what they have learned.

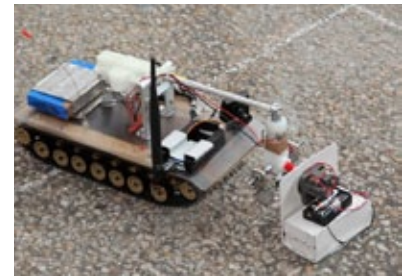
Finalist of International Engineering Design Contest



Three BEng in Mechanical Engineering students have designed a remote inspection vehicle which can examine a simulated radioactivity-contaminated area within one minute. With this innovation, they have entered the final round of the Student Design Competition organized by the American Society of Mechanical Engineering International (ASME).

Led by Academic Supervisor Ir Lo Kok-keung, the team comprises three members, namely NG Kar Yee (Team Leader), MAK Tsz Kin and NG Tin Long. The team competed against 20 teams from other universities in the final of the Student Design Competition which was held on 17 November 2013 in San Diego, California, the United States.

The competition is an annual event organized by the ASME. PolyU engineering students have joined the competition since 2003, and it is the ninth time that PolyU team has made it to the contest final within eleven years.



HKIOA Meyer Poon Memorial Award 2013

Four ME students have received the Second Runner-up, Undergraduate Category and Postgraduate Category respectively, at the Hong Kong Institute of Acoustics (HKIOA)'s Meyer Poon Memorial Award 2013.

The Undergraduate Category Second Runner-up Project "Reduction of Factory Noise" prepared by three BEng(Hons) in Mechanical Engineering students, CHOI Hon Yin, KEUNG Man Lok and NG Ka Kui, aims to reduce the noise in the factory of 'Nanyang Brothers Tobacco Co. Ltd.' in order to protect their workers from exposing to a high sound pressure level environment for a long time.

The Postgraduate Category Second Runner-up winner Dr CHENG Yang, PhD graduate of the Department, has his award-winning project on the design of a new type of noise barrier to reduce the sound reflections from a large reflecting surface.

Innovative concepts and excellent presentation skills are in the recipe for success leading the students to sweep Second runners-up of both categories at HKIOA's Meyer Poon Memorial Award 2013 amidst fierce competition.

This annual student competition aims to recognize the best final year project related the knowledge and practice of acoustics submitted by various local universities. The winning teams are presented with certificates, free membership of HKIOA and cash coupons for joining certain HKIOA training courses.



HKEIA Innovation & Technology Award 2013



Two final year project teams from the Department of Mechanical Engineering have won the Gold and Merit Awards respectively in the HKEIA Innovation & Technology Project Competition Award 2013 which is co-organized by The Hong Kong Electronic Industries Association (HKEIA) and Hong Kong Electronic Industries. The award presentation ceremony was held on 9 December 2013 at Hotel ICON.

This competition is aimed to recognize and reward students with outstanding projects which demonstrate excellence in technology and innovation. The panel of judges consisting of senior professional and experts from the industry will judge on the creativity, applicability, practicability and application of technology of all contesting projects.

Two student teams of BEng in Product Analysis and Engineering Design, both under the supervision of Prof. Alan Lau and Dr. Eunice Tam, have won the Gold and Merit Awards respectively among the 12 finalist teams in the competition this year. The Gold Award winning team will receive a cash award of HK\$30,000 while the Merit Award team will receive a cash award of HK\$3,000.



Gold Award

Students: TAM Chu For, MA Ka Yee, and CHAN Wai Fan

Project: Re3orn

It is a domestic household food waste sterilization and deodorization device which can be placed at home to allow family members to participate in environmental protection by disposing the food waste in a desired recycle bin.



Merit Award

Students: WONG Sing Sen, KAM Hiu Wa, and LAM Ho Yeung

Project: New Generation of Kitchenware – Foldable Induction Stove

It is a dual heaters cooking solution which can help to save up to 20% usage space and 50% storage space that required by the conventional single burner. Also, less energy will be consumed as the heat generated via induction of multi-coils can be distributed more uniformly during cooking.

Re-establishment of ME Students' Society



The Mechanical Engineering Students' Society (MESS) has been officially re-established in 2013/2014 academic year. Have being vacant in last five years since its first establishment 19 years ago, the "reborn" of MESS is significantly meaningful to the Department of Mechanical Engineering and undergraduate students.

"The MESS aims to act as a platform fostering communication between students and the Department." The President of 20th MESS Mr. Yuen Man Chun Vincent said, "Thanks to the support and trust from the members, we ignite the sparks of MESS again. We hope we are able to provide more service to our members in the future and more importantly to maintain a close bonding among the students as well as with the Department."

An MESS Annual Dinner was held on 20 February 2014 and invited 185 participants including President Professor Timothy W. Tong, Chairman of Mechanical & Marine Engineering Alumni Association Dr. Yau Wing-Kwong, alumni and staff of the Department. The annual dinner offered an opportunity for guests and students to exchange their ideas on diverse topics, such as future career development and difficulties in studies.

Department Alumni Mentorship Dinner 2013/2014



The Department of Mechanical Engineering organized the Alumni Mentorship Dinner 2013/2014 on 20 March 2014 which timed to coincide with the 30th anniversary of the commencement of degree programme in the department.

120 final year students of BEng(Hons) in Mechanical Engineering, BEng(Hons) in Product Analysis and Engineering Design and Double Degree Programme in Business Administration and Engineering treasured the opportunity to interact with and learn from 55 invited Alumni Mentors through this meaningful event.

In the view to facilitate the educational, social and personal growth of students studying the undergraduate programmes, the Department of Mechanical Engineering has established a Mentorship Programme. The Department aims to establish a caring and supportive relationship between industrial partners, alumni and undergraduates, and hence to enhance students' future professional and career development and to empower mentees to face challenges in society.

This year marks the 30th anniversary of the commencement of department's degree programme. The Department has invited 55 Alumni Mentors to share their experience and give advice to our final year students. The participation of Alumni Mentor is of tremendous value towards the Department's goal because as graduates, they possess a background of a total learning experience over the years at the Department together with solid working experience in relevant and professional context.



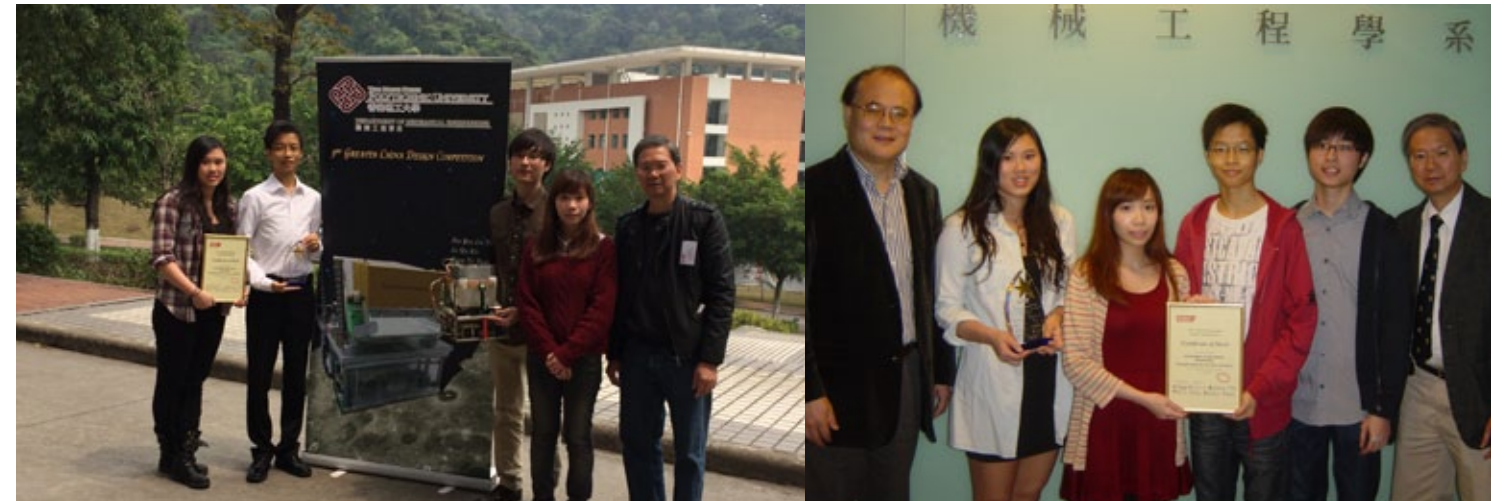
Placed the 3rd at IMechE Design Competition

A team of four BEng in Mechanical Engineering students (TSE Wai Yin, TSANG Tsz Fung, HUI Yuk Lin and LEI Un Kei), led by Ir KK Lo, Engineer of the Department, has won the Second Runner-up at the 3rd IMechE Greater China Design Competition held at the South China University of Technology in Guangzhou.

The topic this year is Material Transporter. Contestants were requested to design a prototype system that to be used to transport a granular material up and down a stair setup and empty as much material as possible into a receiving container within 10 minutes time limit.

The selection criteria included design innovation, design methodology, potentials for commercialisation, technical performance of the device prototype, as well as the presentation skills of the contestants.

Nine contesting teams representing The Chinese University of Hong Kong, The University of Hong Kong, Hong Kong University of Science and Technology, The Hong Kong Polytechnic University, IVE, University of Macau and South China University of Technology presented their designed Material Transporters to the panel of judges.



2014 Taiwan Innovative UAV Design Competition



The PolyU team consists of three undergraduate students of Department of Mechanical Engineering, WONG Pak Hang (team leader), TSANG Wilson and YIP Hoi Yan, has won the second Runner-up (Navigated Flight Category) in 2014 Taiwan Innovative Unmanned Aircraft Vehicle (UAV) Design Competition which was held from 22 to 23 March 2014 in Taiwan.

In its 8th year, the competition organized by National Cheng Kung University has attracted 69 participating teams from universities and institutes all over the world. The competition is well acknowledged as one of the key UAV events in the world with recognition from the community, governmental agencies, universities and industrial partners.

The competition covers four categories: Flight Performance Level; Aircraft Design Level; Navigation Flight Design Level; Ornithopter Level. The three BEng in Mechanical Engineering final year students, under the supervision from Prof. Chih-Yung Wen and Associate Professor Su Zhongqing of Department of Mechanical Engineering, had their UAV, namely "Poly-Eagle", successfully demonstrated its capability to rise and meet the challenge of inspecting a wide region under the satellite navigation and identify targets based on real-time video recording.

On reaching a significant milestone, the Department is devoted to providing high-quality research and education in aeronautical engineering and aviation to push the frontier of knowledge ahead in order to serve Hong Kong and the world.



Primary Students spend a day in ME Department



Boeing-CX-HASEL Internship Programme

A Double Degree in Business Administration and Engineering student CHAU Hei Tung Lily has been awarded the Boeing-Cathay Pacific Engineering Internship Programme 2014. She will undertake a very intensive one-year engineering training in US and HK in the coming academic year.

The Boeing-Cathay Pacific Engineering Internship Programme is a one-year engineering training programme jointly offered by three of world's renowned aviation companies - The Boeing Company, Cathay Pacific Airways (CX) and Hong Kong Aero Engine Services Ltd (HAESL). Successfully selected intern will undertake an exciting 6-month engineering training in the Boeing Company's commercial aviation development plant in Seattle, USA and then another 6-month intensive training in Cathay Pacific and HAESL.

This internship is highly competitive. Each year, local students pursuing degree study in Mechanical Engineering will be invited to compete for the four internship vacancies by going through a rigorous interview exercise. Selection is based on a number of criteria including academic achievement, problem analyzing and solving skills, communication ability, teamwork and partnership ability, and interest in commercial aviation. Lily has performed brilliantly during the group case study working exercise and individual interview to win one place of the internship among 8 finalist candidates from other local universities.

Lily is very excited and glad to be selected. "I always want to bring happiness to people. Therefore, I dream to be an aircraft engineer – a significant position that to assure every single passenger to enjoy their journey comfortably and safely. As a university student studying both engineering and management, I look forward to any opportunity to gain learning experience so that I can make my best contributions for the community."

The IMechE Best Student Award 2014

A current MPhil student of the Department of Mechanical Engineering CHOY Hung-faat has recently won the IMechE Best Student Award 2014 organized by The Institution of Mechanical Engineers.

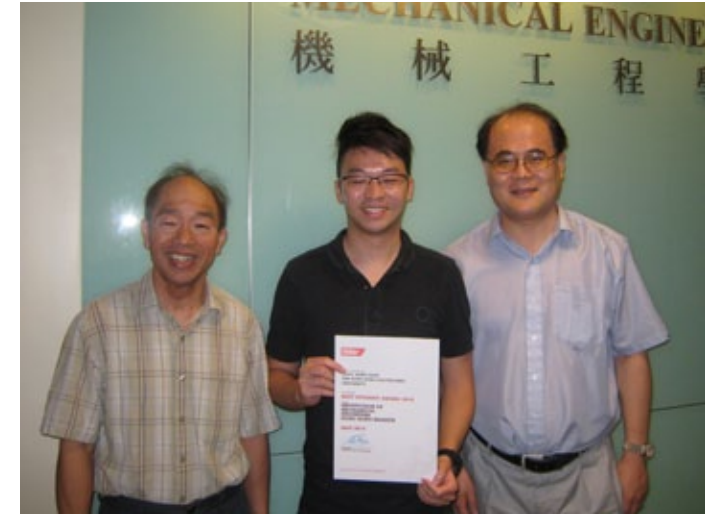
Mr Choy graduated his BEng in Mechanical Engineering with First Class Honours and is currently continuing further studies on MPhil in Mechanical Engineering both in the Department of Mechanical Engineering, PolyU. His GPA was the highest in his undergraduate class. During his study, he has been granted several scholarships, including the Lam Sze Ming Scholarship and the Li & Fung Scholarship.

Mr Choy is very keen on developing his future career in Mechanical Engineering field. During his undergraduate study, he completed two engineering internships in the fields of automobile and wastewater treatment. He also completed a one-year sandwich training programme at Electrical and Mechanical Services Department.

Apart from his outstanding academic performance, Mr. Choy is active in participating in extra-curricular activities related to engineering. He was the former chairman of ASME (HK) Student Section, former HKPU Student Representative at the HKIE MMNC Students & Young Engineers Affairs, and former promotion secretary of IMechE HK Branch of PolyU. He also actively involved in joint institutional event and voluntary services such as Hong Kong Engineering Week.

It is the first year of the IMechE Best Student Award. The objective of this Award is to recognize the students in pursuit of mechanical profession and to appreciate the performance of the outstanding mechanical engineering students. Mechanical Engineering students from Universities and institutions in Hong Kong, Macau and China are eligible to compete for this Award.

The selection of awardees is based on five criteria: outstanding academic performance, all-rounded performance, commitment to develop in Mechanical Engineering field, sagacity on Engineering career and involvement in Engineering institutes and volunteer works.



6-day Taiwan Study Tour 2014



A group of 30 undergraduate students of the Department of Mechanical Engineering took a journey to Taiwan for a 6-day study tour from 8 to 13 June 2014.

The objective of the study tour is to provide opportunities for the students to see at first-hand the key steps in design and engineering activities of some world leading brands by paying visits to their manufacturing plants or offices. In addition, it aims to broaden students' horizons and international perspectives.



The Department has arranged a wide variety of visits for students to learn out of the classroom. Students visited PGO Motive Power Industry Co., Ltd. (the manufacturer that won Taiwan Excellence Award for ten continuous years) and YULON Motors to understand the entire operation including design, manufacturing, quality assurance and R&D of high quality motor vehicles and automotive.

At Precision Machinery Research Development Centre, students were introduced with integrate electrical control, advanced optoelectronic technology and all kinds of instruments and tools for PC-controlled processing machinery, industrial machines and automation equipment.



During the tour, students had the chance to visit the Hsinchu Science Park which is one of the world's most significant and technologically advanced centers for computer semiconductor manufacturing and electronics innovation. More than 400 high-tech companies, mainly involved in the semiconductor, computer, telecommunication, and optoelectronics industries, have been established in the park since the end of December 2003. The visit to American Innovation Center provided students with the latest information about innovation and the diverse cultures in the United States and 3D printing technologies.

Asia Pacific Fuel Cell Technologies, Ltd. (APFCT) introduced how the sustainable technology of hydrogen fuel cells contributed to a cleaner environment and a higher utilization efficiency of earth's resources. Seminar and visit tour to various laboratories and departments of the worldwide top-three consumer notebook vendor ASUS were arranged. The interflow activity with counterparts at the Da-Yeh University also provided students an opportunity to exchange ideas and experience with local students on industrial design and mechanical engineering.

The study tour was a fruitful and enjoyable experience for students. The interactive activities during visits to organizations and plants in different nature provided students an excellent learning experience in both their mechanical engineering and product design studies.



Research Achievements and Scholarly Activities

Best Paper Award in an international conference

The paper co-authored, presented and published in The World Congress on Engineering (WCE2013, July 3 - 5, 2013, London, U.K.) by Professor CY Wen of the Department of Mechanical Engineering was selected as The Best Paper Award of The 2013 International Conference of Computer Science and Engineering.

The award winning paper "Wind Field Analysis for a High-rise Residential Building Layout in Danhai, Taiwan," Yang, A.S., Wen, C.Y., Wu, Y.C., Juan, Y.H., and Su, Y.M., studies about the Construction and Planning Agency design concept in Danhai New Town, with a main focus on examining the building geometric layout and its interaction with the urban wind environments. Applying the computational fluid dynamics (CFD) as an effective tool to simulate the urban wind flowing across the neighborhood, city planners can better understand a conceivable physical environment of the urban areas with the predicted streamlines, velocity and pressure distribution at the pedestrian level.

The research intends to integrate the detailed analysis via the CFD-based simulations serving as a digital wind tunnel with the urban planners' concept from realistic physical sense for design an optimal city.

The total number of submissions received in WCE 2013 is 1192 and the total number of papers that have been accepted is 657. The Conference is organized by the International Association of Engineers (IAENG), a non-profit international association for the engineers and the computer scientists. The conference has the focus on the frontier topics in the theoretical and applied engineering and computer science subjects.

UGC Teaching Award 2013



Professor Alan Lau Kin-tak of the Department of Mechanical Engineering was conferred the UGC Teaching Award 2013. The coveted prize was presented to him by UGC Chairman Mr Edward Cheng at a gala dinner held on 5 September 2013.

This prestigious Award honours academics in UGC-funded institutions for their outstanding teaching performance and achievements, as well as their leadership and scholarly contributions to teaching and learning within and across institutions. This year only two teachers were selected for the top honour.

The UGC's Awards Citation described Professor Lau as being "a visionary and adventurous teacher who has crossed many of the boundaries in higher education today to provide students with an exceptionally rich and engaging learning experience which initiates them into the discipline of product and engineering design.

His approach emphasizes real-world engagement, which is realised through an unusually extensive and intensive involvement of the industry in the student learning process. At every stage of their study, students are engaged in an exciting blend of curricular and co-curricular activities in which they interact directly with people from the industry and the community, learning, exchanging ideas, and working together with them on real tasks of real significance. The impact on students has been highly impressive, with many of them emerging as winners in product design competitions and leading a successful career after shortly graduation."

Professor Lau received his PhD from PolyU in 2001. He joined his alma mater as Assistant Professor in 2002 and was promoted to Associate Professor in 2005 and then Professor in 2010. He is committed to the pursuit of excellence in teaching and learning and his effort was recognized at home and abroad. He was awarded PolyU President's Award for Excellence Performance and Achievement in Teaching 2008, Award for Innovative Excellence in Teaching, Learning and Technology at the 20th International Conference on College Teaching and Learning in the US (2009). He is also the winner of the Ernest L. Boyer International Award for Excellence in Teaching, Learning, and Technology, at the same Conference and the first scholar outside the US bestowed with this honour.

Young Leadership Conference



Department of Mechanical Engineering, The British Consulate-General and The Institution of Mechanical Engineers, Northeast Asia Region jointly launched a new Asia Pacific Initiative called "EngNow" from 13 to 17 September 2013. Under this programme, three activities were held on PolyU campus and the headquarters of China Light Power (CLP) Corporation, namely "Speak-out for Engineering", "Design Contest - Products for People with Vision Impairment" and "Young Leadership Conference".



EngNow is a new approach in revolutionizing activities organized by engineering professional bodies in Hong Kong. It aims not only at providing young engineers and students with professional knowledge in engineering, but also broadening their mindset towards other business sectors.

Professor Timothy W. Tong, PolyU President, addressed in the Young Leadership Conference held on 16 September and gave an opening speech to the audience. At the Gala Dinner on the following day, Mrs Carrie Lam, The Chief Secretary for Administration of the Hong Kong SAR Government, attended the event as the Guest of Honour.

Professor Alan KT Lau (Department of Mechanical Engineering, PolyU and Council Member of The Institution of Mechanical Engineers), programme manager of EngNow, gave a welcoming speech to all participants at the Gala Dinner. "EngNow is the first of its kind to involve such a large number of engineering industry captains, young engineers

and students. We aim to provide platforms for our future leaders to best use of their knowledge and skills to build up our economy through the synergy of our expertise in engineering and business. The involvements of industry captains from different disciplines do help broaden the view and thinking of our young generation."

The activities of EngNow were well received by participants. "Speak-out for Engineering" attracted twelve teams of students from over eight countries or cities, including India, Pakistan, Hong Kong, Malaysia, Australia and China, etc. there were over sixty teams (including teams from Korea and Macau) competing in the first round of proposal submission in the Design Contest and eleven teams were shortlisted for presentation. Meanwhile, over four hundred young engineers and students attended the Young Leadership Conference and the panelists, who are the industry captains, shared their experience and views with the participants through seminars and workshops.

Sincere thanks to all sponsors including The Hong Kong Aircraft Engineering Company (HAECO), CLP, The Hong Kong Electric Company Limited, The MTR Corporation, The Hong Kong and China Gas Company Limited (Towngas), Kum Shing Group, Chun Wo Development Holdings Limited, Chevalier, Dalkia, Eurostag International Limited, Jardine Engineering Corporation and Yau Lee Holdings Limited, in their great support of this event.



**Departmental Activities -
Research Achievements and Scholarly Activities**

Product Acoustic Design and Technology in the Hong Kong Electronics Fair 2013

About a hundred of engineers, product designers and PolyU students, were gathering in the thematic Hong Kong Electronic Industry Summit on Latest Acoustic Technology and Product Design on 15 October 2013 during the Hong Kong Electronics Fair 2013 (Autumn Edition) which was the world's biggest event in the year. It was the very first time that this high-level forum focusing on the design and technology for audio product development was held in the Fair.

The Summit was jointly organized by Hong Kong Trade Development Council (HKTDC), The Hong Kong Electronic Industries Association (HKEIA), Hong Kong Science and Technology Parks Corporation (HKSTPC), Department of Mechanical Engineering of The Hong Kong Polytechnic University, and is supported by The Hong Kong Electronics Industry Council (HKEIC) and the Hong Kong Institute of Acoustics (HKIOA).

Four keynote speakers were invited to share the latest developments and trends of technology and product development that enhance the product acoustic performance and audio systems. Prof. Yang-Hann Kim, Professor of Korea Advanced Institute of Science and Technology, presented the novel ideas for complete reproduction of spatial impression of sound using virtual sound source concept. Mr Alex Or, a Senior Manager from Dolby China, shared the latest Dolby technology strategy in delivering unprecedented cinematic sound experience to customers from cinema audience to mobile users. Mr. Mark Dodd, the Head of Group Research, GP Acoustics (UK) Ltd., described his experience of adopting latest numerical modeling and testing technologies in modern loudspeaker design. Dr Randolph C. K. Leung, Associate Professor, shared his experience in incorporating acoustical knowledge and advanced technology into product development process for enhancing the positive product attributes while suppressing the negative ones.

The Forum was concluded with a panel discussion and Q&A session chaired by Dr Brian Li, the Vice Chairman of HKEIA. All in all, the Forum was a truly successful event which contributing to engineers and students in advancing the acoustic technology know-how in to tackle the increasing complex challenges arising from the changing customer satisfaction with modern audio products.



Staff Retreat 2013/2014

The Department held its annual departmental staff retreat on 6 and 7 January 2014. This year, discussion did not only focus on the new programmes development, research development, facilities management and quality assurance issues, but the Department also provided a platform for sharing among staff members the ideas and insights about good practice in teaching and successful cases of collaborative research projects and grants applications.



Departmental Advisory Committee Meeting

The 102nd Departmental Advisory Committee (DAC) meeting took place on 14 March 2014. This was the first DAC meeting under the new chairmanship of Ir Conrad Wong, Vice Chairman of Yau Lee Group.

While recognizing the remarkable achievement of the Department during the course of last year, the Committee also gave invaluable advices to the Department on its future development in terms of academic programmes, research, other scholarly activities as well as collaborations with local industry.



The Most Active New Consultant Award

The most active new consultant award, one of the three winner awards of the category, was recently granted to Dr XJ Jing (representing an active research team mainly composed by Dr XJ Jing, Prof L Cheng and Dr WO Wong), by the PolyU Technology and Consultancy Co., Ltd. (PTec) as a recognition for the dedicated efforts made within the past one year for solving important engineering issues and serving industry.

A key advanced technique in modern petroleum technology is the development of Measurement-While-Drilling (MWD) systems to feed back drilling and directional information in real-time, or Logging-While-Drilling (LWD) systems to transmit formation evaluation data. Both MWD and LWD systems can greatly facilitate monitoring and control operations even as drilling is on-going (Figure 2).

The MWD or LWD systems are usually designed in a modular manner, and can be run with various sensor combinations to fit the requirements of the well plan. Drilling process can produce excessive vibration up to 20g in the frequency range of 5-2kHz and shock up to 500g, and environment temperature could vary from -40°C to 175°C. In such a working environment, all electronic units, control panels and sensors must be well installed with sufficient protection striving for a longer life cycle.

The research and development team, led by Dr XJ Jing, strongly supported by Prof L Cheng and Dr WO Wong of the Department of Mechanical Engineering, and also composed by some research staff including research students/associates/assistants in the ME department, has actively and dedicatedly conducted a series of R&D and investigated several key engineering issues related to vibration isolation and protection in the MWD/LWD systems mentioned above in the past 4 years, collaborated with and also funded by the China Oilfield Service Ltd (COSL) (Figure 3).

Aiming at high-tech R&D and innovative solutions to engineering problems guided by PolyU's vision as "where innovation meets application", the team has successfully provided technical consultant services to the COSL, systematically identified several core and generic problems in vibration control and dynamics analysis for further investigation, and cordially created some industry-oriented topics for undergraduates and Msc students for FYP and thesis projects.

The China Oilfield Services Limited (COSL) is a leading comprehensive oilfield services provider in offshore with over 40 years experience. Its core businesses cover each phase of oil and gas exploration, development and production. The COSL is one of the three major components of China National Offshore Oil Corporation ("CNOOC").



ME PhD Student receives Fulbright-RGC Award

Mr. Ming Hong, a PhD candidate as well as a Hong Kong PhD Fellowship holder in the Department of Mechanical Engineering, received the highly competitive, merit-based Fulbright-RGC Hong Kong Research Scholar Award.

The Fulbright-RGC Hong Kong Research Scholar Award, a collaborative effort between the U.S. Consulate General (USCG) in Hong Kong & Macau and the Research Grants Council (RGC) of the Hong Kong government, supports young Hong Kong scholars to undertake research activities at American universities and research institutes, which is overseen by USCG and funded by RGC in partnership with private donors as part of the Fulbright Foreign Student Program. The Fulbright Program, sponsored by the U.S. Department of State, is one of the most prestigious awards programs worldwide, operating in over 155 countries.

Mr. Hong, who is pursuing his PhD under the chief supervision of Dr. Zhongqing Su, is one of the eight awardees from Hong Kong this year, interviewed and recommended by the Fulbright Advisory Committee in Hong Kong. This Award provides financial support, augmentable by his own studentship funds in Hong Kong, to enable the student to perform research in one of the top universities in the United States for 6-10 months.

Mr. Hong is also the receipt of 2013 Endeavour Australia Cheung Kong Research Fellowship from Australian Government, among the only FIVE recipients from Asia in that year.

Mr. Hong is currently working on nonlinear guided wave-based health monitoring of engineering structures in Dr. Su's group, and is excited about moving forward with his PhD research at one of the group's close collaborators in the country.

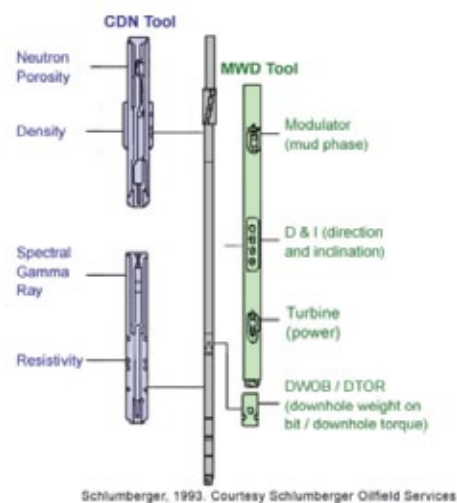


Figure 2 The MWD or LWD systems – key technique in modern petroleum technology

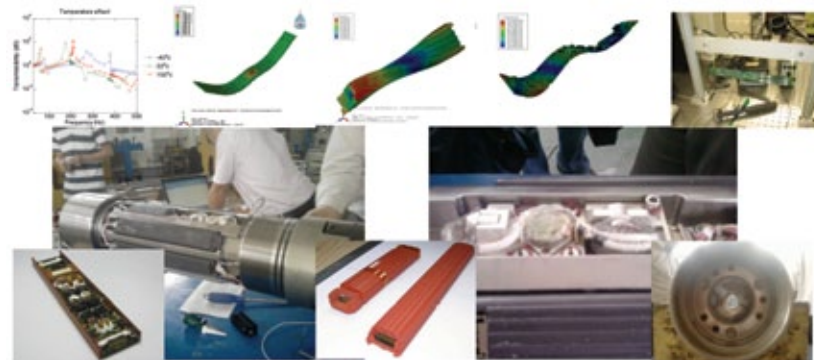


Figure 3 R&D activities and results for the COSL

New Departmental Overseas Advisory Member

The Department of Mechanical Engineering has the honor to have Prof. Vigor Yang, William R.T. Oakes Professor and Chairman of The Daniel Guggenheim School of Aerospace Engineering, Georgia Institute of Technology, to serve as a member on the Departmental Advisory Committee for a term of two years until 31 August 2015.

Prof. Vigor Yang received his Ph.D. from the California Institute of Technology in 1985. Prior to joining Georgia Tech in 2009, he was the John L. and Genevieve H. McCain Chair in Engineering at the Pennsylvania State University. His research interests cover a wide spectrum of topical areas focusing on combustion, energy, and chemical propulsion. He is the author or co-author of more than 300 technical papers and has published 10 comprehensive volumes in the areas of combustion, propulsion, and energetics. He was the recipient of the Penn State Engineering Society Outstanding Teaching and Premier Research Awards, and several publication and technical awards from AIAA, including the Air-Breathing Propulsion (2005), Pendray Aerospace Literature (2008), and Propellant & Combustion (2009) Awards.

Dr. Yang was the Editor-in-Chief of the AIAA Journal of Propulsion and Power (2000-2009). He is currently the Editor-in-Chief of the JANNAF Journal of Propulsion and Energetics (2009-), and a co-editor of the Aerospace Book Series of the Cambridge University Press (2010-). In addition, he has served or serves on the editorial advisory boards of virtually all major journals in aerospace propulsion and power, combustion, and energetics. He has been a consultant to many U.S. rocket and airbreathing propulsion companies as well as government organizations. A Fellow of AIAA and ASME, Dr. Yang is the Vice President for Publications of AIAA (2012-2015).

The Advisory Committee plays an important role as an interface between the University and industry, commerce, the service sectors and the community at large. The Advisory Committee would give advice on the scope and nature of the Department's academic programmes, research and other activities in order to relate these to the needs of the students and the community.

ME Scholar wins top prizes in Geneva's Invention Expo

Prof. Wallace Leung, Chair Professor of Innovative Products & Technologies, Department of Mechanical Engineering, has won a Special Award and a Gold Medal in the 42nd International Exhibition of Inventions of Geneva.

The winning project "Multilayer Nanofibre Filter – Nanoaerosols Capture with Added Functions" undertaken by Prof. Leung investigates how particle pollutants in air – including the nano-aerosols can be captured by nanofibres and gaseous pollutants (nitrogen oxide and volatile organic compounds from emissions) can be converted to harmless substances, while captured bacteria can be further killed by the functionalized nanofibre layers. The nanofibers are typically 100-300 nanometers in diameter (1/500 to 1/1000 than smaller than human hair) and can be made from polymeric, inorganic to natural materials. Nano-aerosols, including diesel particulates, laser-printer particles, viruses and small bacteria, by virtue of their small sizes, typically less than 100 nm, can get into our respiratory, vascular, lymphatic and nervous systems, leading to various chronic diseases. The multilayer nanofibre filter using multiple thin nanofibre layers, each supported by a permeable scrim material, attains high-capture efficiency of nano-aerosols while the air flow through the filter only requires a lower pressure drop as compared to the filter in which the same amount of nanofibres are packed in a single-layer. This is advantageous for many applications from personal protection (face masks, respirators) to cabin (air planes, trains, buses, and cars) and space ventilation (auditoriums, class rooms, theatres, offices, etc.).

The winning of top prizes in the international exposition not only have brought glory to Hong Kong, but the breakthrough also extended the frontiers of knowledge and enhanced the well-being of our society.

Under the patronage of the Swiss Federal Government, the State and the City of Geneva as well as the World Intellectual Property Organization, the 42nd International Exhibition of Inventions of Geneva was held from 2 to 6 April 2014.



Appointment of the IMechE International Vice President

Professor Alan Kin-tak Lau, Department of Mechanical Engineering has recently been elected as the First International Vice President of The Institution of Mechanical Engineers (IMechE). It is the first time IMechE appointed an International Vice President who comes from a country outside European territories.

By voting from over 106,000 members in 120 countries at the Council and Trustee Board election exercise in May 2014, Prof. Alan Lau was elected as International Vice President. He will also seat in the Trustee Board and Chair the International Strategic Board to oversee the operations of its international regions, namely North East Asia, South East Asia, Southern Asia, Oceania, Middle East and Africa and Europe.

As the International Vice President of IMechE, Prof. Lau's primary mission is to establish a healthy and constructive relationship among overseas regions and Head Quarter so that IMechE to be recognized as the world's largest mechanical engineering body. He would develop a policy framework to integrate business mindset to enhance engineers' mobility in the international engineering business arenas. He also has the endeavor to promote a positive image of the profession of mechanical engineering to the general public as well as junior students.

Prof. Lau is the Fellow of IMechE and the Project Coordinator of its Asia Pacific Aviation Centre. He has served IMechE for over 10 years and was Council Member in 2013-14. He was also the proposer and project manager of "Asia Pacific Initiative" of IMechE and drew many local engineering captains to share their successful stories and engineering skills with young students and engineers. The programme benefited over 1,000 participants and now has become IMechE's anchoring event.

The Institution of Mechanical Engineers (IMechE) is an independent engineering society based in central London, representing mechanical engineers. It represents over 106,000 members in over 120 countries in industries including rail, automotive, aerospace, manufacturing, energy, medicine and construction.

This report was edited by the Publicity Committee
from materials supplied by staff members.

Department of Mechanical Engineering

The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong

Tel : 2766-6657 / 2766-6658 Fax : 2365-4703

Email : mmquiry@polyu.edu.hk

Website : www.polyu.edu.hk/me