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E-News August 2010

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Outstanding Achievements of Faculty Members

With a view to recognising the outstanding performance of Faculty Members in securing external competitive research grants, the Faculty Research Committee since 2003 has set up two awards: *Faculty of Engineering Research Grant Achievement Award and Faculty of Engineering Industrial and Engineering Services Grant Achievement Award.*

The Faculty has announced the 2009 winners of the two awards as follows:

Faculty of Engineering Research Grant Achievement Award

Professor You Jia, Department of Computing
Dr Zhang Lei, Department of Computing

Professor You Jia

Dr Zhang Lei

Faculty of Engineering Industrial and Engineering Services Grant Achievement Award

Professor Cao Jiannong, Department of Computing
Dr Chan Luen Chow, Department of Industrial and Systems Engineering
Dr Chang Rocky, Department of Computing
Professor Cheng Ka Wai, Eric, Department of Electrical Engineering
Professor Surya Charles, Department of Electronic and Information Engineering
Dr To Suet, Sandy, Department of Industrial and Systems Engineering
Dr Yung Kam Chuen, Winco, Department of Industrial and Systems Engineering

Professor Cao Jiannong

Dr Chan Luen Chow

Dr Chang Rocky

Professor Cheng Ka Wai, Eric

Professor Surya Charles

Dr To Suet, Sandy

Dr Yung Kam Chuen, Winco

Congratulations to the winners!

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Computing Experts Win Silver Medal for an RFID Project

Left: Photo taken with distinguished guests at the industrial seminar for the air freight forwarding industry.
Right: FRED developed by Computing experts snatched a Silver Medal in the 38th International Exhibition of Inventions of Geneva held in this April.

Dr Henry Chan, Associate Professor of the Department of Computing, together with his research and development team, recently won a silver medal in the 38th International Exhibition of Inventions in Geneva with a software tool called Flexible RFID Encoder and Decoder (FRED). FRED was developed in relation to the project entitled "Enhancing the Competitiveness of the Hong Kong Air Freight Forwarding Industry Using RFID and Software Agent Technologies" with over $4M grant from the Innovation and Technology Fund (ITF). Mr Chiu Chi Hang, a graduate of computing last year, has been primarily involved in the development of FRED.

Working in collaboration with the industry, the Department of Computing kicked off the project "Enhancing the Competitiveness of the Hong Kong Air Freight Forwarding Industry Using RFID and Software Agent Technologies" in 2008 with a project team led by Dr Henry Chan. It has recently completed a pilot run for delivering the first batch of air cargo from Hong Kong to Taiwan using RFID under the support of DHL Global Forwarding. The pilot run provides valuable reference for the Hong Kong air freight industry.

Earlier this year, the project team organised an industrial seminar for the air freight forwarding industry, with distinguished guests including Ir Dr Hon Samson Tam Wai Ho, JP (Legislative Councilor for Information Technology Functional Constituency), Dr Frank Tong (Director, Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies), Mr Peter Wong (Chairman, Hong Kong Association of Freight Forwarding and Logistics), Mr Kelvin Leung (CEO, North Asia Pacific, DHL Global Forwarding), and Mr Philip Lee (CEO, Sun Hing Group of Companies).

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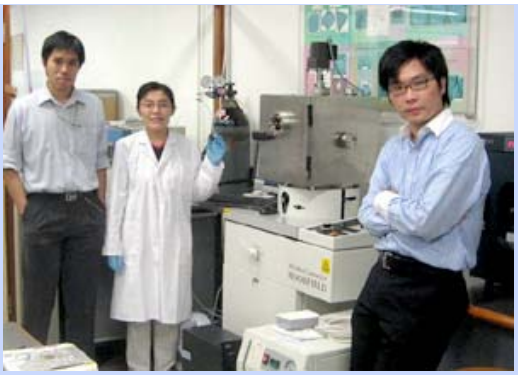
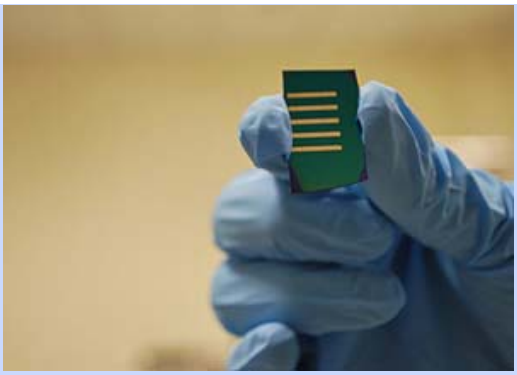
Research Breakthrough Announced on World's Top Science News Web

From left: Dr Dennis Leung, Dr Sumei Wan and Dr Paddy Chan of Department of Mechanical Engineering.

The research on next generation of memory device by Dr Paddy KL Chan, Assistant Professor of the Department of Mechanical Engineering has been featured by ScienceDaily®, one of the Internet's most popular website showcasing top science news of the world's leading universities and research organisations.

A team led by Dr Paddy Chan, Department of Mechanical Engineering and Dr Dennis Leung, Department of Applied Physics has shown that a simple layer of silver nanoparticles placed between two layers of the organic semiconductor pentacene will improve memory performance just as much as placing nanoparticles atop a tiny floating gate region.

Certain metal nanoparticles trap electric charges effectively. They are becoming a popular additive for enhancing transistor performance and producing thinner transistors. Sandwiching a layer of nanoparticles is found to be more compatible with the low-cost, continuous roll-to-roll fabrication techniques for organic electronics, than the more intricate patterning which puts material just in the transistor gate area.

Chan's group has also shown that the thickness of the nanoparticle layer changes the device performance in predictable ways that can be adopted to optimise transistor performance for various application requirements.

The organic memory may have a very high potential for use in next-generation memory devices, such as for the touchscreen and electronic paper, where flexibility and low-cost are crucial.

This research has been supported with grants from the University and from the HKSAR University Grants Committee.

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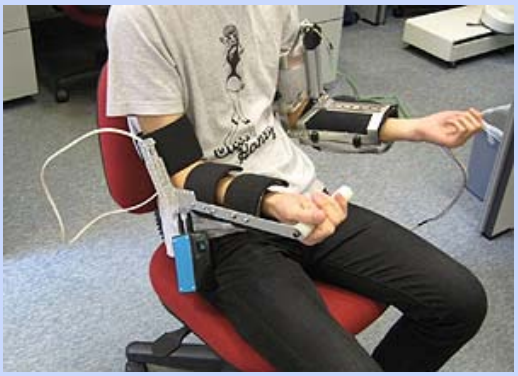
PolyU Students Shine at Engineering Project Competition




Left: Gold Award Project: Wearable Robotic System for Active Muscle and Joint Training.
Right: Congratulations to Gold Award Winners of PolyU Mechanical Engineering.

Four teams of students from the Department of Mechanical Engineering scored prizes at the Jardine Engineering Corporation Outstanding Engineering Project Award 2009/2010 . Amongst the 16 entries which include participants from full-time undergraduate or postgraduate students of local students in engineering disciplines, 4 student teams from the Department have clinched the awards with their innovative project ideas and designs. Congratulations!

Gold Award Students: Wang Lei, Wong Chak Pui and Yim Nga Wan
Winning Project: "Wearable Robotic System for Active Muscle and Joint Training"
- A prototype of wearable, portable and affordable rehabilitation device for active muscle and joint training

Bronze Award Students: Cheng Chun Hei, Lee Ki Pui and Man Wun Keung
Winning Project: "Design and Development of Photocatalytic Reactor Based on TiO2 Nanotube Arrays"
- A photocatalytic reactor using annealed anodic TiO2 nanotube arrays as photocatalyst. Its efficiency

can be optimised by selecting proper flow rate, annealing temperature of TiO2 and using titanium nets with anodic TiO2 nanotube

Merit Award Students: Chan Kai Fai, Ng Ka Kin and Yeung Ho Lap
Winning Project: "Particulate Collector"
- A particulate collector to collect the RSP on the road and from the motor vehicle exhaust to help combating air pollution

Merit Award Students: Chan Hiu Yan and Cheung Ka Man
Winning Project: "Design of a water extractor"
- A solar powered water extractor

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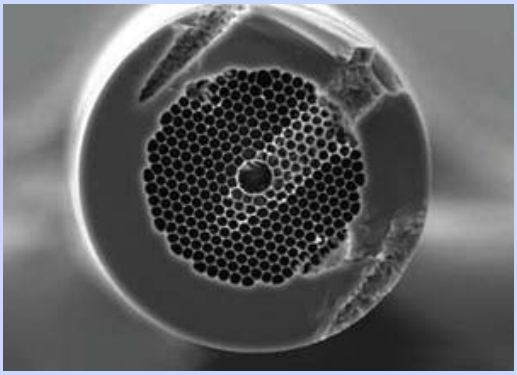
Electrical Engineering Team Develops a Rapid-response Methane Sensor



Researchers at the University have developed a rapid-response methane sensor that may help overcoming the harsh industrial environments. The team, led by Professor Wei Jin, Department of Electrical Engineering, has already researched on the practicality of using a photonic bandgap (PBG) fibre for gas sensing. Now, Jin and his colleagues have improved response times by fabricating seven microchannels in a 7-cm-long PBG fibre using a Ti:Sapphire femtosecond laser.

After filling the microstructured fibre with a mixture of methane gas and nitrogen, the team measured its transmission spectrum using a superluminescent LED, and then probed the mixture using a distributed feedback laser of wavelength 1.67 μm. The system took three seconds to detect methane gas and had a detection sensitivity of 647 ppm. This work shows that the sensor works well without the need to pressurise the gas being detected. According to Jin, the sensitivity of the system could be improved dramatically simply by using a longer fibre: "The absorption signal strength scales up with the length of sensing fibre, but noise is almost independent of fibre length." Jin's analysis suggests that a 50-m-long PBG fibre containing 700 microchannels could offer sensitivity close to 1 ppm, although the response time would increase to around one minute in this scenario.

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Emerging Technology for Enhancing Competitiveness of Land Transportation – An Intelligent eSecurity Device

Interface of Fleet Management System.

A project team under Dr SK Kwok from the Department of Industrial and Systems Engineering is currently engaging in applied research and technology transfer for the development of mobile technologies and Radio Frequency Identification (RFID) applications in industry.

A Workshop on "Emerging Technology in the Logistics Industry - Intelligent eSecurity Device" has been held on 18 August 2010. The Workshop was sponsored by the Innovation and Technology Commission, and jointly organised by the Department of Industrial and Systems Engineering and Autotoll Limited. It has provided an opportunity for participants from the industry to explore and learn how the device and the related fleet management system and middleware can help improve efficiency and enhance competitiveness of activities relate to land transportation.

For details of the event, please visit
http://www.rfid.ise.polyu.edu.hk/eseal/.

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Professor Philip Krein's visit to Electronic and Information Engineering

Professor Philip Krein

Professor Philip Krein, the Departmental Academic Advisor of the Department of Electronic and Information Engineering (EIE), paid his first visit to the Department from 18 to 24 June 2010. Professor Krein is the Grainger Endowed Director's Chair in Electric Machinery and Electromechanics, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, USA.

During the visit, Professor Krein met with the Departmental Research Committee, the Department Learning and Teaching Committee, programme leaders, academic staff and student representatives. Extensive discussions were made on various important issues including the new 4-year curriculum, learning and teaching methodologies, and research strategies. Professor Krein made a holistic review of the Department's work and provided valuable advice for future planning and visioning.

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Electronic and Information Engineering Study Tour to Xian

In order to broaden the students' horizon, enrich their multicultural experience and provide them with opportunities to practise Putonghua, the Department of Electronic and Information Engineering organised a Xian Study Tour for 20 students from 10 to 14 June 2010. Students visited the Xian Jiaotong University and historical sites such as the Shannxi History Museum and the Museum of Qin Terra-cotta Warriors and Horses etc., and gained valuable insights on the higher education, economy, history, and culture of the Chinese mainland.

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A Taste of PolyU Hostel Life by Secondary School Students

As a continuation programme of the Engineering Summer Camp 2010, a group of around 20 students led by Dr Chi Kin Leung of the Department of Electronic and Information Engineering had a taste of PolyU hostel life on 3 and 4 August 2010. The two days were fun-filled with campus tours, using hostel recreational facilities, and receiving warm welcome by University students.

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Admissions for 2010/11

Taught Postgraduate Programmes

Engineering Doctorate	工程學博士學位
Master of Science in Automotive Engineering Design	汽車工程設計理學碩士學位
Master of Science/Postgraduate Diploma in E-Commerce	電子商貿理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Electrical Engineering	電機工程學理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Electronic and Information Engineering	電子及資訊工程學理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Engineering Business Management/Manufacturing Systems Engineering	工程商業管理理學碩士學位/深造文憑/製造系統工程理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Industrial Logistics Systems	工業物流系統理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Information Systems	資訊系統理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Information Technology	資訊科技理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Integrated Engineering	綜合工程學理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Mechanical Engineering	機械工程學理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Software Technology	軟件科技理學碩士學位/深造文憑
Master of Science/Postgraduate Diploma in Technology Management	科技管理理學碩士學位/深造文憑

Undergraduate Programmes

Double Degree in Business Administration and Engineering	工商管理及工程學雙學位
Double Degree in Computing and Management More Info	電子計算及管理學雙學位
Bachelor of Arts (Honours) in Computing (Part-time)	電子計算(榮譽)文學士學位 (兼讀制)
Bachelor of Engineering	工學士學位
Bachelor of Engineering (Honours) in Electrical Engineering	電機工程學(榮譽)工學士學位
Bachelor of Engineering (Honours) in Electrical Engineering (Part-time)	電機工程學(榮譽)工學士學位 (兼讀制)
Bachelor of Engineering (Honours) in Industrial and Systems Engineering	工業及系統工程學(榮譽)工學士學位
Bachelor of Engineering (Honours) in Mechanical Engineering	機械工程學(榮譽)工學士學位
Bachelor of Engineering (Honours) in Mechanical Engineering (Part-time)	機械工程學(榮譽)工學士學位 (兼讀制)
Bachelor of Engineering (Honours) in Product Engineering with Marketing	產品工程兼市場學(榮譽)工學士學位
Bachelor of Engineering (Honours) in Product Engineering with Marketing (Part-time)	產品工程兼市場學(榮譽)工學士學位 (兼讀制)
Bachelor of Engineering (Honours) in Product Analysis and Engineering Design	產品分析及工程設計學(榮譽)工學士學位
Bachelor of Engineering (Honours) in Product Analysis and Engineering Design (Part-time)	產品分析及工程設計學(榮譽)工學士學位 (兼讀制)
Bachelor of Engineering (Honours) in Transportation Systems Engineering	運輸系統工程學(榮譽)工學士學位
Bachelor of Science (Honours) in Enterprise Engineering with Management	企業工程兼管理(榮譽)理學士學位
Bachelor of Science (Honours) in Industrial Quality Management (Part-time)	工業品質管理學(榮譽)理學士學位 (兼讀制)
Bachelor of Science (Honours) in Logistics Engineering and Management	物流工程及管理(榮譽)理學士學位

Higher Diploma Programmes

Higher Diploma in Electrical Engineering	電機工程學高級文憑
Higher Diploma in Electronic and Information Engineering	電子及資訊工程學高級文憑
Higher Diploma in Industrial and Systems Engineering	工業及系統工程學高級文憑

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Forthcoming Events

The 5th International Conference on Knowledge Management in Asia Pacific (KMAP 2010): Shaping and Futurising our Global Knowledge

Organised by the Hong Kong Polytechnic University Knowledge Management and Innovation Research Centre (KMIRC), Xi'an Jiaotong University and Dalian University of Technology.

Date : 16-18 September 2010
Time: 9:00am - 6:00pm

PolyU Education Info Day 2010

Date : 25 September 2010 (Saturday)
Time : 9:30am - 6:00pm

Conference on Climate Change - Hong Kong Engineers' Perspective

Date: 18-19 October 2010
Venue: Sheraton Hong Kong Hotel
Organiser: The Hong Kong Institute of Engineers

The 17th ACM Symposium on Virtual Reality Software & Technology (VRST 2010)

Theme: Imagination in Motion
Date: 22-24 November 2010
Venue: M1603, Li Ka Shing Tower, PolyU

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