WHAT'S INSIDE

Newsletter No.4 Spring 2003

Opening of Nansha IT Park Sparks Regional Opportunities

The first phase of the Nansha IT Park was launched on December 29, 2002. The launch marked the start of an exciting program to build cross-border ties in technology and industry between Hong Kong and the Pearl River Delta (PRD). This program was spearheaded by HKUST with active participation from the School of Engineering. The Grand Opening of the Nansha IT Park is scheduled for April or May of this year.

First conceived in 1998 and located at the center of the PRD, Nansha IT Park is the result of a dynamic collaboration between HKUST (concept, design, project management, training and development), the Fok Ying Tung Foundation (land, capital and community development facilitator) and the Guangzhou government (policy, transportation and infrastructure).

The Park intends to become a PRD platform for creative IT and technology industries, R&D, start-ups, and education and training, boosting regional competitiveness and building the area's global reputation as a hub of technological innovation.

"It is part of HKUST's mission to contribute to the development of Hong Kong and the region," said Prof Otto Lin, HKUST's Vice-President for Research and Development. "And the Park will help our graduates. Back in 1997, we could see that to protect Hong Kong's economic future, we should leverage on the strength of PRD. There would be growing job and career opportunities in PRD in the 21st century so we wanted to build a HKUST stronghold there for our students and faculty."

School of Engineering faculty, with their expertise in technology and infrastructure development, have played a vital role in shaping the Park's concept and design. Members of the University's steering committee for the project included Prof Ping Ko, then Dean of Engineering, Prof Roland Chin, then Head of Computer Science, Prof TC Pong and Dr John Wong, both of the Sino Software Research Institute.

The Park will support technological development and professional training in fields such as electronic packaging, opto-electronics, microsystems, biomedical devices, logistics and supply chain management. "These are growing areas that will add value to the companies in the PRD, many of which are owned by Hong Kong people," said Prof Lin.

These fields recognize the strength of the academics, graduates and alumni in the School of Engineering. "In electronic packaging, for example, our faculty has the strongest academic record of research in Hong Kong," said Prof Lin. At least 14 academics from the Departments of Mechanical Engineering, Electrical and Electronic Engineering and the Applied Technology Center are conducting research on electronic packaging, including Profs Pin Tong, Ricky Lee, Steve Lee, Jang Kyo Kim, David Lam, Lilong Cai, Jingshen Wu, Matthew Yuan, Ping Cheng, Tongxi Yu (MECH), Philip Chan, Hoi-Sing Kwok, Zexiang Li (EEE), Dr David Young (ATC) and others.

The School is also leading the way in research on logistics, another vital component of the Hong Kong and PRD economy. "HKUST is fully committed to assisting this industry," said Prof Chung-yee Lee, Head of the Department of Industrial Engineering & Engineering Management.

After full development, the Park will contain homes and facilities for a high-quality lifestyle as well as business accommodation. "The Park offers students and faculty a place to build careers and contribute to the social and economic development of the region," Prof Lin said.

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5 Exchanges Provide East-West Meeting Point
6 Engineering Alumni Fuel Hi-tech Industry
7 Cutting-edge Master's Programs Expand Knowledge and Networks
8 Teaching Excellence Honored
Though we have had to think hard about this contentious issue, on benefit from the merger. We must consider our need to uphold HKUST’s founding vision ‘to be a world-class university at the cutting edge internationally in all targeted fields of research’ and whether or not Hong Kong would offer self-financed courses, was also reviewed. The School of Engineering’s drive for excellence has received a boost after an on-site visit carried out as part of the latest Teaching and Learning Quality Process Review (TLQPR). The panel was particularly impressed with the progress outcome of January’s Teaching and Learning Quality Process Review (TLQPR). The panel also met Senate committee members, the Deans, and HKUST’s leadership group comprising the President, Vice-President (Academic), and former Associate Dean Prof Y K Tung. Prof Li received his PhD in Structural Engineering from Northwestern University in Evanston, Illinois. He specializes in micromechanics of fiber composites, fracture mechanics, optical micromechanics of fiber composites, durability of concrete, non-destructive testing of infrastructure, using the extrusion technique to develop new building packaging, and integrated sensors.

Acting Head of Civil Engineering
Prof Christopher Leung

Acting Head of Electrical and Electronic Engineering
Prof Khaled Ben Letaief

New Academic Appointments

Message from the Dean

With warmest regards,

[Signature]

[Image]

In Focus
IEEE Professors research achievements in cutting-edge liquid display technology.

While Prof Kwok was elected for his design and performance evaluation of high-speed wireless communication systems, Prof Ben Letaief was cited for his contributions to the analysis, engineering academics to gain the highly regarded honor.

IEEE Fellows are internationally recognized as leading authorities in their fields, and the latest HKUST engineering academics to be appointed Fellows of the prestigious Institute of Electrical and Electronics Engineers, are the latest HKUST Fellows. This recognition brings the HKUST total to nine, one of the highest numbers among tertiary institutions in Hong Kong.

Two more School of Engineering professors have been elected IEEE Fellows, bringing the HKUST total to nine, one of the highest numbers among tertiary institutions in Hong Kong. Each year, less than one out of every 1,000 IEEE members is elected to be a Fellow, the Institute's highest grade of membership. The IEEE uses a rigorous selection process for Fellows, which includes peer nominations and a rigorous review process.

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Network system research conducted by the Departments of Electrical and Electronic Engineering and Computer Science has been highlighted in a leading international industry publication, illustrating the global impact of R&D innovations at HKUST.

An article in the EE Times, the electronics industry's newspaper of record and a source of reference for engineers and technical managers worldwide, focused on a technical paper by School of Engineering postgraduate student Ting Wu (EEE), Prof Chi-Ying Tsui (EEE) and Prof Mounir Hamdi (CS). The paper offered an alternative approach to crossbar design, a core component of switches and routers, the devices that ensure that computer networks transmit information effectively and efficiently. It was presented by the HKUST researchers at the Hot Chips conference in Palo Alto, California, in August 2002.

Prof Hamdi explained that the crossbar switch currently used is like a small-town taxi driver delivering passengers to their destinations. The current switch can deal with less-complicated traffic set-ups, but it cannot support information management in large-scale and high-speed network systems. To improve this situation, the research team decided to pipeline multiplexers, with one 256-bit multiplexer replaced by several cascaded narrower multiplexers separated by registers. In this way, a problem can be broken down into smaller pieces and dealt with by different modules at the same time. The output is then integrated and sent out as a final solution.

According to Prof Hamdi, this is the only crossbar design compatible with integrated circuits and applicable to advanced network systems. The team has now started to study other devices in switches and routers to further advance network systems.
Students and alumni

Through the course, students have the opportunity to complement The Business Skill Development Program, organized jointly by the School of Engineering, Student Affairs Office and Learning Matrix focusing on management and communication skills. All exchange participants benefit from SENG's added-value skills.

The donation was presented to Oxfam representative Mr Chan Ka-ming at a ceremony at Christ College on October 26, 2002. Students and Alumni

First-year civil engineering students from Zhejiang University said, "I want to learn the community projects, each lasting three months. Students took part in one of five summer industrial training programs. The first module on business communication finished in July.

Carman Li, a second-year chemical engineering student said, "Recently, I worked with an international student leader for the Christ College project. "We learn technical skills in the classroom but gained hands-on experience during the project," said Barbara Siu, the student leader.

Christina Fabritius learned of her university's exchange program with HKUST's School of Engineering (SENG) and knew it was a chance not to be missed. "When Technical University of Denmark student Winter Tan Ying, third-year exchange student from Zhejiang University said, "I want to learn the most up-to-date knowledge, make friends with local students and gain a better understanding of Chinese culture," said Associate Dean of Student Affairs Office and Learning Matrix Prof Chi-Ming Chan, director of the School's exchange program.

Over 100 mainland undergraduates and over 60 postgraduates arrived on campus recently. Students from SENG's first mainland exchange partner schools arrived on campus. "We have set up a very friendly and enthusiastic environment. This makes me feel at home," said Associate Dean of Student Affairs Office and Learning Matrix Iris Ma Xiao Nan, third-year exchange student from Beijing University. "People here are international, illustrates the School's commitment to building students' positive. The module on influencing skills ended in January.

First-year chemical engineering student Carman Li said, "Recently, I worked with an international student leader for the Christ College project. "We learn technical skills in the classroom but gained hands-on experience during the project," said Barbara Siu, the student leader. "Working with Winter Tan Ying from Zhejiang University and Iris Ma Xiao Nan from Beijing University wanted to try a different way of life. As the saying goes: 'Living in another culture, even for one day, doubles your experience.'" Winter Tan Ying said. "It has been GREAT. Everyone should take a semester away." Iris Ma said.

"In the classroom, we learn technical skills. But these talks were good as they demonstrated their financial planning abilities as well as technical management skills during the 2002 summer industrial training program. Especially notable was the fact that projects involving slope stability and quantity control of building materials.

Matthew Yuen and several students she met at HKUST. Christina will always remember the karaoke and university parties. "So different from home." Christina said. Christina's exchange experience is one she should," Christina said. Christina will always remember the karaoke and university parties. "So different from home." Christina said.
compared to other advanced IC packaging companies. They are Mclellan. “Its skilled alumni give the company world-class superiority in driving forward its hi-tech economy. HKUST is a great asset to us,” said Chief Technical Officer Mr Neil services and employer of more than 10 engineering alumni.

One company to benefit is Nasdaq-listed ASAT Holdings Ltd, a global provider of semiconductor package design, assembly and test. Entprising School of Engineering graduates are playing a key role in our career development in the hi-tech industry.”

As Hong Kong moves towards a knowledge-based society, one of the most advanced universities in Asia, HKUST (Hong Kong University of Science and Technology), is fueling the hi-tech sector through the strength of its graduates. Engineering studies. “The information and equipment provided at HKUST is up with the times. The knowledge I received was more than a foundation. It was ready to use.”

Dickson and Angus added: “Technological know-how, project management skills and experience from professors are invaluable to us. Our experience with ASAT is a perfect match between our business and personal goals. Dickson and Angus are now working on some of the most advanced knowledge.”

The work that paved the way for this achievement looked at low-voltage circuit solutions to reduce battery size and lengthen battery life, an increasingly important research area given the popularity of mobile phones and other portable applications and the changing invitation. “Afterwards, one American professor congratulated me and said: ‘Even the inventor had given up, yet you managed to work on it.’”

That made a great impact and motivated me to push my interest in ICs as a second-year undergraduate and continually performing 10 times faster than existing 1-V designs and could significantly reduce the size, weight and power consumption of portable devices. This year, he took his ultra-low-power IC performed 10 times faster than existing 1-V designs and could significantly reduce the size, weight and power consumption of portable devices. This year, he took his ultra-low-power IC with the news that the postgraduate had had a paper accepted for the renowned IEEE International Solid-State Circuits Conference in San Francisco, popularly known as the ‘Chip Olympics’. At the 2001 conference, he demonstrated an IC that Switched-Opamp Switched-Capacitor Pseudo-2-Path Filter’, to a large audience of top industry professionals, academics and engineers. Based on a technique first published in the mid-1990s, Dr Cheung not only sorted out solutions to problems in the original research but extended it. He emerged with a significant advance of his own that earned a US patent.

The original technique was for large battery, such as low-battery implants, a life span five to ten years longer than the earlier one,” he said. “You go for the edge — or at least the edge at that moment. Later, as technology advances and your skills improve, you find it is no longer the edge and you can go further. That’s what makes the work that paved the way for this achievement looked at low-voltage circuit solutions to reduce battery size and lengthen battery life, an increasingly important research area given the popularity of mobile phones and other portable applications and the changing invitation. ‘Afterwards, one American professor congratulated me and said: ‘Even the inventor had given up, yet you managed to work on it.’”

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Asia and Europe, adds to the mix of minds. Trips overseas to see top
The international student body, including people from North America,
very good friends," Prof Shen said.
meet on Saturday evenings and attend talks together. Many become

campus. "It means students not only have class time together but can

logistics management, is one of the first in Hong Kong to use a live-in

management techniques; and providing networking opportunities for

Helen Shen, Associate Dean of Development. "We would be looking

program, which presented its first graduates in November, enables

senior and middle managers to build personal and business ties across

at least, we wanted to emphasize three elements," said Prof

The program, which offers a specific focus on either IT or global

innovative School of Engineering part-time Master's degree programs.

Opportunities for professionals to build both knowledge and networks,

arange of industries, cultures and countries.

Cutting-edge Master's Programs

Expand Knowledge and Networks

Highlights of Student Achievements

Other project team members from ASM Assembly Automation

his paper 'Wire Bondability of Au/Ni Bond Pads: Effects of

Symposium on Electronic Materials and Packaging held in T'aiwan for

based on an Innovation & Technology Fund UIT project.

Student Paper Award (First Runner-up) at the International

CHAN Yiu Hin

awarded the 2002 Microsoft Fellowship, presented by Microsoft

Dickson TONG

the Schmidt Award of Excellence 2002, an annual award established

(DPhd, Electrical and Electronic Engineering) won

Dongsheng MA

the Hong Kong Young Scientists Awards at the 10th Annual

Dr Yufei TAO

year.

Hong Kong among the 18 students who received the award this

five years ago by Schmidt & Co (Hong Kong) Ltd.

"Studying with participants from different backgrounds and cultures

companies and universities allow further expansion of international ties.

"From the start, we wanted to emphasize three elements," said Prof

"It means students not only have class time together but can

In March, the new and much sought-after MSc in Information

Technology commenced. The School's MSc in IC Design Engineering is

of her day-to-day work is confidential.

For Carrie Hui Ka-yee, a test and type approval assistant engineer at

Nokia (HK) Ltd, the course also provides a welcome way to learn and

applications.

84 participants selected from more than 140

In February, Hong Kong's first part-time MSc in Telecommunications

Electrical and Electronic Engineering and Computer Science to add

The University is now utilizing the strengths of the Departments of

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Alumni relationships are invaluable assets to the School and alumni. To foster the growth of our alumni network, please keep us informed of your recent news and send us your updated contact information via email to seng@ust.hk. Stay connected and keep in touch!

Don't be the Missing Link ...

In Focus is published biannually by the HKUST School of Engineering. Its purpose is to communicate the School's developments and activities of interest to members, alumni and friends of the School. Comments, suggestions and contributions are welcomed.

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Monthly Calendar of Events

PTC-G9661
June 11-13

July 7-10
The 3rd Asia Aerosol Conference (Enquiry: 2358-6943, http://www.ust.hk/~3aachk/)

16-18
International Database & Engineering Application Symposium (Enquiry: 2358-6979, http://www.cs.ust.hk/ideas03/)

18-20
Engineering Summer Camp for Honour Students 2003 (Enquiry: 2358-6960)

All titles and dates are subject to revision.

Teaching Excellence Honored
Five faculty members were presented the School of Engineering Teaching Excellence Appreciation Award (Spring 2001-02) in October’s Engineering School Board Meeting. The awardees were Prof Ben Young of Civil Engineering, Prof Michael Brown of Computer Science, Prof Albert Wong of Electrical and Electronic Engineering, fourth-time winner Prof Ravindra Goonetilleke of Industrial Engineering and Engineering Management, and Prof Ricky Lee of Mechanical Engineering.

Forum about Female Engineers in Hong Kong
The annual Engineering Festival opened on February 17, 2003, followed by a variety of programs including seminars, workshops, a pub night, games, etc. Organized by the Engineering Students’ Union, this year’s Festival focused on the role of female engineers. A forum and an exhibition were dedicated to this theme.

Tenth Congregation
Nine hundred and eighty-four Engineering graduates received academic degrees, including 711 bachelor’s degrees, 230 master’s degrees and 43 PhDs, during HKUST’s Tenth Congregation from November 6-8, 2003. Students’ achievements in academic excellence were also honored at the ceremony.

Thirteen Academic Achievement Awards were bestowed upon the top bachelor’s degree graduates.

Logistics and Supply Chain Forum
Industrial Engineering and Engineering Management Department hosted the Logistics and Supply Chain Forum aimed to be a conduit for communications between industries, supply chain solution vendors, and academia. The Forum was held on January 17 and 24, 2003 on the topics ‘Advanced Concepts and Practices in Logistics Management’ and ‘Real-Time Optimization for Real-World Problems’, respectively.

Workshop on Growth of Nano-structures
Over 50 researchers from 6 countries and regions joined the Workshop on Selective, Patterned and Self-Assembled Growth of Nano-structures, which took place from January 6 to 8, 2003. The technical program organized by the Electrical and Electronic Engineering Department highlighted leading advances in the formation of nano-structures by chemical and self-assembled means.

International Symposium on Advances in Abrasive Technology
The Fifth International Symposium on Advances in Abrasive Technology, organized and sponsored by the Mechanical Engineering Department of HKUST and the Japan Society for Abrasive Technology, was successfully held at HKUST during November 15-17, 2002. In total, 79 delegates from 9 countries and regions attended the symposium, and 69 papers were presented for discussion. The international symposium series has been focusing on the abrasive technologies such as grinding, polishing, and micro machining, and has been held in Japan, Australia, USA, and Korea. During the event, an international committee for abrasive technology was established to promote the studies of abrasive technology.