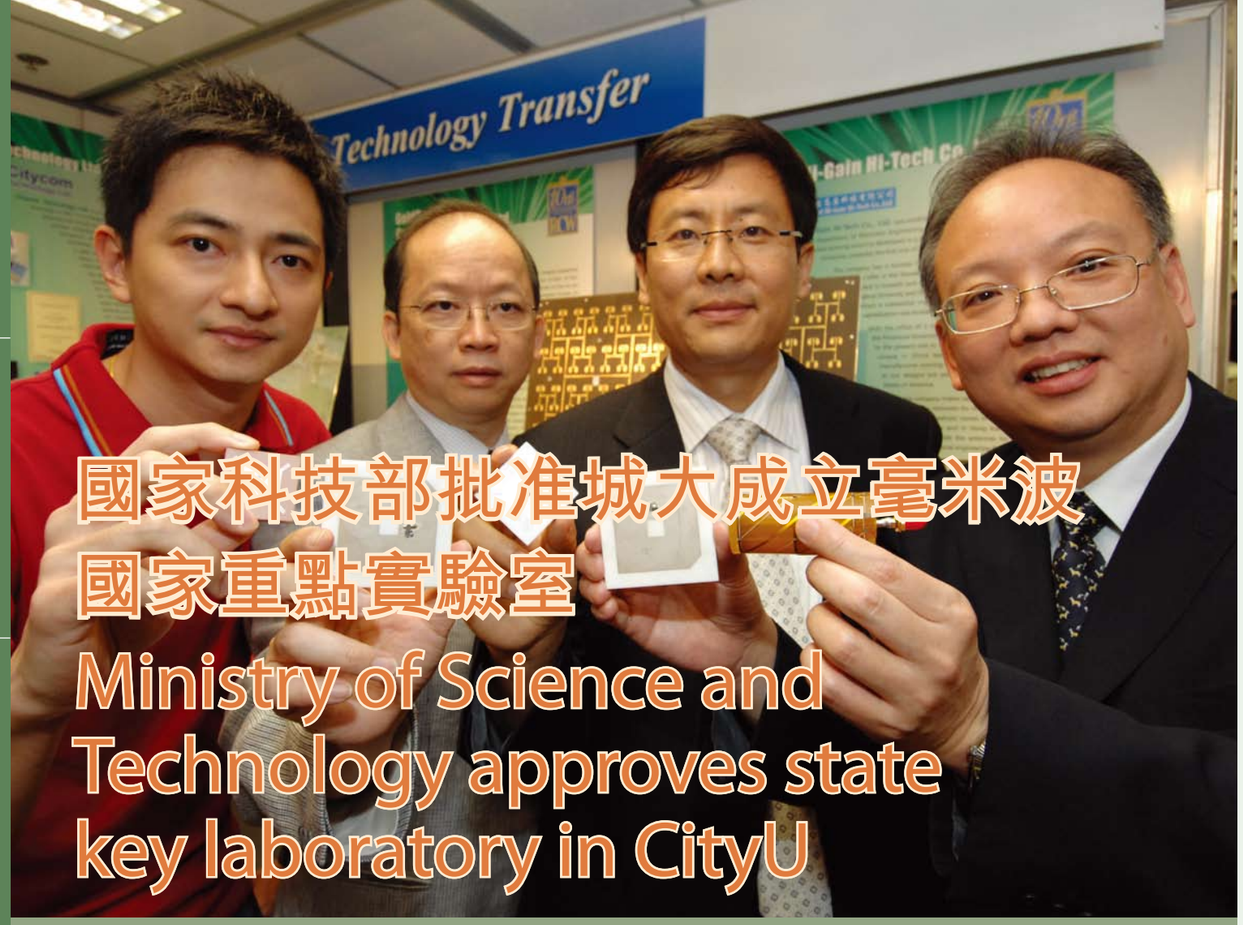

國家科技部批准城大成立毫米波國家重點實驗室

Ministry of Science and Technology approves state key laboratory in CityU

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香港城市大學（城大）獲國家科學技術部（科技部）批准，成立毫米波國家重點實驗室。這是香港首家在工程領域的國家重點實驗室。

實驗室將致力於毫米波理論基礎和實用系統研究，為國家的通訊科技發展作出貢獻，包括提高滲透性，使技術更方便易用。此外，城大科研人員將成為國家研究力量的一部分，進一步促進香港和內地的科技合作，共同創造社會經濟效益。

城大多年來在多個通訊科技領域，包括毫米波電路設計、天線技術和計算電磁學等，均取得具國際領先水平的成果，這次獲批准成立國家重點實驗室，再次肯定城大的科研實力。電子工程學系系主任陸貴文講座教授將出任實驗室主任，並會聯同科學及工程學院院長陳志豪講座教授及電子工程學系副教授薛泉博士帶領研究工作。

城大校長郭位教授對獲批准成立國家重點實驗室感到十分榮幸，他說：「我們將積極配合國家的通訊科技發展，推動毫米波在國家及民用層面的應用，為經濟和發展作出貢獻。」

陳教授指出，毫米波國家重點實驗室將結合城大在毫米波電路設計、天線技術和計算電磁學的優勢，發揮協同作用，而實驗室亦將凝聚和帶動更多科研人員進行研究，提升研究成效。

陸教授期望透過國家重點實驗室發揮城大研究團隊的潛力，為國家開發所需的通訊技術，並進一步提高團隊的學術水平。

毫米波是波長極短的電磁波，一般只有1至10毫米，但頻率極高（30GHz），廣泛應用於無線通訊、雷達、導航、遙感等多個領域。基於這些特點，毫米波技術適用於設計太空船的天線、直升機和汽車的防撞雷達，亦可用於偵查車輛是否超速，以及檢測人體是否藏有槍械或毒品等。

城大除擁有出色的無線通訊技術研究團隊外，其實驗室亦配備最先進精密的儀器，包括世界一流的天線與微波電路測試系統、功能強大的射頻微波及多種毫米波設備等。研究員在過去五年完成多項特區政府研究基金項目，並為本港、珠江三角洲及其他內地企業進行逾百項應用研究。

城大研發的多項通訊技術已被應用，其中應用於國家「北斗一號」衛星導航定位系統用戶終端機的天線和功率放大器，更在最近四川地震拯救工作中發揮作用，讓救援人員在通訊癱瘓的災區中，順利向救災指揮部發回大量有用資訊，協助救援工作。

此外，實驗室過去多年亦培育不少優秀學生和科研人才，這些學生在全國及國際比賽屢獲獎項，而多位博士生更在畢業後獲聘到英國、美國及澳洲等國家的頂級學府任教。

陸貴文教授表示，實驗室將與全國重點大學東南大學的毫米波國家重點實驗室結為夥伴，發揮互補作用，提高學術水平，加強與內地重點實驗室的交流和合作，促進雙方在通訊技術研究上取得突破。

(Published on 5 June 2008)

City University of Hong Kong (CityU) has obtained approval from the Ministry of Science and Technology to set up the State Key Laboratory of Millimeter Waves.

It will be the first such laboratory in the engineering discipline in Hong Kong. The laboratory will focus on researching the principal theories and applications of millimeter waves, including the improvement of its penetration to make the technology more accessible. It also has implications for the development of communication technologies in China. In addition, research staff at CityU will become part of the national research team that will further promote collaboration on technology development between Hong Kong and the mainland.

CityU has won international acclaim in many areas of communication technology, including millimeter wave circuit design, antenna technology and computational electromagnetics. Approval of the establishment of a state key laboratory is further proof of the technological strength of the University. The laboratory will be spearheaded by Professor (Chair) Luk Kwai-man, Head of the Department of Electronic Engineering, together with Professor (Chair) Chan Chi-hou, Dean of the College of Science and Engineering, and Dr Xue Quan, Associate Professor from the Department of Electronic Engineering.

Professor Way Kuo, President of CityU, said it represents a significant honour for the University. "We will work in line with communication technology development on the mainland and promote government and commercial use of millimeter wave technologies to make further contributions to the economic development of China."

Professor Chan pointed out that the laboratory would benefit from the synergy of combining CityU's research strengths in millimeter wave circuit design, antenna technologies and computational electromagnetics. Also, the laboratory would serve as a platform to attract more high-quality researchers.

Professor Luk said the laboratory could utilise the potential of CityU's research teams to develop communication technologies for China and to enhance research quality.

Millimeter wave is an electromagnetic wave which has a very short wavelength but a high frequency (30GHz). It can be applied in many areas, including wireless communication, radar, navigation and remote control. Due to its unique characteristics, it can be used in the design of antenna for spacecrafts and crash-detection radar for helicopters and automobiles. Also, it is suitable for detecting the speed of cars and detecting hidden weapons or drugs.

In addition to a strong wireless communication technology research team, CityU's laboratory is also equipped with advanced equipment, including world-class antenna and microwave circuit testing systems, powerful frequency microwaves and various millimeter wave systems. In the past five years, CityU researchers have completed many projects funded by the Hong Kong government and conducted more than 100 applied research projects for corporations in the territory, the Pearl River Delta Region and other mainland cities.

Many of the communication technologies developed by the University have been put into practical use. For example, the antenna and amplifier for the user terminal of the Beidou 1 Satellite positioning system proved useful in rescue work after the Sichuan earthquake. Victims in areas where ground communication systems had broken down completely were saved after information was sent via the satellite to the rescue centre.

In addition, the laboratory has in the past nurtured many outstanding students and researchers who have received various awards in national and international competitions. Many CityU PhD graduates also received teaching appointments upon their graduation and are now teaching at leading universities in the United Kingdom, United States and Australia.

Professor Luk said the laboratory will collaborate with the State Key Laboratory of Millimeter Waves at Southeast University, Nanjing, to enhance academic research and foster exchange and cooperation in pursuit of research breakthroughs in communication technology.

Other media coverage :

Newspapers

6-6-2008	*Hong Kong Commercial Daily*《香港商報》, *Hong Kong Economic Times*《經濟日報》, *Ming Pao Daily News*《明報》, *Oriental Daily News*《東方日報》, *Sing Tao Daily*《星島日報》, *South China Morning Post*《南華早報》, *Ta Kung Pao*《大公報》, *The Sun*《太陽報》, *Wen Wei Po*《文匯報》, *China Daily*《中國日報》
17-6-2008	*Sing Tao Daily*《星島日報》

Magazine

7-2008	*Hong Kong Engineer*《香港工程師》

Websites

6-6-2008	*www.people.com.cn*《人民網》, *www.huaue.com*《華禹教育網》, *www.worldjournal.com*《世界日報》, *www.chinanews.com.cn*《中國新聞網》