

Overview of Research Activities of The University of Hong Kong 2011–12

1. Institutional Policy on Research

1. The University of Hong Kong (HKU) seeks to sustain and enhance its excellent reputation as an institution of higher learning through outstanding teaching and world-class research, so as to produce rounded graduates with life-long abilities to provide leadership within the society they serve.

2. The University's research policy flows directly from this institutional vision. Its aim is to strengthen its capabilities in both basic and applied research within a culture that strives for excellence and relevance as well as collaboration. The University emphasises innovative, high-impact and multidisciplinary research, and believes that a fine research record enhances the quality of research postgraduate education. It recognises that it must be fully accountable for the effective management of the public and private resources it deploys towards its research aims, and welcomes the opportunity to act in partnership with the wider community to generate, disseminate and apply knowledge.

3. The University Research Committee has developed five strategies to further develop HKU's research excellence and to realise its vision to be recognised as one of the top research-led universities in Asia and in the world:

- (a) to develop strategic research areas and themes;
- (b) to support 'blue-sky' and curiosity-driven research;
- (c) to nurture next-generation scholars and researchers;
- (d) to encourage knowledge transfer to community and society; and
- (e) to enhance international and Mainland collaborations.

4. HKU places particular emphasis on strategic interdisciplinary research in selected fields for the valuable synergies it can produce. The second round of the University's Strategic Research Themes (SRTs)—launched in 2008—has 19 themes grouped under 5 areas of interdisciplinary research for focused support for a three-year period. The 5 areas are

- Biomedicine
- China
- Community
- Environment
- Frontier technology

5. Alongside focusing on creating critical mass and synergies in these themes and areas, HKU also strives to provide a conducive research environment for new and important niche areas of research to develop. Four emerging research themes have also been named in this cycle: Communication Disorders, Diversity Studies, Earth as a Habitable Planet, and Stem Cell and Regenerative Medicine.

6. While strengthening its research focus in this way, the University is also investing in the human resources necessary to sustain a research culture dedicated to excellence. As reported previously, it intends to

- (a) recruit 200 additional professoriate faculty members internationally by the 2012–13 academic year;
- (b) increase the proportion of full professors to attain a minimum of 30% of academic staff, with funding for at least 50 endowed professorships; and
- (c) triple the number of postdoctoral fellows (from 100 to 300) and more than double the number of research postgraduate students (from 1,500 to 3,600).

7. Within this broad strategic framework the University continues to encourage research excellence in a number of important specific areas. It continues to fund curiosity-driven research with small project grants, and to incubate new research initiatives with seed-funding grants. It continues, through its RPg reform policies, to develop a culture of student-centred, performance-based, and shared-responsibility research.

8. The following institutional policy developments took place during the report period.

Strategic Research Areas and Themes

9. The University continues to give prioritised support to collaborative, interdisciplinary research through its strategic research areas and themes. The second cycle began in 2008 and focuses on 5 areas—*Biomedicine, China, Community, Environment, and Frontier Technology*—which incorporate 19 themes. There are also four emerging themes. This strategic research areas approach strives to provide the research environment for new and important niche areas to develop. Through adopting such focused investment for strategic inter-disciplinary collaborative research, the University has achieved outstanding performance in the second round of the Theme-based Research Scheme (TRS) of the Research Grants Council; HKU researchers play a significant role in all five projects awarded, coordinating three of them. As part of the SRT annual activities, the recipients of the TRS First Round were invited to hold a sharing session in September 2011 on preparation for future rounds. The three-year funding cycle for the themes has come to a close in 2011–12, and a process of final reporting and detailed review is being undertaken to inform future funding rounds.

Research Integrity

10. Promotion of responsible academic conduct has been made a top priority of the research management at the University. While achieving excellence, HKU hopes to establish a culture of upholding research integrity among the university community. Since March 2010, seven retreat-like seminars promoting responsible conduct of research (RCR) have been organised, two of which were held in November, 2011 and April, 2012 for new HKU staff. More than 420 academics at all grades from Postdoctoral Fellows to Chair Professors have attended these seven RCR seminars. In addition, to familiarise research students and staff members with various areas of research compliance, the Human Research Ethics Committee for Non-Clinical Faculties (HREC/NCF) organised a workshop in January 2011.

11. Following the retirement of the Research Integrity Liaison Officer, Professor Brian Duggan, in August 2011, Professor Frederick K.S. Leung succeeded him with the new title of Director of Education and Development for Research Integrity with effect from June 2011 for two years. His remit includes looking into areas covering RCR training and education for staff and students, as well as the latest developments in research and good practice elsewhere, while research ethics compliance will continue to be handled by the relevant ethical approval bodies, namely HRECNCf, the Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster (HKU/HA HKW IRB, the “IRB”), and the Committee for the Use of Live Animals in Teaching and Research (CULATR).

12. In the past year, HKU has taken a number of measures such as implementing a mandatory requirement for all new staff to attend an HKU RCR session/seminar within 12 months of assuming duty at the University to be eligible for internal research and conference support and research postgraduate student supervision, and regularising the RCR seminar as an annual event to be held twice yearly. A handbook for research postgraduate students on *Research Integrity: A Guide for Research Postgraduate Students at The University of Hong Kong* was published to provide a general overview of research integrity and offer some practical advice of good conduct of academic research. Furthermore, the core course on ethics for RPg students to attend has been divided into several subclassess to better meet the needs of students in different disciplines.

13. In the coming year, a number of initiatives will be taking place, including the U21 Workshop on Dealing with Research Misconduct in December 2012, and a new funding scheme to encourage Faculties to tailor RCR activities/programmes to address discipline-specific needs.

HKU–SPACE Research Fund

14. Through the HKU SPACE Research Fund—established since 2007–08 to support research activity at the University—HK\$2.5 million is made available every year to all newly appointed staff within the first twelve months of assuming duties to apply for a top-up grant of up to HK\$108,800 to support a Type B RPg place. All awards are made on a first-come-first-served basis on condition that the top-up grant will be matched dollar-for-dollar by the applicant’s Faculty/Department, and the associated Type B RPg quota place should be from the Faculty’s main pool allocation for the current quota year.

2. Collaborative Research

15. The increasing importance of collaboration in research is fully recognised by the University’s management and by individual researchers. Internationalisation has been a key feature embedded in many aspects of the University’s strategic development. HKU has positioned itself to be a globally competitive, regionally engaged university, and in the face of the challenges ahead, we very much value the enhancement of collaboration with our international and Mainland partners. In addition to joining forces with local institutions, the University is an active participant in Universitas 21 (U21), a consortium of leading universities around the world dedicated to the internationalisation of higher

education. HKU is also a member of the Association of Pacific Rim Universities, a regional network of 42 world-class institutions.

16. The University also collaborates with a number of leading institutions, laboratories, pharmaceutical companies, research institutes and government bodies, both in mainland China and overseas. We have 4 Partner State Key Laboratories (Partner SKLs), the most of any local institution. We will continue to make good use of the prestigious status of Partner SKLs to reinforce our research collaborations with Mainland partners for greater impact. Partnership with industry has also been reinforced to promote the application of research results.

17. New initiatives for international collaboration during the reporting year include a four-way cooperation agreement signed between HKU, Peking University, National Taiwan University and the University of Macau to establish a joint research centre for innovation in Chinese medicine. HKU is also partnering with Zhejiang University to jointly establish the “Liver Transplantation and Liver Cancer Research Centre” under Zhejiang University’s associate hospital to strengthen the two universities’ cooperation. Experts in the two universities will share skills and knowledge on liver transplantation and liver diseases for the advancement of liver disease treatments on the Mainland. HKU’s Division of Speech and Hearing Sciences will collaborate with the University of Queensland’s Centre for Neurogenic Communication Disorders Research to study using Transcranial Magnetic Stimulation (TMS) to improve communication and swallowing problems in stroke survivors and patients with Parkinson’s disease. In June 2012, HKU signed a Memorandum of Understanding with the National University of Mongolia that will initiate and facilitate collaboration between the two universities, and between two regions, in terms of academic research, student exchange, and high technology transfer. It also offers opportunities for Mongolian students to study for degrees in HKU, supported financially by scholarships. This is also the first deep collaboration between a university in Hong Kong and a university in Mongolia facilitated by the Mongolian Consulate-General in Hong Kong.

18. The reporting year has seen further progress in HKU’s developments in Shenzhen and the Pearl River Delta, a strategic region for the University to establish a research and development base and to foster much closer collaboration with the Government, industry, education and research communities in the Mainland. The HKU Shenzhen Institute of Research and Innovation (HKU-SIRI) was incorporated in March 2011, and the opening ceremony was held at HKU-SIRI in the Shenzhen Software Park on December 30, 2011. HKU-SIRI is an integral part and an extension into the Chinese Mainland of the research conducted by HKU, and it also plays an important role in transferring science and technology from HKU to the Mainland. It promotes hi-tech, knowledge transfer, industry incubation, and the introduction of key laboratories and research centres. HKU-SIRI has been granted funding for three projects under the National Basic Research Program (973 Program):

- (a) ‘Brain mechanisms underlying Chinese language processing and the neurogenetic basis for its disorder’, Chief Scientist: Professor L.H. Tan (Department of Linguistics);
- (b) ‘Fundamental Research on Power System Planning and Operation with

Large-Scale Wind Integration’, Project Leader: Professor F. Wu (Department of Electrical and Electronic Engineering); and

- (c) ‘Aeroacoustics and Advanced Noise Control for Large Passenger Aircraft’, Project Leader: Dr. L. Huang (Department of Mechanical Engineering).

19. In addition, the preparations for the HKU-Zhejiang Institute of Research and Innovation (HKU-ZIRI)—initiated by the Faculty of Engineering and providing the University a unique opportunity to set up an R&D base in the Yangtze River Delta Region—are progressing. HKU is partnering with the Department of Science and Technology of Zhejiang Provincial People’s Government, in collaboration with Hangzhou Municipal Government and Lin’an City Government, and the new institute will be located in Lin’an. Three laboratories specialising in Industrial Internet-of-Things, Nanofluids and Thermal Engineering, and Aerodynamics and Acoustics respectively will be established in the initial stage. The institute will help facilitate knowledge and technology transfer of the University on the Mainland, particularly the Yangtze River Delta Region.

20. Large numbers of individual researchers undertook collaborative projects during the report period with researchers in the PRC or elsewhere in the world across a wide range of activities, including joint research projects, co-authoring of papers, teaching or lecturing, providing consultancy or peer review services, supervising research students, and serving as external examiners.

21. The University has in place a number of initiatives to help increase research competitiveness and international collaboration. The application rounds during the reporting period are detailed below.

(a) *Visiting Research Professors Scheme*

The Visiting Research Professors Scheme (VRP) has attracted 29 leading scholars from around the world since its inception in 2009. This year, 13 nominations were received, and 7 awards were made to prominent professors from, inter alia, the University of Chicago, London School of Economics and Political Science, and Delft University of Technology. The mid/final reports on VRP appointments received from Faculties demonstrated the VRPs’ valuable contributions, particularly in enhancing the research profile and international collaborations of Faculties through co-authoring papers and collaborating in projects, giving feedback on research proposals, and strengthening/developing links between HKU and their host institutions.

To allow more comprehensive review of nominations submitted under the Distinguished Visiting Scholars Scheme (DVSS) and the VRP, the application and selection cycle of the two schemes has been synchronised. In 2012, two distinguished scholars were selected under the Scheme.

(b) *King’s/HKU Fellowships*

HKU and King’s College London launched reciprocal King’s/HKU Fellowships to strengthen their partnership by enabling their academic staff members to visit the partner institution. In the reporting period, 2 HKU members visited King’s and reciprocally, 3 King’s scholars visited HKU. In

the latest application round, 3 Fellowships were awarded to HKU staff who will visit King's within the academic year 2012–13.

(c) *HKU Overseas Fellowships*

HKU established the Overseas Fellowship awards to support academic staff members to visit overseas institutions over a period of one to two months for research collaborations. In 2011–12, 8 HKU staff visited overseas universities—including the University of Michigan, McGill University, and the University of Sydney—while 5 awards were freshly given to support 5 HKU staff to visit overseas institutions within the 2012–13 academic year.

(d) *Doris Zimmern HKU-Cambridge Hughes Hall Fellowship*

To forge closer ties, and foster cultural exchange and academic excellence, between HKU and Hughes Hall, University of Cambridge, HKU offers co-funding alongside the Doris Zimmern Charitable Foundation to enable teaching and research staff of the University to spend a period of time at Hughes Hall, as visiting fellows, for research collaboration and other academic exchange. The cost of the accommodation and a pro-rata College fee in respect of individual fellows is covered by the University. Since its inception in 2009, 27 HKU members have been awarded the Fellowships to reside at Hughes Hall, University of Cambridge, for research collaboration and academic exchange, and 7 of them paid their visits within the academic year 2011–12

3. University–Industry Partnership

22. The University encourages the commercialisation of its intellectual property through technology transfer, as the practical application of technological advances benefits both the University and the community as a whole. The Technology Transfer Office (TTO) was established in September 2006 to carry out technology transfer, legal, and liaison operations, while commercial operations come under Versitech, a wholly-owned subsidiary of the University.

23. TTO continues to strengthen professional capabilities in technology transfer in support of the University's mission of knowledge exchange. In the past reporting year, TTO has organised the following training courses and events:

- (a) For the third year, TTO has partnered with The Fédération of Internationale des Conseils en Propriété Industrielle (FICPI) to run the South East Asian Drafting (SEAD) patent prosecution and drafting training course in Hong Kong. In addition to Hong Kong Cyberport Management Company Limited, this year support was also enlisted from the Innovation and Technology Commission and that of the Intellectual Property Department as principal sponsors. The first segment of the course was held from May 14–18, 2012. It was attended by participants from Hong Kong, the United Kingdom, the Philippines, Singapore, Saudi Arabia,

Taiwan and Thailand. Participants will return in October 2012 to attend the third and final segment.

- (b) TTO has also re-run the Entrepreneurship Academy in 2011–12, through which an eight-week workshop series in Entrepreneurship was organised for research staff, RPg students and alumni of related postgraduate programmes of the University. The invited speakers were either seasoned practitioners or academics specialising in entrepreneurship. For this re-run, a total of 36 participants attended all the eight sessions of the workshop. It also provided plenty of networking opportunities for the speakers and participants.
- (c) TTO took charge of the University's overall participation at the 2011 InnoCarnival, which was held in the Science Park from November 5–13, 2011. This large-scale event encompassing a wide variety of activities to promote innovation and technology to the public was organised by the Innovation and Technology Commission (ITC). The primary target audience was the young generation (from primary to tertiary school students), followed by families and the elderly community. This year, HKU showcased seven projects under three zones, namely Green Innovation and Technology, Biotechnology and Medicine, and Intelligent Living Applications. According to ITC, there were a record-breaking number of over 180,000 visitors to this event, demonstrating the public's growing interest and robust participation in innovation and technology.

24. The report period has seen a number of examples of successful university-industry partnership. Versitech Ltd undertook a total of 23 contract research projects within 2011–12 with various industrial sectors. As of 2011–12, Versitech Ltd has licensed a cumulative total of 105 inventions and know-hows to industry, representing 38.2% of all the University's inventions and know-hows. The Faculty of Engineering has licensed 59.4% of its inventions and know-hows, the Faculty of Science has licensed 37.7%, the Faculty of Architecture has licensed 20.0%, and the Medical faculty has licensed 23.4%

25. The University has been active in bidding for funds under the Innovation and Technology Fund's University-Industry Collaboration Programme (UICP) and the Innovation and Technology Support Programme (ITSP). Since the inception of the programmes in 1999, the University has received total funding of just under HK\$34.13 million for 31 approved projects under UICP and HK\$366.69 million for 127 approved projects under ITSP.

4. Knowledge Exchange

26. HKU is strongly committed to building knowledge exchange (KE) into the culture of the University. In the HKU Strategic Development Plan 2009–14, knowledge exchange is explicitly recognised as one of the three pillars underpinning all of the University's activities, and one of the University Research Committee's five strategies is "to encourage knowledge transfer to community and society". Since 2009, the University has put in place infrastructure to support KE, including a Knowledge Exchange Office and counterpart units within each

faculty. KE activities are reported to UGC annually. Some highlights from the reporting year include the following:

- (a) *Capacity building*: Launched in 2011, the Faculty KE Award Scheme was again conducted in 2012. It aims to recognise each Faculty's outstanding KE accomplishment that has made demonstrable economic, social or cultural impacts to benefit the community, business/industry, or partner organisations. Following the successful inaugural HKU Three Minute Thesis (3MT™) Competition held in June 2011, HKU 3MT 2012 was held in May, 2012. Developed by The University of Queensland (UQ) in 2008, 3MT is an academic competition that challenges research postgraduate (RPg) students to explain their research within 3 minutes to a general audience.
- (b) *Enhancement of knowledge access*: The HKU Scholars Hub (<http://hub.hku.hk/>) is the institutional repository of the University and a key vehicle for increasing awareness of HKU research and in turn facilitating collaboration with external parties in research and KE activities. The Hub has made HKU researchers and their research highly visible, with a significant increase in view and download counts. For example, the view count of the HKU ResearcherPages has increased from 349,741 by the end of June 2011 to 1,038,618 by the end of May 2012.
- (c) *Enhancement of knowledge engagement*: Our Faculties continue to make strong efforts to establish or enhance their knowledge partnerships with different non-academic stakeholders in the community. For example, the Faculty of Social Sciences' inter-disciplinary ExCEL3 project aims to build the capacity of non-governmental organisations and empower civil society in Hong Kong, as well as build research and teaching capacity in the study of civil society within the University.
- (d) *Broadening KE opportunities*: The University's Competitive Impact Project Funding Scheme (which uses UGC Knowledge Transfer funding) provides support to academic staff to undertake innovative projects that have the potential to create social, economic, environmental or cultural impacts for industry, business or the community. In the 2011–12 exercise, the number of proposals doubled that of last year: 87 proposals were received, of which 46 were supported.

5. Undergraduate Research

27. The Undergraduate Research Fellowship Programme (URFP) was launched in August 2011, with an aim to enhance the learning experience of undergraduate students and to nurture the next generation of researchers/scholars through providing opportunities for students to undertake research study under the guidance and supervision of academics who have a strong research track record and experience in training research postgraduate students. In the first exercise, 69 academically outstanding undergraduate students were selected for enrollment in the URFP 2012–13, of which 39 were granted awards for undertaking internships locally, in the Mainland or overseas. These students are expected to complete

their research study within the academic year 2012–13.

6. Research Highlights

28. A number of research highlights in 2011–12 are listed below:

Theme-based Research Scheme

29. The results of the second round of the Theme-based Research Scheme (the first round of which was introduced in 2010–11) were announced on July 11, 2012, just outside of the reporting period. At the initial shortlisting stage, 11 projects with HKU as the lead institution were invited to submit full proposals by March 2012. In June 2012, 8 HKU applicants were invited to interview. Of the 5 projects awarded by RGC in July 2012, HKU is the co-ordinating institution of 3, with HKU researchers also involved in the other 2 projects. The projects with HKU as coordinating institution are as follows:

- (a) ‘Enhancing Hong Kong’s Future as a Leading International Financial Centre’, HK\$15.365 million*, Project Coordinator: Professor D.W. Arner (Department of Law), in collaboration with CUHK and PolyU;
- (b) ‘Functional Analyses of How Genomic Variation Affects Personal Risk for Degenerative Skeletal Disorders’, HK\$74.533 million*, Project Coordinator: Professor K.S.E. Cheah (Department of Biochemistry), in collaboration with CityU; and
- (c) ‘Sustainable Lighting Technology: From Devices to Systems’, HK\$21.724 million*, Project Coordinator: Professor S.Y.R. Hui (Department of Electrical and Electronic Engineering), in collaboration with PolyU.

* including 15% on-costs and PC allowance

2012–13 GRF Exercise / ECS

30. The University once again received the largest share of the funding (now for fifteen of the last sixteen exercises) in the 2012–13 General Research Fund (GRF) exercise—the results of which were announced in June 2012—securing a quarter of the total number of projects supported. HKU submitted 587 applications in this round, of which 196 were approved, representing a success rate of 33.3%. As with last year, the University received the largest amount of funds for projects under the Humanities and Social Sciences Panel and the Biology and Medicine Panel. HKU was awarded HK\$151.046 out of HK\$517.138 million (excluding on-costs).

31. The Early Career Scheme (ECS)—launched by RGC in 2011, with applications running in parallel to GRF—aims at supporting newly recruited junior academics, and promoting education and research integration. The results were announced in June 2012. The University submitted 68 applications, of which 22 were approved. HKU received the largest share of the funding by securing HK\$22.081 out of HK\$102.053 million (excluding on-costs).

PPR 2012–13 / SPPR 2011–12

32. In the 2012–13 Public Policy Research (PPR) funding scheme, of the 25 awarded projects, HKU has the most of any institution with 9, and also the largest share of the funding with HK\$3.9 million.

33. In the latest funding round of the Strategic Public Policy Research (SPPR) scheme (2011–12 exercise), HKU was awarded HK\$3.25 million for a project entitled “Effective Nuclear Safety Governance for Hong Kong and Guangdong China: A Stakeholder Trust-based Model”.

2011–12 CRF Exercise

34. In the 2011–12 round of the RGC’s Collaborative Research Fund (CRF), HKU is lead institution of 4 of the 12 projects funded and participating in a further 5 projects as a collaborating institution. The following 4 projects are those for which HKU is the lead institution:

- (a) ‘Molecular Mechanisms of Innate Antiviral Response’, HK\$4.891 million*, Project Coordinator: Professor D. Jin (Department of Biochemistry), in collaboration with CUHK and HKUST;
- (b) ‘Liver Transplantation Research Centre: A Multidisciplinary Study for Liver Graft Injury’, HK\$4.891 million*, Project Coordinator: Professor C.M. Lo (Department of Surgery), in collaboration with CUHK;
- (c) ‘Strategic Research of Hormones and Their Receptors in the Water Homeostatic Axis: From Molecular Mechanisms to Anti-hypertensive Drug Design’, HK\$6.469 million*, Project Coordinator: Professor B.K.C. Chow (School of Biological Sciences), in collaboration with HKBU and CUHK; and
- (d) ‘Quantum Control and Quantum Information Processing’, HK\$2.875 million*, Project Coordinator: Professor Z. Wang (Department of Physics), in collaboration with CUHK and HKUST.

* including 15% on-costs

Prestigious Fellowship Scheme under Humanities and Social Sciences Panel (HSSPFS)

35. The Prestigious Fellowship Scheme under Humanities and Social Sciences Panel—introduced for the first time in this reporting period—aims at granting extended time-off and supporting funds to outstanding investigators under the disciplines of the Humanities and Social Sciences Panel to enable them to focus on research work and writing. In total 8 applications were funded by RGC, and HKU secured the largest share

of projects and funding, with 3 successful projects awarded a total of HK\$2.15 million in funding.

NSFC/RGC Joint Research Scheme

36. In 2011–12, funding of HK\$16.87 million was awarded to 21 projects from six UGC-funded institutions under the National Natural Science Foundation of China/Research Grants Council (NSFC/RGC) Joint Research Scheme. HKU submitted 82 preliminary proposals, of which 17 were shortlisted and 5 funded. It received funding of HK\$4.09 million, representing about a quarter of the total allocation.

Innovation Technology Support Programme (ITSP)

37. Awards from the Innovation and Technology Fund under ITSP have been an increasingly important source of funding for the University since the programme's introduction in 1999. The University had 127 projects approved from 1999 until the end of June 2012 (representing 21% of the 602 projects approved under ITSP), and has been granted funding of \$366.69 million for these projects.

Croucher Foundation ASIs

38. To enable experts in a particular field to meet and conduct advanced tuition on a defined topic, each year the Croucher Foundation sponsors a number of Advanced Study Institutes (ASIs).

39. An ASI on “Tumour Microenvironment – New Concepts and Molecular Mechanisms” took place on January 9–13, 2012. It was organised by Professor A.N.Y. Cheung (Department of Pathology) with funding of \$600,000.

40. In May 2012, a grant of HK\$600,000 was awarded to the University for the ASI on “Integrative Approaches to Understanding Disorders of the Skeleton”, by Dr. D. Chan (Department of Biochemistry), scheduled to be held in March 2013.

Croucher Foundation Sponsorship of Conferences, Workshops and Symposia

41. The Croucher Foundation also provides sponsorship for international conferences and seminars in the fields of natural science, technology or medicine. Such events must be of direct benefit to Hong Kong, and preferably have a strong research emphasis. Three such conferences were organised by the University's researchers during the report period:

- (a) November 10–12, 2011, Days of Molecular Medicine, by Professor R.A. Li (Department of Medicine) with funding of HK\$702,000;
- (b) December 2–4, 2011, The 4th Asian Symposium on Plant Lipids, by Professor M.L. Chye (School of Biological Sciences) with funding of HK\$100,000; and

- (c) March 25–28, 2012, 3rd International Symposium on Development of the Enteric Nervous System: Cells, Signals and Genes, by Dr. M.H. Sham (Department of Biochemistry) with funding of HK\$100,000.
42. During the report period, the Croucher Foundation also approved two sponsorship grants of HK\$100,000 each for the following events:
- (a) Hong Kong Society for Developmental Biology Symposium – From Embryology to Disease Mechanisms, by Professor K.S.E. Cheah (Department of Biochemistry), to be held on November 26–27, 2012; and
 - (b) Molecular Mechanisms of Innate Immunity, by Professor D. Jin (Department of Biochemistry), to be held in December 2012.

CAS - Croucher Funding Scheme for Joint Laboratories

43. To encourage researchers in Hong Kong universities and the research institutes of the Chinese Academy of Sciences (CAS) to work together on highly specific scientific topics, funding is provided for joint laboratories. Under this scheme, the joint project on “Long-Lived Triplet Excited States for Water Oxidation and Carbon Dioxide Reduction”, led by Professor C.M. Che (Department of Chemistry) and Professor W.F. Fu (Technical Institute of Physics and Chemistry, CAS), has been awarded HK\$1,000,000 over a three-year period.

HK Scholars Program

44. The Hong Kong Scholars Program—a cross-border initiative—was launched by the Society of Hong Kong Scholars and the Office of the National Administrative Committee of Postdoctoral Researchers under the Ministry of Human Resources and Social Security in December 2010 to nurture outstanding postdoctoral fellows from the Mainland in Hong Kong. Ten HKU researchers have been selected by the Program to supervise PDFs for a period of two years.

External Academic Honours

45. HKU has a proud record of academic recognition. The University has been awarded more Croucher Foundation Senior Research Fellowships (38 out of a total of 90 fellowships awarded since 1997, including Senior Medical Research Fellowships) than any of its sister institutions.

46. Important academic awards and honours have been bestowed on a number of HKU researchers over the reporting period. These include the following:

- (a) Professor L.C. Tsui, Vice-Chancellor, was made a laureate of the 2012 Canadian Medical Hall of Fame for his contributions in medical research

for better health in Canada and the world. Professor Tsui has been honoured for his discovery of the cystic fibrosis gene.

- (b) Professor L. Samaranayake, Dean of the Faculty of Dentistry, Chair Professor of Oral Microbiology and Tam Wah-Ching Professor in Dental Science, was appointed to a King James IV Professorship by the Royal College of Surgeons of Edinburgh, UK. The professorship is awarded annually by the Royal College of Surgeons of Edinburgh by open competition to surgeons or dental surgeons whose work has contributed significantly to the clinical or scientific basis of surgery.
- (c) Professor P.S.F. Yip, Director of the HKU Centre for Suicide Research and Prevention, received a Stengel Research Award. He is the first Asian winner of the award by the International Association for Suicide Prevention, an accolade given every two years to an individual who makes a significant contribution to suicide prevention both in their own region and internationally.
- (d) Professor T.W.K. Fung, Chair Professor of the Department of Statistics and Actuarial Science, was named a Fellow of the American Association for the Advancement of Science (AAAS). As part of the Section on Statistics, Professor Fung was elected by the AAAS Council for his significant contributions to statistical DNA forensics, robust statistics, professional services, and dissemination of statistical knowledge.
- (e) Three Distinguished HKU Scholars were awarded the prestigious Senior Research Fellowship by the Croucher Foundation in recognition of their excellent scientific achievements and contributions to the international scientific community. They were Dr L. Lu of the Department of Pathology, Dr. A.S.T. Wong of the School of Biological Sciences, and Professor E.X. Wu of the Department of Electrical and Electronic Engineering.
- (f) Professor V.W.W. Yam, Philip Wong Wilson Wong Professor in Chemistry and Energy, Department of Chemistry, was elected as a Member (Foreign Associate) of the US National Academy of Sciences, in recognition of her distinguished and continuing achievements in original research, particularly on light-emitting materials and innovative ways of capturing solar energy.

Outstanding Researcher Award Scheme

47. Each year the University gives recognition to the outstanding performance of its researchers through internal awards for research excellence. The following awards, for research achievements during and prior to the report period, were presented at a ceremony on February 9, 2012:

- (i) *Distinguished Research Achievement Award*
Professor N. Mok (Department of Mathematics)

(ii) *Outstanding Researcher Award*

Professor F.Y.L. Chin (Department of Computer Science)
Professor T.M.C. Lee (Department of Psychology)
Professor W. Zang (Department of Mathematics)

(iii) *Outstanding Young Researcher Award*

Dr H.W. Choi (Department of Electrical and Electronic Engineering)
Dr B.J. Cowling (School of Public Health)
Dr R.W.C. Pang (Department of Surgery)

(iv) *Outstanding Research Student Supervisor Award*

Dr S.J. Matthews (School of Humanities (Linguistics))
Professor P.S.F. Yip (Department of Social Work and Social Administration)

48. Included in the Outstanding Researcher Award Scheme since 2005, the HKU Research Output Prize aims to reward the authors of outstanding individual publications such as refereed journal papers, books, or CD-ROMs. Each year individual Faculties select an output item for the prize, and they can determine the research output form that best represents their research achievement. At the ceremony in February 2012, ten Research Output Prizes were awarded for the following items of research output:

Faculty of Architecture: ‘Baishawan Beach and Visitor’s Centre, Taipei, Taiwan’, *Taiwan Architecture*, 2010, 174: 44–51, by Mr Wand Weijen

Faculty of Arts: *Mao’s Great Famine: The History of China’s Most Devastating Catastrophe 1958–62*, London: Bloomsbury and New York: Walker & Company, 2010, 448 pages, by Professor Frank Dikötter

Faculty of Business and Economics: ‘Technological Capability, Strategic Flexibility, and Product Innovation’, *Strategic Management Journal*, 2010, 31 (5): 547–561, by Dr Kevin Zhou Zheng and Dr Wu Fang

Faculty of Dentistry: ‘Proteomics of drug resistance in *Candida glabrata* biofilms’, *Proteomics*, 2010, 10(7): 1444–1454, by Dr Chaminda Jayampath Seneviratne, Dr Wand Yu, Professor Jin Lijian, Dr Yoshimitsu Abiko, and Professor Lakshman Perera Samaranyake

Faculty of Education: *From Testing to Productive Student Learning: Implementing Formative Assessment in Confucian-Heritage Settings*, New York: Routledge, 2011 (Published: December 6, 2010), 263 pages, by Dr David Carless

Faculty of Engineering: ‘Optically pumped ultraviolet lasing from nitride nanopillars at room temperature’, *Applied Physics Letters*, 2010, 96, 241101, by Dr Chen Rui, Dr Sun Handong, Professor Wang Tao, Dr Hui Kwun-nam and Dr Choi Hoi Wai

Faculty of Law: *Employment Law and Practice in Hong Kong*, Hong Kong: Sweet & Maxwell/Thomson Reuters, 2010, 799 pages, by Mr Rick Glofcheski and Ms Farzana Aslam

Li Ka Shing Faculty of Medicine: ‘Effect of an Advocacy Intervention on Mental Health in Chinese Women Survivors of Intimate Partner Violence: A Randomized Controlled Trial’, *Journal of the American Medical Association*, 2010, 304 (5): 536–543, by Professor Agnes Tiwari Fung Yee, Dr Daniel Fong Yee Tak, Dr Felix Yuen Kwan Hok, Mrs Helina Yuk, Ms Polly Pand, Professor Janice Humphreys and Professor Linda Bullock

Faculty of Science: ‘A Unified Approach to Box-Mengerian Hypergraphs’, *Mathematics of Operations Research*, 2010, 35 (3): 655–668, by Dr Chen Xujin, Dr Chen Zhibin and Professor Zang Wenan

Faculty of Social Sciences: ‘Promoting Hybridity: The Politics of the New Macau Identity’, *The China Quarterly*, 2010, 203: 656–674, by Dr Lam Wai-man

Major International Research Events

49. During the report period, a variety of important international research conferences were organised by HKU. These include the following events:

- (a) July 4–8, 2011—the 9th International Conference on Computer-Supported Collaborative Learning (CSCL 2011) was hosted by HKU’s Centre for Information Technology in Education. The main theme was “Connecting Computer Supported Collaborative Learning to Policy and Practice” and the conference was co-organised with the International Society of the Learning Sciences.
- (b) September 14, 2011—a Conference on Law Reform was co-hosted by the Centre for Comparative and Public Law of HKU and ONC Lawyers. Eminent international experts, academics, and members of the profession explored and discussed issues centering around Hong Kong's law reform process.
- (c) November 10–12, 2011—the Re-engineering Regenerative Medicine symposium, held by the HKU LKS Faculty of Medicine, was attended by over 500 scholars, scientists and doctors from over 15 countries. The symposium provided information exchange on stem cell research and signified a significant step towards Hong Kong as an emerging hub for stem cell research in China and Asia.
- (d) November 16–17, 2011—the Cities, Health and Well-Being, Urban Age Conference Hong Kong was held by HKU in partnership with the London School of Economics and Deutsche Bank’s Alfred Herrhausen Society. The core objective was to identify and showcase evidence of projects and initiatives that have improved the well-being of urban dwellers as a result of innovative planning and design practices
- (e) December 8–9, 2011—the 2011 Asia Pacific Network for Housing Research Conference: Neoliberalism and Urbanization in the Asia Pacific: Challenges and Opportunities for Housing was organised by HKU’s Centre of Urban Studies and Urban Planning. International keynote speeches included “Toxic Capitalism: Neoliberalism, City Building, and Crisis” and “Neoliberalism and

the City: Poor Economics and Even Worse Policy”.

- (f) December 3–7, 2011—the International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA - 2011) aimed to provide a platform for international, regional and local experts from governments, academia and the environmental sector to share their knowledge and expertise on the advancement of the scientific derivation of environmental quality standards for the protection of aquatic ecosystems and human health.

Centenary Distinguished Lectures

50. The final lecture in this series—which began in September 2010 with Professor Gary Becker and formed part of the University’s 100th anniversary celebrations—was held in December 2011. This ninth lecture was organised by the Technology Transfer Office in association with the Faculty of Medicine and the Faculty of Engineering. The lecture entitled “The Future of Medicine: Connecting Patients to Promising Research” was given by Professor Elizabeth H Blackburn, winner of the Nobel Prize in Physiology or Medicine in 2009, and Professor Susan Desmond-Hellmann, Chancellor of the University of California, San Francisco. More than 200 guests and members of the public attended the lecture where the two international experts on biomedical research and drug development discussed Professor Blackburn’s groundbreaking work on ageing and how it applies to the future of medicine.

Published Research

51. HKU’s record of published research is excellent, both in discipline-specific journals and in more high-profile publications such as *Science*, *Nature*, and *The Lancet*. The University has the highest number of refereed publications, both in absolute terms and expressed as a ratio of publications per staff member, of any UGC-funded institution. For 2010–11 (the latest available statistics; see the RGC Annual Report 2011) HKU had 6,343 peer-reviewed refereed publications.

52. The University does particularly well in scientific publications. According to statistics published by the Institute for Scientific Information (ISI), there were a total of 301,761 citations of 22,866 HKU papers in journals tracked by the ISI between January 2002 and June 2012. This was the highest number of citations of any UGC-funded institution. In 2011 the University had 3,436 publications in journals tracked by the ISI, again more than any other UGC-funded institution. The ISI also ranked 111 HKU professoriate staff among the world’s top 1% of scientists.

Patents

53. The University has filed 1163 patents since 1998 in various parts of the world, mostly in the United States (550), the European Union (181) and Greater China (168 in China, including Hong Kong, and 18 in Taiwan). During the same period 320 patents were granted, 45% of which were in the United States (145). During the 2011–12

academic year, HKU filed 83 patents, and 30 patents were granted and 26 patent applications were abandoned.

Agreements/Legal Documents

54. During 2011–12, HKU has handled 499 technology/knowledge transfer related agreements/legal documents—such as licensing, consultancy and materials transfer agreements—with counter signing parties mostly in Hong Kong (203), the People’s Republic of China (135), North America (91) and the European Union (41).