



To News Editors
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Croucher Foundation Presents Research Awards to Nine Distinguished Scholars
(Issued on behalf of the Croucher Foundation)

The Croucher Foundation has presented Croucher Innovation Awards 2019, Croucher Senior Research Fellowships 2020 and Croucher Senior Medical Research Fellowships 2020 to nine distinguished scholars from The Chinese University of Hong Kong (CUHK), The University of Hong Kong (HKU), and City University of Hong Kong (CityU) for their excellent scientific research achievements.

This year, four awardees were presented with Croucher Innovation Awards, three with Croucher Senior Research Fellowships and two with Croucher Senior Medical Research Fellowships. The list of the awardees is as follows:

Croucher Innovation Awards 2019

Dr. Kwan Ting Chow (CityU)

Assistant Professor, Department of Biomedical Sciences, City University of Hong Kong

Dr. Chun Kit Kwok (CityU)

Assistant Professor, Department of Chemistry, City University of Hong Kong

Dr. Yufeng Wang (HKU)

Assistant Professor, Department of Chemistry, Faculty of Science, The University of Hong Kong

Dr. Renjie Zhou (CUHK)

Assistant Professor, Department of Biomedical Engineering, Faculty of Engineering, The Chinese University of Hong Kong

Croucher Senior Research Fellowships 2020

Professor Anderson Shum (HKU)

Professor, Department of Mechanical Engineering, Faculty of Engineering, The University of Hong Kong

Professor Jianfang Wang (CUHK)

Professor, Department of Physics, Faculty of Science, The Chinese University of Hong Kong

Professor Wang Yao (HKU)

Chair Professor, Department of Physics, Faculty of Science, The University of Hong Kong

Croucher Senior Medical Research Fellowships 2020

Professor Ronald Ching Wan Ma (CUHK)

Professor and Head of Division of Endocrinology and Diabetes, Department of Medicine and Therapeutics, Faculty of Medicine, The Chinese University of Hong Kong

Professor Siew Chien Ng (CUHK)

Professor, Division of Gastroenterology and Hepatology, Department of Medicine and Therapeutics, Faculty of Medicine, The Chinese University of Hong Kong

Croucher Innovation Awards 2019 recipients

Dr. Kwan Ting Chow, Assistant Professor, Department of Biomedical Sciences, CityU

Dr. Chow's research focuses on understanding how the immune system fights cancer, with the goal of designing new generations of cancer immunotherapy. Many cancer types are currently incurable, and existing therapies often have toxic side effects. Immunotherapy is a new strategy that stimulates the body's own defense mechanisms to eliminate cancer, thus reducing toxicity with the potential of targeting a wide variety of cancer types, including those for which no treatment is currently available. Focusing on innate immune cells that initiate and shape an immune response, Dr. Chow maps and dissects the molecular pathways, gene regulatory networks, and cell-cell interactions that modulate anti-cancer immunity. The ultimate goal of the lab is to develop vaccines and targeted therapies that harness the natural ability of our immune system to fight cancer. (Please click [here](#) for Dr. Kwan Ting Chow's biography)

Dr. Chun Kit Kwok, Assistant Professor, Department of Chemistry, CityU

Dr. Kwok focuses on exploring how the structural elements and interaction groups of long non-coding RNAs (lncRNAs) are organised and regulated in cells. By employing interdisciplinary approaches that cover chemical biology, molecular biology, structural biology and genomics, Dr. Kwok will develop innovative platform to identify and characterise the lncRNA structure and interactions under diverse conditions and different cell lineages. Since lncRNAs have been linked to many human diseases, the novel structural and molecular findings from this project will uncover new and important mode of lncRNA-mediated gene regulation and molecular mechanisms in biology, and have far-reaching biomedical and biotechnological applications. (Please click [here](#) for Dr. Chun Kit Kwok's biography)

Dr. Yufeng Wang, Assistant Professor, Department of Chemistry, Faculty of Science, HKU

Dr. Wang's main area of research is colloidal assembly, the aim of which is to put together colloidal nanoparticles — the essential ingredient in food, paints, cosmetics and even electronics — to form 1D to 3D superstructures for emerging applications such as photonics, printing, nano-delivery and micro-machinery, etc. Currently, one of the team's key strategies is to chemically synthesize anisotropic particles with low-symmetry shapes, which introduces specific and directional interactions between particles and yields complex yet well-defined structures via assembly. The reduced symmetry also encodes necessary information that programs the particle's dynamics, making them significantly more useful toward active materials, that is, smart materials that move, adapt, reconfigure and evolve emulating those in the biological and living

systems. (Please click [here](#) for Dr. Yufeng Wang's biography)

Dr. Renjie Zhou, Assistant Professor, Department of Biomedical Engineering, Faculty of Engineering, CUHK

Dr. Zhou has focused his research on developing high sensitivity interferometric microscopy techniques for biomedical applications. Since joining CUHK in 2017, Dr. Zhou has been working closely with medical doctors at Prince of Wales Hospital and Eye Hospital on the medical applications of his Tomography Phase Microscopy (TPM) technology. Dr. Zhou and his team will work on developing a new "Reflection-mode TPM for label-free in vivo imaging applications using light diffraction and coherence properties", to make new breakthroughs and further applications in in vivo imaging technology. This new technology is non-invasive and the TPM based scanning can be performed frequently over time. The team is also expecting to achieve real-time tracking of tiny living cells and tissues, which in turn can help medical professionals to make better diagnosis at an early stage to prevent tumour formation. (Please click [here](#) for Dr. Renjie Zhou's biography)

Croucher Senior Research Fellowships 2020 recipients

Professor Anderson Shum, Professor, Department of Mechanical Engineering, Faculty of Engineering, HKU

Professor Anderson Shum is internationally recognized for his works in microfluidics and soft matters, particularly on his pioneering contributions in combining all-aqueous formulations and droplet microfluidics. His research focuses on the engineering of aqueous droplet interfaces for designing new bio- and cyto-compatible materials. His team has pioneered the generation and control of all-aqueous emulsion drops using microfluidic techniques, and demonstrated their ability to encapsulate delicate active biomolecules and to mimic complex biological droplets. When combined with microfluidic droplet manipulation techniques, designer biomaterials with excellent compatibility can be assembled for precision delivery of tunable quantities of active ingredients. With the Croucher Senior Research Fellowship, he will engineer a new type of biomaterials, which are formed by assembling compatible droplets, each encapsulating and compartmentalizing a different active ingredient that can be cells or biomolecules. (Please click [here](#) for Professor Anderson Shum's biography)

Professor Jianfang Wang, Professor, Department of Physics, Faculty of Science, CUHK

Professor Wang has been intensively exploring various applications based on colloidal plasmonic metal nanocrystals, such as applying plasmonic nanocrystals in colouring, photocatalysis, ultrasensitive sensing, localised photothermal heating, colour switching, smart tags for food products and detection of harmful substances in food. Professor Wang and his team will develop robust approaches for the construction of two-dimensional nanosheet-gapped plasmonic nanocavities. The plasmonic nanocavities can increase the intensity of light by more than 10,000 times which can be applied to spectral detection instruments in different fields such as food, environmental monitoring, medicine, agriculture, multiplying detection sensitivity. These nanocavities can be applied in the future to create a wide range of photonic, electronic and optoelectronic devices for communications and display, as well as visible and infrared high-sensitivity photodetection. (Please click [here](#) for Professor Jianfang Wang's

biography)

Professor Wang Yao, Chair Professor, Department of Physics, Faculty of Science, HKU

Professor Yao's research interest lies in the physics of spin and valley in solids, with a current focus on two-dimensional materials and their heterostructures. He has played a decisive role in creating an important new research direction – valley optoelectronics in 2D materials, which aims to exploit valley, a quantum degree of freedom of electron, in future optoelectronic devices. With the Croucher Senior Research Fellowship he will explore new functional mechanisms for versatile electronics and optoelectronics based on van der Waals layered structure, combining its unique aspects including the rich physics associated with electron's valley pseudospin and the ubiquitous moiré pattern that naturally provides a nanoscale landscape for manipulations of electrons and optical excitations. (Please click [here](#) for Professor Wang Yao's biography)

Croucher Senior Medical Research Fellowships 2020 recipients

Professor Ronald Ching Wan Ma, Professor and Head of Division of Endocrinology and Diabetes, Department of Medicine and Therapeutics, Faculty of Medicine, CUHK

Professor Ma is a specialist in endocrinology, diabetes and metabolism. He has been carrying out research on the subject of diabetes and its complications for nearly two decades. His research focuses on improving our understanding of the epidemiology of diabetes and diabetes-related complications, and translating these to improve diabetes care. Professor Ma aims to make use of the large multi-omic and clinical dataset generated, as well as the availability of a large prospective cohort for independent validation, to develop clinical tools including polygenic risk scores, for the prediction of diabetes complications and outcome. (Please click [here](#) for Professor Ronald Ching Wan Ma's biography)

Professor Siew Chien Ng, Professor, Division of Gastroenterology and Hepatology, Department of Medicine and Therapeutics, Faculty of Medicine, CUHK

Professor Ng is a specialist in gastroenterology and also a world-renowned researcher. Her research focuses on inflammatory bowel disease (IBD), including Crohn's disease, which is increasingly common in Asia and globally. Her group recently identified a novel putative causative organism to be prevalent in Crohn's disease patients. With the generous support from the Croucher Foundation, her group will use the existing large repository of biosamples to discover features of the organism that would render it a capable pathogen. The impact of this proposal will open up new avenues for developing preventive, targeted and effective therapeutics via microbial modulation to reduce the burden of Crohn's disease. (Please click [here](#) for Professor Siew Chien Ng's biography)

Croucher Innovation Awards

First presented in 2012, the Croucher Innovation Awards aim to identify a small number of exceptionally talented scientists working at an internationally competitive level and to offer substantial support to these "rising stars" at a formative stage in their careers. The Awards are designed to enable recipients to pursue their own scientific, intellectual and professional inclinations, to advance their expertise, to engage in bold new work,

and to contribute to the development of education and research in Hong Kong. Each award carries a value of up to HK\$5 million over 5 years for research expenses of the award winner.

The Croucher Senior Research Fellowships / Croucher Senior Medical Research Fellowships

The Croucher Senior Research Fellowships scheme was first introduced in 1997. The Fellowships are awarded to local academics who have excelled in scientific research work, while the Croucher Senior Medical Research Fellowships are conferred on outstanding scientists employed on clinical teachers' terms in medicine and dentistry. The awards are judged by a group of leading international scientists invited to provide confidential reviews of candidates nominated in a competitive exercise. The value of each award includes a HK\$2 million research grant to the award winner. Separate funds are awarded to the universities of the fellowship recipients, enabling the university to recruit replacement teacher/clinical medical staff to take over the award winner's duties for a twelve-month period. These currently stand at a maximum of HK\$1,042,140 for the Senior Research Fellowships and HK\$2,541,360 for the Senior Medical Research Fellowships. The arrangement enables the awardees to devote more time and effort to research work.

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