Award Presentation

RGC Research Fellow Scheme

RFS Awardees 2021/22

Dr Xianpeng HU	*City University of Hong Kong*
Dr Kaibin HUANG	*The University of Hong Kong*
Prof Gyu-boong JO	*The Hong Kong University of Science and Technology*
Dr Stephanie Kwai-yee MA	*The University of Hong Kong*
Dr Gang PENG	*The Hong Kong Polytechnic University*
Dr Jue SHI	*Hong Kong Baptist University*
Dr Jinyao TANG	*The University of Hong Kong*
Prof Cong WANG	*City University of Hong Kong*
Prof Li ZHANG	*The Chinese University of Hong Kong*
Prof Lei ZHONG	*The Chinese University of Hong Kong*

RFS Awardee 2021/22

Dr Xianpeng HU

Department of Mathematics
City University of Hong Kong

胡先鵬博士

Project Title:

Existence and Regularity of Weak Solutions for Incompressible Viscoelastic Fluid Flows

RFS Awardee 2021/22

Dr Xianpeng HU

- Associate Professor in Department of Mathematics at City University of Hong Kong
- Make substantial contributions to the perturbation theory for compressible viscoelastic fluid flows in multi-dimensional spaces, and essential contributions to the concentration and existence of weak solutions to the compressible Navier-Stokes equations with low adiabatic constants in multi-dimensional spaces
- Editor of *Advances in Nonlinear Analysis* and *AIMS Electronic Research Archive*
- RFS project – to address the global-in-time existence of weak solutions to multidimensional incompressible viscoelastic fluid flows with free energy, with focus on the global-in-time existence and regularity of suitable weak solutions of incompressible viscoelastic fluid flows in multi-dimensional spaces with large initial data
- Awards and Honours:
  - RGC Research Fellow (2021)
  - HKMS Award for Young Scholars (2017)

RFS Awardee 2021/22

Dr Kaibin HUANG

Department of Electrical and Electronic Engineering
The University of Hong Kong

黃凱斌博士

Project Title:

Application-Aware Wireless Communication for 6G Intelligent Edge

RFS Awardee 2021/22

Dr Kaibin HUANG

- Associate Professor in Department of Electrical and Electronic Engineering at The University of Hong Kong
- The inventor of 14 granted USA patents, with some inventions included in the 4G standard and all patents have been adopted by leading companies (i.e., Apple Inc., LG Electronics and Huawei) in their design of mobile systems
- RFS project — to contribute to the new paradigm by designing a range of new application aware wireless technologies by designing a new multi-access technology called coded over-the-air computation for ultra-fast distributed function computation, a new class of scheduling schemes exploiting both data-diversity and channel awareness to accelerate distributed machine learning in wireless networks, and a new quantization framework for compressing high-dimensional stochastic gradients to improve the communication efficiency of distributed learning
- Awards and Honours:
  - RGC Research Fellow (2021)
  - Fellow of Institute of Electrical and Electronics Engineers (IEEE) (2021)
  - Highly Cited Researcher by Clarivate Analytics (2019, 2020, 2021)

RFS Awardee 2021/22

Prof Gyu-boong JO

Department of Physics
The Hong Kong University of Science and Technology

曹圭鵬教授

Project Title:

Emulating New Quantum Matter Using an Atomic Quantum Simulator with Ultracold Atoms

RFS Awardee 2021/22

Prof Gyu-boong JO

- Hari Harilela Associate Professor in Department of Physics at The Hong Kong University of Science and Technology
- Research focuses on the quantum simulation of intractable quantum problems using ultracold atoms, wherein a dilute gas of atoms is routinely cooled down to 100 billionth of 1 Kelvin
- RFS project — to demonstrate how quantum-enabled devices can return short-term benefits using an atomic quantum simulator recently developed at HKUST, and to experimentally investigate fundamental Hamiltonians with nontrivial topology, atom-atom interactions, dissipations and large spins, all of which can be sophisticatedly controlled in an atomic quantum simulator
- Awards and Honours:
  - RGC Research Fellow (2021)
  - Croucher Innovation Award (2016)
  - RGC Early Career Award (2014)

RFS Awardee 2021/22

Dr Stephanie Kwai-yee MA

School of Biomedical Sciences
The University of Hong Kong

馬桂宜博士

Project Title:

An Immune Perspective on Exploiting Stemness as a Cancer Cell Vulnerability for the Treatment of Liver Cancer

RFS Awardee 2021/22

Dr Stephanie Kwai-yee MA

- Associate Professor and Associate Director (Knowledge Exchange and Global) in the School of Biomedical Sciences at The University of Hong Kong (HKU)
- Associate Director of the Knowledge Exchange Office, HKU
  Principal Investigator of the State Key Laboratory of Liver Research, HKU
- Founding Member of the Hong Kong Young Academy of Sciences (currently Chair of Outreach Committee)
- RFS project — to encompass looking at cancer stemness and their connection with A-to-I RNA editing, mutation-driven pathway activation and immune evasion, findings of which will also aid to improve patient stratification for immuno-oncology therapy
- Awards and Honours:
  - RGC Research Fellow (2021)
  - University of British Columbia Alumni Builder Award (2017/18)
  - Higher Education Institution of China – Scientific Research Outstanding Achievement Awards (2nd-class Award in Science and Technology Section) (2014)
  - Croucher Innovation Award (2014)

RFS Awardee 2021/22

Dr Gang PENG

Department of Chinese and Bilingual Studies
The Hong Kong Polytechnic University

彭剛博士

Project Title:

Cortical Dynamics of Cantonese Lexical Tone Processing

RFS Awardee 2021/22

Dr Gang PENG

- Associate Professor in Department of Chinese and Bilingual Studies at The Hong Kong Polytechnic University
- Associate Editor-in-chief and founding member of *Experimental Linguistics*
- Research focuses on investigating how language is represented and processed in the human brain, and how different cultures, reflected in their languages, shape perception differently
- RFS project — to fill the research gap in neuroanatomical basis of lexical tones by investigating the cortical dynamics of Cantonese lexical tone processing from different perspectives with behavioral and functional Magnetic Resonance Imaging (fMRI) measurements
- Awards and Honours:
  - RGC Research Fellow (2021)

RFS Awardee 2021/22

Dr Jue SHI

Department of Physics
Hong Kong Baptist University

史珏博士

Project Title:

Antitumor Dynamics of Natural Killer cell and its Response to Immune Checkpoint Inhibitors in 3D Tumor Organoid Models

RFS Awardee 2021/22

Dr Jue SHI

- Associate Professor in Department of Physics at Hong Kong Baptist University
- Research interest is in bio-dynamics, i.e., elucidating how molecular machineries organized as pathways/ networks act dynamically within and between interacting cell types to control physiological and pathological responses in complex cellular environments
- RFS project – to provide a new systemic framework to uncover new insight into the molecular regulators underlying variable NK cell responses towards further developing NK cell-based cancer immunotherapy, with the use of advanced 3D microscopy assays and machine learning-assisted single cell analysis
- Awards and Honours:
  - RGC Research Fellow (2021)

RFS Awardee 2021/22

Dr Jinyao TANG

Department of Chemistry
The University of Hong Kong

唐晋堯博士

Project Title:

Smart and Functional Active Materials and Nanorobot

RFS Awardee 2021/22

Dr Jinyao TANG

- Associate Professor in Department of Chemistry at The University of Hong Kong
- Research focuses mainly on the low dimensional materials for active matter/ nanorobotics and renewable energy application, including photoactivated microswimmer and thermoelectric materials, in particular many important contributions in the nanomotor and nanorobot fields
- RFS project – to develop active-functional-material based on our previous strength in nanorobotics, and by combining a myriad amount of individual nanomachines that communicate and work collaboratively, to plan to elucidate the design principle in the active matter and realize complex functions beyond traditional materials
- Awards and Honours:
  - RGC Research Fellow (2021)
  - RGC Early Career Award (2014)

RFS Awardee 2021/22

Prof Cong WANG

Department of Computer Science
City University of Hong Kong

王聰教授

Project Title:

Building Privacy-assured and Scalable Encrypted Databases with Secure Enclave

RFS Awardee 2021/22

Prof Cong WANG

- Professor in Department of Computer Science at City University of Hong Kong
- Founding Member of the Young Academy of Sciences of Hong Kong
- Current research interests include data and network security, blockchain and decentralized applications, and privacy-enhancing technologies
- RFS project — to build a full-functional and encrypted database to maintain data confidentiality throughout the data lifecycle, and explore the design space in depth to develop practically more secure, efficient and functional encrypted databases
- Awards and Honours:
  - RGC Research Fellow (2021)
  - Fellow of Institute of Electrical and Electronics Engineers (IEEE) (2021)
  - IEEE INFOCOM Test of Time Paper Award (2020)

RFS Awardee 2021/22

Prof Li ZHANG

Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong

張立教授

Project Title:

Medical Microrobotics for Endoluminal Procedures

RFS Awardee 2021/22

Prof Li ZHANG

- Professor in Department of Mechanical and Automation Engineering at The Chinese University of Hong Kong (CUHK)
- Professor by Courtesy in Department of Surgery, CUHK
  Director of the Shenzhen Institutes of Advanced Technology (SIAT) of the Chinese Academy of Sciences (CAS) - CUHK Joint Laboratory of Robotics and Intelligent Systems
- Research interest in micro-/ nanorobotics and relevant technology for translational biomedicine
- RFS project – to address several key challenges for in vivo application of swarming microrobots, and to develop a rapid endoluminal delivery method to deliver a large number of microrobots to hard-to-reach and tortuous lumens inside body for localized therapy in a minimally invasive fashion
- Awards and Honours:
  - RGC Research Fellow (2021)
  - Distinguished Lecturer, Institute of Electrical and Electronics Engineers (IEEE) (2020, 2021)
  - RGC Early Career Award (2013)

RFS Awardee 2021/22

Prof Lei ZHONG

Department of Philosophy
The Chinese University of Hong Kong

鍾磊教授

Project Title:

An Emergentist Theory of Mind

RFS Awardee 2021/22

Prof Lei ZHONG

- Professor in Department of Philosophy at The Chinese University of Hong Kong
- Advance original philosophical accounts that have stimulated world-wide responses and discussion, and make important contributions, in particular, to mental causation and physicalism
- RFS project — to develop an emergentist theory of mind that aims to accommodate both the autonomy of mental phenomena and the primacy of physical entities, to offer an emergentist approach to mental causation by rejecting the dominant doctrine of Causal Closure of Physics, as well as to show that the emergentist approach is the most promising account of mental causation in the framework of non-reductive physicalism
- Awards and Honours:
  - RGC Research Fellow (2021)
  - CUHK Research Excellence Award (2020)