Award Presentation

RGC Research Fellow Scheme

RFS Awardees 2020/21

Prof Johnny Chung-yin HO	*City University of Hong Kong*
Dr Kam-tuen LAW	*The Hong Kong University of Science and Technology*
Dr Yang LU	*City University of Hong Kong*
Prof David Alexander PALMER	*The University of Hong Kong*
Dr Zhonghua QIAO	*The Hong Kong Polytechnic University*
Dr Shelley Xiuli TONG	*The University of Hong Kong*
Prof Kevin Kin-man TSIA	*The University of Hong Kong*
Dr Feng WANG	*City University of Hong Kong*
Dr Yilin WU	*The Chinese University of Hong Kong*
Prof He YAN	*The Hong Kong University of Science and Technology*

RFS Awardee 2020/21

Prof Johnny Chung-yin HO

Department of Materials Science and Engineering
City University of Hong Kong

何頌賢教授

Project Title:

Developing Negative-Capacitance Nanowire Transistor Arrays and Integrated Circuits for Next-Generation Flexible Electronics

RFS Awardee 2020/21

Prof Johnny Chung-yin HO

- Founding Member of the Hong Kong Young Academy of Sciences
- Aspire to become a successful materials scientist to develop novel materials and structures for the advancement of existing technologies as well as creating new technologies
- Study a wide range of nanomaterials in different dimensionalities, particularly high-carrier-mobility inorganic semiconductor nanowire materials, which includes III-V compound semiconductors, metal oxides, all-inorganic perovskites, etc.
- RFS project – to achieve the robust negative-capacitance thin-film transistors and integrated circuits for next-generation high-performance flexible electronics, in order to establish relevant device design guidelines as well as versatile and cost-effective platforms to accomplish large-scale, high-performance and ultralow-power devices; and to go beyond conventional flexible electronic technologies
- Awards and Honours:
  - RGC Research Fellow (2020)
  - World Cultural Council (WCC) Special Recognition Award (2018)

RFS Awardee 2020/21

Dr Kam-tuen LAW

Department of Physics
The Hong Kong University of Science and Technology

羅錦團博士

Project Title:

The Study of Novel Quantum Materials and their Applications

RFS Awardee 2020/21

Dr Kam-tuen LAW

- President of the Hong Kong Young Academy of Sciences
- Theoretical physicist specialized in electronic properties of quantum materials
- Make several predictions about the experimental signatures of topological superconductors, which have been widely tested by experimentalists around the world
- Discover Ising superconductors, which can retain their superconductivity under the strongest magnetic fields created in the laboratory, also identify one of the very few quantum spin liquids
- RFS project – to explore how quantum materials can be used to engineer new types of quantum processors for quantum computation, and help to develop nanoscale, energy efficient, electronic, spintronic and optical devices
- Awards and Honours:
  - RGC Research Fellow (2020)
  - Croucher Innovation Award (2015)

RFS Awardee 2020/21

Dr Yang LU

Department of Mechanical Engineering
City University of Hong Kong

陸洋博士

Project Title:

Nanomechanics of Covalent Crystals and their Elastic Strain Engineering

RFS Awardee 2020/21

Dr Yang LU

- Associate/Managing Editor for *Materials Today*, *Acta Mechanica Sinica*, and *Science China Technological Sciences*
- Research focus on nanomechanics and its applications in nanotechnology and advanced manufacturing
- Make major contributions in the discoveries of "cold welding" phenomenon in ultrathin metallic nanowires and "ultra-large elasticity" in nanoscale silicon and diamond, respectively
- RFS project — to conduct nanomechanical investigations on a few representative pure and compound covalent crystal solids to explore their deformation behaviour at the nanoscale, which will allow us to theoretically and experimentally identify a few "strain-tuned" covalent crystals with exotic, highly tunable functional properties towards unconventional electronic, optoelectronic and spintronic device applications
- Awards and Honours:
  - RGC Research Fellow (2020)
  - RGC Early Career Award (2013)

RFS Awardee 2020/21

Prof David Alexander PALMER

Hong Kong Institute for the Humanities and Social Sciences / Department of Sociology
The University of Hong Kong

宗樹人教授

Project Title:

Chinese Modernity and Soft Power on the Belt and Road

RFS Awardee 2020/21

Prof David Alexander PALMER

- One of the world's leading authorities on religion, modernity and politics in the contemporary Chinese world, now pioneering the extension of these fields to trans-Asian frameworks
- Plan to explore the other side of the coin: how Chinese cultural modernity spreads on the Belt and Road, and how local communities respond, appropriate, and influence it
- RFS project — to assess the nature and dynamics of Chinese soft power in the context of the Belt and Road Initiative (BRI), by using ethnographic methods to identify the factors which, in local contexts, enhance or restrain the socio-cultural influence of "Chinese modernity"
- Awards and Honours:
  - RGC Research Fellow (2020)
  - Edward Bruner Prize for the best book on the Anthropology of Tourism (2019)
  - Joseph Levenson Prize of the Association for Asian Studies (2013)
  - PROSE Award (American Publishers Awards for Professional and Scholarly Excellence) (2011)

RFS Awardee 2020/21

Dr Zhonghua QIAO

Department of Applied Mathematics
The Hong Kong Polytechnic University

喬中華博士

Project Title:

L-infinity Stability of Exponential Time Differencing Numerical Schemes for Phase Field Models with High-order Dissipations

RFS Awardee 2020/21

Dr Zhonghua QIAO

- Make significant contributions to numerical analysis and scientific computing, in particular to numerical investigations of nonlinear partial differential equations in phase-field simulations
- Design and analyze semi-implicit unconditionally energy stable numerical methods for solving phase field models, on which he has introduced an efficient adaptive time stepping methods
- Managing Editor for *Advances in Applied Mathematics and Mechanics*
- Associate Editor of *International Journal of Numerical Analysis and Modeling*
- RFS project — to focus on the L-infinity stability analysis on exponential time differencing (ETD) numerical methods for a class of phase field models with high-order dissipation, such as the phase field crystal equation and thin film epitaxial growth models
- Awards and Honours:
  - RGC Research Fellow (2020)
  - Hong Kong Mathematical Society Award for Young Scholars (2018)
  - RGC Early Career Award (2013)

RFS Awardee 2020/21

Dr Shelley Xiuli TONG

Academic Unit of Human Communication, Development, and Information Sciences, Faculty of Education
The University of Hong Kong

佟秀麗博士

Project Title:

Understanding Strengths and Deficits in Chinese Developmental Dyslexia: Toward an Integrated Strength-Deficit-Based Intelligent Diagnosis and Intervention System

RFS Awardee 2020/21

Dr Shelley Xiuli TONG

- Revolutionize deficit-based understanding of children with dyslexia and provides novel insights into strength-based diagnoses and intervention approaches
- Four original theoretical models and various journal publications address urgent educational and clinical issues regarding children with dyslexia and/or autism, and reflect her life-long commitment to transform scientific evidence into public policy and practice for empowering millions of children with special educational needs
- RFS project – to revamp current deficit-based reading remediation programs by developing an Integrated Dyslexic Interface Design (I-DID) that underscores and capitalizes on the individual strengths of children with developmental dyslexia
- Awards and Honours:
  - RGC Research Fellow (2020)
  - J. William Fulbright Foreign Scholarship (2019)

RFS Awardee 2020/21

Prof Kevin Kin-man TSIA

Department of Electrical and Electronic Engineering
The University of Hong Kong

謝堅文教授

Project Title:

Intelligent 3D Imaging Cytometer for Scalable and Hierarchical Single-cell Spatial Profiling

RFS Awardee 2020/21

Prof Kevin Kin-man TSIA

- Program Director of Biomedical Engineering Program at The University of Hong Kong
- Founding Member of the Hong Kong Young Academy of Sciences
- At least six patents (five are US patents)
- RFS project – to develop a new imaging cytometry platform that captures 3D images of biological cells at high throughput (up to 10,000 cells for every second), and analyses their properties by deep learning at single cell precision. This technology could lay a new foundation of uncovering the salient biomarkers of cells and ultimately usher in a new paradigm in intelligent label-free diagnostics
- Awards and Honours:
  - RGC Research Fellow (2020)
  - 14th Chinese Science and Technology Award for Young Scientists (2016)
  - RGC Early Career Award (2012)

RFS Awardee 2020/21

Dr Feng WANG

Department of Materials Science and Engineering
City University of Hong Kong

王鋒博士

Project Title:

Controlled Synthesis of Lanthanide-doped Semiconductor Heterostructures for Flexible Display through High-field Electroluminescence

RFS Awardee 2020/21

Dr Feng WANG

- Founding Member of the Hong Kong Young Academy of Sciences
- Specialised in development of novel luminescent materials
- Expect to bring about a class of alternating-current electroluminescence (ACEL) devices based on lanthanide-doped semiconductor crystals for efficient and sustainable light generation
- RFS project – to develop a new class of ACEL materials which could operate over a broader spectral range covering the telecommunication wavelength, implementation of which will open up new opportunities for designing advanced optoelectronic devices, and provide a series of new basic research topics in chemistry, materials and physics disciplines
- Awards and Honours:
  - RGC Research Fellow (2020)
  - Asian Rising Star Lectureship (2019)

RFS Awardee 2020/21

Dr Yilin WU

Department of Physics
The Chinese University of Hong Kong

吳藝林博士

Project Title:

Self-organization of Bacterial Active Matter in Viscoelastic Fluids and Gels

RFS Awardee 2020/21

Dr Yilin WU

- Research interest in the physics of living matter, a field lying at the interface of physics and biology
- Current research focuses on spatial-temporal order in bacterial systems
- Past work advanced the understanding of collective motion and self-organization in bacterial communities
- RFS project — to study the self-organization of bacterial active matter in viscoelastic environments, with a vision to ultimately enable a new paradigm in non-equilibrium physics and active matter engineering
- Awards and Honours:
  - RGC Research Fellow (2020)

RFS Awardee 2020/21

Prof He YAN

Department of Chemistry
The Hong Kong University of Science and Technology

顏河教授

Project Title:

Develop Organic Materials for Efficient and Stable Organic Solar Cells

RFS Awardee 2020/21

Prof He YAN

- Develop a high-performance n-type polymeric semiconductor, which was published in *Nature* and highlighted on the journal's cover page, being referred to as the "new transistor age"
- His work in the development of organic solar cells has broken multiple world record efficiencies, and he was thereby placed on the National Renewable Energy Lab's "Best Research-Cell Efficiency Chart" in 2015
- Win two national entrepreneurship competitions for his work in proposing and promoting a new route to commercialize organic photovoltaics
- RFS project — to develop efficient and stable non-fullerene organic solar cells (OSCs), by deeply understanding the mechanism of state-of-the-art Nonfullerene acceptors (NFAs) and designing new materials, including NFAs and the corresponding compatible donor polymers
- Awards and Honours:
  - RGC Research Fellow (2020)
  - Tencent Xplorer Prize as one of top 50 young scientists country-wide (2020)
  - Web of Science "Highly Cited Researcher" (2018, 2019)