Hong Kong Branch of National Precious Metals Material Engineering Research Center

The establishment of the Hong Kong Branch of National Precious Metals Material Engineering Research Centre (NPMM) at CityU was approved by the Ministry of Science and Technology of China in November 2015. The core objective of setting up the branch is to strengthen the national center's overall capacity by developing the research of precious metals and nanomaterials, as well as the relevant devices.

Precious metal elements, such as gold, silver, platinum, palladium, rhodium, iridium, osmium and ruthenium, have a wide range of applications in different industries because of their particular atomic structures, and physical and chemical properties. NPMM positions itself to carry out fundamental and applied research to develop new precious metallic materials, upgrade the conventional ones, and to fulfill the need of precious materials for the development of national economy, high-tech industrial development and national defense.

Major Research Areas:
- New generation basic metallic materials
- Precious metal nanomaterials
- New materials simulation

State Key Laboratory of Marine Pollution

The State Key Laboratory of Marine Pollution (SKLMP), in collaboration with local universities and in partnership with the State Key Laboratory of Marine Environmental Science at Xiamen University, responds to China’s pressing and important needs in protecting its marine ecosystems and bioresources, and helps address complex environmental issues. Specifically, SKLMP aims to foster professional partnerships and research collaboration among marine environmental scientists, oceanographers and engineers to design, develop and deploy innovative approaches and state-of-the-art technologies for exploring and managing the complex marine environment.

Research Approaches
- Polymer ligand
- Bacteria
- Algal bioreactor
- Mangroves
- Clay application

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State Key Laboratory of Terahertz and Millimeter Waves

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Research Areas:
- Antenna
- Passive Microwave Circuits
- Active Microwave Circuits
- Nonlinear Laser Dynamics for Microwave Photonics

Research Approaches
- Millimeter-Wave Near- and Far-Field Antenna Measurement System
- Microwave Electro-Mechanical Systems (MEMS) for Frequency Control
- Multi-Antenna Communication Technology
- System Integration
- Terahertz (THz) Science and Technology

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University Research Centres

- Centre of Super-Diamond and Advanced Films (CSDAF)
- Li Yu-Be Centre for Mathematical Sciences (LIB)
- Centre for Judicial Education and Research (CERJ)

College/School Research Centres

- Multimedia Software Engineering Research Centre (MERC)
- Guy Carpenter Asia-Pacific Climate Impact Centre (GCCC)
- Centre for Applied One Health Research and Policy Advice (OHRP)
- Centre for Smart Energy Conversion and Utilization Research (CSCR)
- The Halliday Centre for Intelligent Applications of Multimedia Technologies (ACIM)
- Ability R&D Energy Research Centre (AERC)
- Centre for System Informatics Engineering (CSIE)
- Centre for Advanced Structural Materials (CASM)
- Centre for Social Media Marketing and Business Philosophy (CEACOP)
- Centre for Chaos and Complex Networks (CCCN)
- Centre of Super-Diamond and Advanced Films (CSHK)
- Centre for Macroeconomic Analysis (MERA)
- Centre for Communication Research (CCR)
- Centre for Chinese and Comparative Law (RCCL)
- Centre for Functional Photonics (CFP)
- Centre for Advanced Nuclear Safety and Non-proliferation (ANSD)
- Centre on Global Internet Finance (CGIF)
- Centre for Social Media Marketing and Business Intelligence (CMIB)
- Centre for Robotics and Automation (CRA)
- Centre for East Asian and Comparative Philosophy (CEACOP)

Three Overarching Research Themes

CityU believes research should not be conducted in isolation and shared only within small professional circles. Rather, it should be seen by the public and have a positive impact on the world. The following three overarching research themes were identified specifically for this purpose to enhance our capacity to respond to the academic and societal challenges in our highly interconnected world.

- One Health
  To foster the interdisciplinary research, CityU has established two State Key Laboratories, one Chinese National Engineering Research Centre, 20 research centres and eight applied strategic development centres covering different areas of strategic importance. In addition, the Hong Kong Institute for Advanced Study (HKIAS) was established to address the global challenges of today through innovative research conducted by more than 20 internationally acclaimed scholars appointed as HKIAS Senior Fellows. They include Nobel Laureates and National Academicians, and they work with and mentor research fellows and students at CityU. The HKIAS serves as a hub for joint research, collaborations and communication across all aspects of health-related issues.

- Digital Society
  To address global technological and societal challenges in our highly interconnected world.

- Smart City
  To address global technological and societal challenges in our highly interconnected world.
City University of Hong Kong (CityU) aspires to become a leading global university, excelling in research and professional education. It has established itself as one of the most innovative universities in Asia, pioneering research in diverse fields that are of high relevance on pressing issues.

CityU is particularly well regarded for its many highly cited researchers. Ten faculty members from CityU were honored as Highly Cited Researchers for 2018 by Clarivate Analytics, ranging from the fields of engineering, materials science to computer science and cross-field. Recent research breakthroughs and discoveries include but not limited to:
- Ultra-large elasticity in nano-diamonds
- Antibacterial effect on capacitive materials
- Habitable amorphous phase in the formation of metallic glasses
- Dual-phase nanostructuring to develop strongest magnesium alloy
- Diabetic retinopathy treatment
- Wearable energy harvesting device
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- Impact of martial arts learning on preventing children with aggressive attributes.

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CityU publications in top journals

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Excellence in Research & Professional Education

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Major Research Areas:
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- Precious metal nanomaterials
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Key mission areas include antenna design, RFIC design and fast computational techniques. The Laboratory works closely with its strategic partner at the Southeast University for promoting collaboration between Hong Kong and the mainland. Its long-term goal is to carry out fundamental and applied research for the advancements of communication technologies in China.

Major Research Areas:
- Antenna
- Passive Microwave Circuits
- Active Microwave Circuits
- Nonlinear Laser Dynamics for Microwave Photonics

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**Research Approaches:**
- Pollution Monitoring
- Technology Marine Ecosystem Risk Assessment
- Pollution Control and Bioremediation

**Research Scope:**
- Polymer ligand
- Bacteria
- Algal bioreactor
- Mangroves
- Clay application

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