Department of Chemistry
THE UNIVERSITY OF HONG KONG

WELCOMES YOU!
Department of Chemistry (化學系)

- **1913-20**: Pure science subjects offered in the Faculty of Arts: Chemistry, math, physics
  - *Up to 1939: five science graduates*
  - First housed in the Main building
- **1939**: Faculty of Science formed: 4 Founding Departments; Biology, Chemistry, Math, Physics
- **1939-44**: Prof. George T. Byrne, first Head of Chemistry Department
- **1933**: Dr. Hui Wai-Haan became demonstrator/lecturer
HKU PhD/MPhil Graduates

Non-academic Sector

Chemists in Private Sector and The HK Government

Dr. Della Sin
Government Chemist

Dr. Ivan Chan
Chief Technical Officer of SGS (HK-China)

The employment of HKU Chemistry Graduates and Post-graduates in The HK Government Laboratory (May 2016)
HKU PhD/MPhil Graduates

Academic Sector

HKU

Prof. CM Che  
Member of Chinese Academy of Sciences (China)

Prof. VWW Yam  
Member of Chinese Academy of Sciences (China)

Prof. DX Li

CityU

Prof. MHW Lam

Prof. TC Lau

Prof. HL Kwong

Prof. KKW Lo

Dr. VCC Ko

Dr. ACY Wong
HKU PhD/MPhil Graduates

Academic Sector

PolyU

Prof. WT Wong
Prof. WM Kwok
Prof. KY Wong
Prof. RWY Wong
Dr. DKW Mok
Dr. JKF Yung
Dr. GL Law
Dr. MK Wong

BU

Prof. EDL Ma
Prof. GKL Wong

UST

Prof. WH Leung
Dr. JQ. Huang
Outstanding Young Scholar Award (傑青), NSFC (2020)

SUSTECH (南方科技大學)/ Ph.D 2010

Excellent Young Scientist Award (優青), NSFC (2020)

SYSU (中山大學)/ Ph.D 2011
The Department of Chemistry

Academic Professional Staff and Lecturers (24 Professors + 3 Lecturers)

Dr. H.Y. Au-Yeung
Prof. K.Y. Chan
Head of Dept Prof. C.M. Che
Prof. G.H. Chen
Prof. P. Chiu
Dr. I.K. Chu
Prof. DX. Li
Prof. X.C. Li
Dr. X.Y. Li

Prof. D.L. Phillips
Prof. H.Z. Sun
Dr. J.Y. Tang
Dr. P.H. Toy
Dr. E.C.M. Tse
Dr. Y.F. Wang
Prof. V.W.W. Yam
Prof. D. Yang
Dr. J. Yang

Dr. W.T. Chan
Dr. A.P.L. Tong
Dr. A.M.Y. Yuen

New colleagues

Drs. Kou Okuro
Y Li
ZX Huang
JZ Liu
J He
YX Li
Our vision

Be one of the world best academic centers for undergraduate and postgraduate educations as well as for innovative, creative research in frontier science.

Our mission

◆ To nurture/train students with independent mind and creativity for innovation, academic rigor and professional skills in Chemical Science.

◆ To inspire and mentor the development of young scientists to excel as academic leaders.

◆ To perform innovative, original cutting edge research in basic and interdisciplinary Chemical Sciences.

◆ To disseminate knowledge to the public and to raise public awareness on the important role of science played in sustainable development of the society.

◆ To engage in translational research contributing to the economic growth of the society.
Major Achievements

- Croucher Senior Research Fellows (8)
- Croucher Innovation Award (1)
- QS World University Rankings by Subject 2016: Chemistry – 23rd in the World
- Foreign Associates of the United States National Academy of Sciences (2)
- Members of the Chinese Academy of Sciences (2)
- Foreign Member of Academia Europaea (1)
- Fellows of TWAS, The World Academy of Sciences (2)
- Fellow of the American Physical Society (1)
- Royal Society of Chemistry Centenary Medals (2)
- Royal Society of Chemistry Ludwig Mond Award (1)
- TWAS Prizes in Chemistry (2)
- State Natural Science Awards
  (one First Class Prize and one Second Class Prize) (2)
- L’ORÉAL-UNESCO Awards for Women in Sciences – Laureate (1)
- Chinese Young Women in Science Fellowship (1)
- Seaborg Lectureships at UC Berkeley (2)
- Edward Clark Lee Lectureship at the University of Chicago (2)
- Lavoisier Lectureship at the University of Paris Diderot 7 (1)
- Novartis Chemistry Lectureship Award (1)
- Davison Lectureship at MIT (1)
- Earl L. Muetteties Lectureship at UC Berkeley (1)

Recent Awards (Ph.D.)

- Hong Kong PhD Fellowship
- Sartorius HK Scholarship
- The winner of the HK young scientist award in 2014
- The finalist (top 45 candidates) of Reaxys Prize
- The Springer Thesis Prize
- SciFinder Future Leaders Program
- The best presentation award in the 17th International Conference on Biological Inorganic Chemistry
- The Best Poster Presentation Award - The 5th Asian Conference on Coordination Chemistry Committee
- Croucher Postdoctoral Fellowship

Staff (136)
Prof. Chi-Ming Che received Luigi Sacconi Medal 2020 for his achievements in Inorganic Chemistry have been of top quality during all his scientific career. The Luigi Sacconi Medal is awarded by The Inorganic Chemistry Division of the Italian Chemical Society and the Luigi Sacconi Foundation every year to a scientist who has obtained outstanding results in Inorganic Chemistry.

Prof. Vivian YAM as awarded the prestigious The Porter Medal 2020 for her contribution in the field of photochemistry. The Porter Medal is named after the late George Porter (Nobel Laureate); and is awarded every two years to the scientist who has contributed most to photochemistry. She has also been conferred the Foundation Lectureship Award 2019.

Prof. Dan Yang received the Yoshida Award 2020. The Yoshida Prize (starting in 2015) honors researchers with achievements contributing to international academic development in the field of organic chemistry. The Foundation honors one person a year.
Major Achievements:

Excellent Young Scientist Scheme (優青), NSFC

David Xiang LI (2019): chemical biology

Yufeng WANG (2020): colloid particle synthesis and assembly
Major Interdisciplinary Research and Platforms

Materials Science

Chemical Biology

State Key Lab of Synthetic Chemistry

State-of-Art Facilities:
- High Performance Tandem Mass Spectrometry,
- NMR Spectroscopy,
- Protein Crystallography,
- Ultra-fast femto- to nano-second Laser Spectroscopy

Analytical Science

Computational Science

Energy & Environment

Thermo Orbitrap Fusion
Bruger Xeem TOF/TOF

Rigaku SmartLab 9kW
Bruger X8 PROTEUM
Bruger VENTURE MetalJet X-ray diffractometer
Interdisciplinary Research: Chemical Biology

- Innovative Metal and Natural Product Medicines
- Total Synthesis of Bioactive Natural Products
- Bio-macromolecule Synthesis and Protein Modification/Labeling
- Metal in Medicine; Metallobiology & Metallomics

- Selective Recognition and Luminescent Detection of Small Molecules
- Chemical Epigenetics
- Chemical Genetics; DNA-Programmed Drug Discovery and Target Identification

Chemical Biology Center

**Chemistry:**
- Molecular design and synthesis
- Molecular imaging
- Chemical proteomics
- Chemical genetics
- Chemical glycobiology

**Medicine:**
- Metal-based medicine
- Natural products
- Traditional Chinese medicine
- Medicinal chemistry

Understanding fundamental biological processes

Develop novel therapeutic approaches to human diseases

Prof. Chi-Ming CHE  Prof. Pauline CHIU
Prof. Xuechen Li  Prof. Dan YANG
Dr. Ho Yu AU-YEUNG
Dr. Xiang LI
Dr. Xiaoyu LI  Prof. Hongzhe SUN
Materials Science

- Molecular design and synthesis of inorganic/organometallic metal complexes and polymers and their supramolecular assembly
- Functionalized MOF materials for solar reactions
- Applications in optoelectronic materials for OLEDs; spectrochemical and luminescence chemosensors and biolabels; photochromic and photoswitching materials and molecular electronics

Photofunctional Materials

- Development of new structures and processes that combine basic synthetic nanomaterials into complex functional nanostructures
- Applications in nanorobots and two-dimensional material-based optoelectronic devices
- Architecturally well-defined 3D soft materials that are potentially useful for plasmonics, photonic, electro-optical, catalysis, energy-related, biomedical, and computer-based applications

Nanomaterials, Nanodevices and Soft Materials

- Design and synthesis of metallo-polymers and metal organic frameworks for ion exchange and charge transport
- Development of electrochemical systems and materials for energy research
  - Anode and cathode materials for Li-air batteries, lithium ion and sodium ion batteries
  - Development of electrocatalysts for capacitors and alcohol oxidation

Materials for Cleaner Energy & Energy Storage

- Utilization of time-resolved spectroscopy experiments and quantum mechanical calculations to study short-lived intermediates in chemical reactions of interest in chemistry, biology and materials science
- Investigation and characterization of new materials with applications related to solar cells and OLED applications
- First principles methods for open systems and application to emerging nanoelectronics

Computation and Fundamental Studies

- Nano-swimmer swims in solution and spell "nano"
Analytical Science

Instrumental, Fundamental and Biophysical

Development of Ionization Techniques
- Megavolt Electrostatic Ionization MS
- Single-particle and Single-cell ICP-MS
- Nano-DES

Hyphenated Separation Techniques
- Field Asymmetric waveform Ion-mobility (FAIM) &
- Fully automated Multidimensional Liquid chromatography (MDLC)

Dissociation & ion-molecule reaction

Analytical Science and Mass Spectrometry Research

Analytical, Bioanalytical and Biomedical Analysis

- Quantitative Proteomics and PTM Mapping in Cerebral Infarcts
- Tissue Imaging Mass Spectrometry
- Tissue-Spray Ionization MS
- Single-cell analysis
- Discovery of Bioactive Compounds in Traditional Chinese Medicine

Mass Spectrometry Facilities

Key Mass Spectrometers in the Department

Chemists in Private Sector and The HK Government

Dr. Della Sin
Government Chemist

Dr. Ivan Chan
Chief Technical Officer of SGS (HK-China)

Social Impact

Dr. Eva Fung

Dr. Walther T. Chan

Dr. Ivan Chu

Dr. Jaclyn Sy
Computational Science

Computational methods have become indispensable research tools in chemistry, materials science, molecular biology, and many other fields. In the Department of Chemistry, a group of faculty members are working together on to develop computational methods and apply the existing computational tools to interpret their experimental findings, justify the proposed reaction mechanism, and to predict the properties prior to the measurements ultimately. With these collaborative activities, we have formed an excellent team on Computational Chemistry. Our research directions include theory development for open quantum systems, the interaction of photon and phonon with the semiconductor devices, synthesis of OLED materials, and molecular functional materials.
Large-scale programmes (by 2019)

- SKL on Synthetic chemistry (CMC)
- 2×CAS-HKU joint laboratories (CMC) (and two signed MoU with CAS)
- AoE (two completed and one on-going)
- HKU-industry joint laboratory (e.g. TCL-HKU joint lab)
- Very recently 2×InnoHK@
Large-scale programmes (by 2020)

- **CAS-HKU joint laboratories**

**Medicinal chemistry & drug discovery**

**Molecular science**

**Metallomics for health & environment**
Thank you for your attention