



The University of Hong Kong
Technology Transfer Office
香港大學技術轉移處

2023 - 24



From Innovations to Solutions
**SCIENCE AND
ENGINEERING TECHNOLOGY**

從創新到解決方案

科學與工程科技

About HKU 香港大學

Founded in 1911, The University of Hong Kong (HKU) is the first and oldest institution of higher education in Hong Kong. For over a century, HKU has dedicated itself to creating knowledge, providing education, and serving society. Today, HKU has an established worldwide reputation for being a research-led comprehensive university with ten faculties and a strong commitment to intellectual freedom, liberty and diversity.

香港大學（港大）於一九一一年創校，是香港歷史最悠久的高等學府。港大創校至今逾一世紀，一直致力於創造知識、拓展教育、貢獻社會。今天的港大是一所以研究為主導的世界級綜合大學，校內設有十所學院，以自由、自主精神為學，力倡學術多元化。

4th Quacquarelli Symonds (QS)
Asia University Rankings 2023
2023 年 QS 亞洲大學排名

26th Quacquarelli Symonds (QS)
World University Rankings 2024
2024 年 QS 世界大學排名

1st Times Higher Education World's
Most International Universities 2023
2023 年泰晤士高等教育國際化大學排名

31st Times Higher Education World
University Rankings 2023
2023 年泰晤士高等教育世界大學排名



About TTO 香港大學技術轉移處

The Technology Transfer Office (TTO) manages the use of HKU's intellectual property assets by providing patenting, licensing and other commercialisation support to the University's researchers and inventors. Acting as the bridge linking HKU to society in the area of technology commercialisation, TTO helps industries and businesses access HKU's powerhouse of knowledge, innovation and expertise through close collaboration.

Technology transfer is a core function of HKU's knowledge exchange mission. One of our key roles is to bring the University's inventions and research know-how to everyone through technology transfer so that they can be used for public benefit. We also organise educational events to foster an innovative and entrepreneurial culture. Ultimately, our mission is to create impact through innovation and entrepreneurship.

香港大學技術轉移處負責管理港大知識產權資產的使用，為我們的研究人員提供專利、技術授權及其他有關科研技術商業化的支援。在技術商業化方面，技術轉移處作為港大與社會間之橋樑，始終致力於透過與工商界建立緊密的合作關係，促進港大的科研成果與業界的聯動，進而推動創新科研及技術合作。

知識交流是港大的使命，而技術轉移處是這使命的核心部分。技術轉移處其中一個主要角色是透過技術轉移使港大的發明和研究貢獻社會。本處亦舉辦不同教育活動，以促進創新和創業文化，藉以創造影響力。

1,847

(as of June 2023)
(截至 2023 年 6 月)

Number of active patents and patent applications
有效專利及專利申請數目

150

(as of April 2022)
(截至 2022 年 4 月)

Number of HKU professoriate staff ranked by Clarivate as being among the world's top 1% of scientists (based on the number of citations recorded for their publications)
根據其學術文章獲徵引次數，獲科睿唯安評為世界首 1% 頂級科學家的港大教授人員數目

5

31.3% of total SKLs in Hong Kong
佔全港國家重點實驗室總數 31.3%

Number of State Key Laboratories (SKLs) hosted by HKU
設於香港大學的國家重點實驗室數目

2,058

(2021-22)

Total number of project collaborations on Collaborative Research, Contract Research & Consultancy
協作研究、合約研究及顧問服務合作項目總數





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1. Advanced Materials 先進材料

HKU has been continuously researching and developing innovative materials such as advanced coating materials, OLED and multi-phase encapsulation materials with superior performance and cost-efficiency. These can benefit a wide range of existing and new applications including anti-bacterial and anti-virus coatings, lighting and displays, chemical synthesis and drug delivery.

香港大學致力於不斷研發出具有高效率及高效益的創新材料，例如先進塗層材料、有機發光二極體 (OLED) 和液態封裝材料。這些新材料和新技術可促進現有技術的更新迭代及拓展新的應用場景，例如抗菌抗病毒塗層、照明和顯示器、化學合成和藥物輸送。

OLED Materials 有機發光二極體材料

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPOO181	Luminescent Gold (III) Compounds, Their Preparation and Light-emitting Devices Containing Same 發光的金 (III) 化合物、其製備和含有它們的發光裝置	US Patent No. 7,572,912 US Patent No. 8,415,473 US Patent No. 8,987,450 CN Patent No. ZL200580036932.0
IPOO585	A Simple Approach for Preparing Post-treatment-free Solution Processed Non-stoichiometric NiO_x Nanoparticles as Conductive Hole Transport Layers 一種用於製備無後處理溶液處理的非化學計量的 NiO_x 納米顆粒作為導電空穴傳輸層的簡單方法	US Patent No. 10,315,929 US Patent No. 10,604,419
IPOO401	Palladium (II) Materials for OLED Application 用於有機發光二極管的鈀配合物	US Patent No. 8,772,485 KOR Patent No. 10-2032997 PRC Patent No. ZL201280069397.9 Germany Patent No. 2788368
IPOO418	Dendrimers Containing Luminescent Gold (III) Compounds for Organic Light-emitting Devices and Their Preparation 用於有機發光器件的含發光金 (III) 化合物的樹枝狀聚合物及其製備	US Patent No. 9,224,962 PRC Patent No. ZL201380011931.5 KOR Patent No. 10-1670763 Germany Patent No. 2820107 UK Patent No. 2820107
IPOO437	An Identical One-step Low-temperature Solution-processed Approach for Transition Metal Oxides of MoO_3 , V_2O_5 and WO_3 as Hole Transport Layer of Organic Electronics 溶液處理的過渡金屬氧化物	US Patent No. 9,540,249 PRC Patent No. ZL201380046404.8 HK Patent No. HK1213367
IPOO509	Robust Photochromic Compounds with Silicon-or Phosphorus-containing Heterocyclic Ring and the Production Thereof 具有含矽或含磷雜環的穩定的光致變色化合物及其生產方法	US Patent No. 9,708,528 KOR Patent No. 10-1938649 PRC Patent No. ZL201580031762.0 Germany Patent No. 3154990

IPO0564	Gold Complexes for OLED Applications 用於 OLED 應用的金絡合物	US Patent No. 10,672,999 KOR Patent No. 10-2085190 PRC Patent No. ZL201680034413.9
IPO0584	Platinum Complexes for Blue OLED 用於藍色 OLED 應用的鉑絡合物	US Patent No. 10,361,382 EP Application No. 17738180.3 KOR Patent No. 10-2213183 PRC Patent No. ZL201780006737.6 Japan Application No. 2018-536790
IPO0611	Luminescent Tetradentate Gold (III) Compounds for Organic Light-emitting Devices and Their Preparation 用於有機發光裝置的發光四配位基金 (III) 化合物和其製備	US Patent No. 11,018,310 KOR Application No. 10-2018-7024110 PRC Patent No. ZL201780019720.4 US Application No. 17/237,674
IPO0644	Tungsten (VI) Complexes for OLED Application 用於 OLED 用途的鎢 (VI) 絡合物	US Patent No. 11,043,640 KOR Patent No. 10-2444785 PRC Patent No. ZL201780049687.X
IPO0677	Platinum Complexes and Apparatuses Thereof 鉑絡合物及其裝置	US Patent No. 10,851,127 PRC Patent No. ZL201810185128.8
IPO0679	Luminescent Cyclometalating Tridentate Ligand-containing Gold (III) Compounds with Aryl Auxiliary Ligands for Organic Light-emitting Devices and Their Preparation Thereof 用於有機發光設備的具有芳基輔助配體的含有環金屬化三齒配體的發光金 (III) 化合物及其製備	US Patent No. US11,362,287B2 PRC Application No. 201780061610.4
IPO0696	Method of Making Color-tunable OLEDs Based on Single Emitter 基於單發射體的顏色 - 可調諧有機發光二極管裝置及其方法	PRC Application No. 201880048165.2
IPO0714	Dendrimers Containing Luminescent Platinum (II) Compounds for Organic Light-emitting Devices and Their Preparation 用於有機發光器件的包含發光鉑 (II) 化合物的樹狀大分子及其製備	US Application No. 16/606,846 PRC Application No. 201880029866.1
IPO0719	Luminescent Gold (III) Compounds with Group 15 Element-containing Tridentate Ligand for Organic Light-emitting Devices and Their Preparation 用於有機發光器件的發光性金 (III) 化合物	US Patent No. 11,274,246 PRC Application No. 201880060075.5
IPO0741	Platinum (II) Complexes for OLED Applications with Diminished Efficiency Roll-off 可降低效率滾降的用於 OLED 應用的鉑 (II) 絡合物	KOR Application No. 10-2017-0114705
IPO0748	Luminescent Gold (III) Compounds with Thermally Stimulated Delayed Phosphorescence (TSDP) Property for Organic Light-emitting Devices and Their Preparation 一種用於有機發光器件的具有熱刺激延遲磷光 (TSDP) 特性的發光金 (III) 化合物及其製備	US Application No. 16/959,462 PRC Application No. 201980007327.2
IPO0751	Pure Red Phosphorescent Spiro-containing Platinum (II) Emitters with Narrow Spectral Width and Synthesis Therein 具有可調發射能的含螺的鉑 (II) 發射體及其合成	Germany Application No. 112019000529.4 US Application No. 16/969,872 KOR Application No. 10-2020-7023903 Japan Application No. 2020-540324 PRC Application No. 201980015761.5
IPO0760	Tungsten (VI) Compounds with Thermally Activated Delayed Fluorescence Property for Organic Light-emitting Devices and Their Synthesis 用於有機發光器件的具有熱激活延遲熒光或磷光的鎢 (VI) 化合物	US Application No. 17/053,426 KOR Application No. 10-2020-7037185 PRC Application No. 201980036948.3

IPO0787	Platinum (II) Schiff Base Complexes for OLED Applications with Increased Emission Quantum Yield 用於紅光 OLED 應用的具有增加的發射量子產率的鉑 (II) Schiff 碱絡合物	PRC Application No. 201811283945.3 PCT Application No. PCT/CN2019/114666
IPO0822	Luminescent Nickel (II) Compounds Containing Cyclometalating Tridentate Ligands and Their Potential Applications for Organic Light-emitting Devices 含環金屬化三齒配體的發光鎳 (II) 化合物及其在有機發光器件中的潛在應用	PRC Application No. 201911226312.3 US Application No. 16/707,871
IPO0824	Luminescent Tetradentate Ligand-containing Gold (III) Compounds for Organic Light-emitting Devices and Their Preparation 用於有機發光器件的發光含四齒配體金 (III) 化合物及其製備	US Application No. 16/722,654 PRC Application No. 201980085166.9 KOR Application No. 10-2021-7023242 US Application No. 18/054,239
IPO0963	Spiro-cyclometalated Iridium Emitters for OLED Applications 用於 OLED 應用的螺環金屬銦發射體	EP Application No. 21857705.4
IPO0997	A Color-tunable OLED Having Long Operational Lifetime 具有長使用壽命的顏色可調 OLED	PCT Application No. PCT/CN2021/127397
IPO1050	Dinuclear Platinum Emitter Complexes and Methods of Making and Using Thereof 雙核鉑發射絡合物及其製造和使用方法	PCT Application No. PCT/CN2022/096225
IPO1051	Dinuclear Platinum (II) Red Emitters for OLED Applications 用於 OLED 應用的雙核鉑 (II) 紅色發射體	PCT Application No. PCT/CN2022/096294
IPO1052	Thermally-activated Delayed Florescent Palladium (II) Complexes for OLED Applications 用於 OLED 應用的熱激活延遲熒光鈀 (II) 配合物	PCT Application No. PCT/CN2022/096226
IPO1072	Binuclear Gold (I) Compounds for Photocatalysis Application 用於光催化應用的雙核金 (I) 化合物	US Application No. 17/868,214 PRC Application No. 202210849596.7 EP Application No. EP22185441.7
IPO1076	Luminescent Gold (III) Compounds with Thermally Activated Delayed Fluorescence (TADF) and Thermally Stimulated Delayed Phosphorescence (TSDP) Properties for Organic Light-emitting Devices and Their Preparation 用於有機發光器件的具有熱激活延遲熒光 (TADF) 和熱激發延遲磷光 (TSDP) 特性的發光金 (III) 化合物及其製備	PCT Application No. PCT/CN2022/083067
IPO1123	D10 Metal Carbene Complexes for OLED Applications 用於 OLED 應用的 D10 金屬卡賓絡合物	US Application No. 18/057,632 PCT Application No. PCT/CN2022/133671 PRC Application No. 202211477600.8
IPO1144	Photochromic Germole-fused Diarylethenes and Their Production Thereof 光致變色的錯雜環戊二烯稠合二芳基乙烯及其製備	PRC Application No. 202211513684.6 US Application No. 18/060,291
IPO1178	Dinuclear Platinum Complexes for OLED Applications 用於 OLED 應用的雙核鉑配合物	US Prov Application No. 63/393,021
IPO1179	Dinuclear Platinum (II) Emitters for Red or Near-infrared OLEDs 用於紅色或近紅外 OLED 的雙核鉑 (II) 發射體	US Prov Application No. 63/398,029
IPO1217	Metal-assisted Multi-resonance Thermally-activated Delayed-fluorescence Emitters for OLED Applications 用於 OLED 應用的金屬輔助多共振熱激活延遲熒光發射器	US Prov Application No. 63/407,263
SIRIO0024	OLED Device Based on Platinum Complex and Its Preparation Method 一種基於鉑配合物的 OLED 器件及其製備方法	PRC Application No. 201811654281.7

SIRI00025	An Infrared-based Organic Light-emitting Device and Its Preparation Method 一種基於紅外波段的有機發光器件及其製備方法	PRC Application No. 201811654487.X
SIRI00027	Bidentate Sulfur Platinum Triplet Emitters and Applications in Organic Light Emitting Diodes 雙齒硫鉑三重態發射體及其在有機發光二極管中的應用	PRC Application No. 201911207365.0
SIRI00029	A Wet Preparation Method of Organic Light-emitting Devices Based on Platinum Complexes 一種基於鉑配合物的有機發光器件的濕法製備方法	PRC Application No. 201911205377.X
SIRI00030	A Platinum Complex-based Organic Light-emitting Device Suitable for Wet Fabrication 一種適用於濕法製備的基於鉑配合物的有機發光器件	PRC Application No. 201911207382.4
SIRI00032	White Organic Light-emitting Diode (WOLED) with Exciplex and Excimer Emission 一種利用激基覆合物和激基締合物的白光 OLED 器件及其應用	PRC Application No. 202110256064.8
SIRI00033	White Organic Light-emitting Diode (WOLED) with Blue Emitter and Pt Excimer Emission 一種利用藍光材料和鉑或鈮聚集態發光的白光有機發光器件及其應用	PRC Application No. 202110256137.3

Coating Materials 先進塗層材料

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0566	Transparent Conductive Films with Embedded Metal Grids 具有包埋的金屬網格的透明導電薄膜	US Patent No. 10,550,490 PRC Patent No. ZL201680029448.3 KOR Application No. 10-2017-7033649 KOR Div Application No. 10-2019-7035783 UK Patent No. 3298612 Germany Patent No. 3298612 France Patent No. 3298612 Netherlands Patent No. 3298612
IPO0659	Omniphobic Porous Membrane and Methods for Preparing the Same 全疏性多孔膜及其製造方法	US Application No. 16/347,497 PRC Application No. 201680090566.5
IPO0674	Synthesis of Thin Aluminum Hydroxide Shell on the Surface of Nanoscale Zero-valent Iron for Enhanced Suspension Stability and Reactivity 用於環境修覆的磁性零價金屬納米粒子表面上的薄的不溶的氫氧化物殼的合成	US Patent No. 11,241,670 PRC Patent No. ZL201880018384.6
IPO0715	Hydrothermal Treatment to Increase the Surface Roughness for Polymeric Membranes 提高聚合物薄膜表面粗糙度的方法及其製備的薄膜	PRC Patent No. ZL201810045088.7
IPO0982	Transparent and High-k Thin Film Prepared by Pulsed Laser Deposition 通過脈沖激光沉積製備的透明且高 k 的薄膜	PRC Application No. 202110324281.6 PCT Application No. PCT/CN2022/070478
IPO1042	Self-cleaning Pathogen-repellent Coatings 自清潔抗病原體塗層	PCT Application No. PCT/CN2022/093013

IPO1043	pH-responsive Smart Anti-pathogen Coatings that Controlled Repel and Inactivate Viruses and Bacteria 可控制、排斥和滅活病毒和細菌的 pH 響應智能抗病原體塗層	US Application No. TBC PRC Application No. TBC
IPO1150	Durable Water and Oil Repellent Polymeric Devices 耐用的防水防油聚合物裝置	US Prov Application No. 63/266,934

Microfluidics and Soft Matter 微流體和軟物質

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0617	Rapid and Precise Manipulation of Tiny Volume of Liquid Droplets 快速精確地操作微量液滴	US Patent No. 10,365,187
IPO0624	A Microfluidic Fuel Cell Stack with Replaceable Fuel Cartridge for Electricity Generation 燃料電池單元及燃料電池堆	PRC Application No. 201610325971.2
IPO0784	Next-generation High Throughput Diagnostics-on-a-chip System Based on Droplet Microfluidics 用於將流體樣本自動化處理成微流體液滴以用於體外診斷的系統	PRC Application No. 201980052964.1 HK Application No. 62022053996.4
IPO0786	An Automatic Microfluidic System for On-demand Collection of Droplets with Accurate Quantity 用於液滴的連續和定量收集的自動微流控系統	US Application No. 17/251,229 PRC Application No. 201980045464.5 EP Application No. 19834184.4
IPO0907	Enhanced Controllability of Fries Rearrangements Using High-resolution 3D-printed Metal Microreactor with Circular Channel 使用具有圓形通道的高分辨率 3D 打印金屬微反應器增強 Fries 重排的可控性	KOR Application No. 10-2020-0094380 US Application No. 17/387,932
IPO0925	High-thermopower and Stretchable Ionic Thermoelectric (i-TE) Hydrogel 用於低品位熱量收集的具有高熱電勢的可拉伸離子水凝膠	US Application No. 17/225,468 PRC Application No. 202110463317.9
IPO1017	Fabrication of Fiber-based Hydrogel Using All-aqueous Formulations 使用全水配方製造纖維基水凝膠	PCT Application No. PCT/CN2022/109906
IPO1086	Microfluidic Reactor for Controlling Chemical Reaction and Chemical Reaction Control Method Using the Same 一種控制化學反應的微流控反應器及其化學反應控制方法	KOR Application No. 10-2021-0135362 US Application No. 17/893,276
IPO1107	Nano Robotic System for High Throughput Single Cell DNA Sequencing 高通量單細胞 DNA 測序的納米機器人系統	US Application No. 17/975,030 PRC Application No. 202211393656.5
IPO1188	Method for Measuring the Elasticity of Microfibers at High Throughput 高通量下測量微纖維彈性的方法	US Prov Application No. 63/367,173
IPO1215	A Passive Method for Improving Sensitivity of Bioassay with Segregative Phase Separation 一種提高分離相分離生物測定靈敏度的被動方法	US Prov Application No. 63/379,954
SIRIO0003	Droplets-based Electro-coalescence for Characterizing the Stability of Emulsion and Mechanical Strength of Liquid Marble 一種測試乳液和液體彈珠穩定性的裝置和方法	PRC Patent No. ZL201410710149.9

Chemistry 化學試劑

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0610	Method of Producing a Porous Crystalline Material with a Highly Uniform Structure 生產具有高度均勻的結構的多孔結晶材料的方法	US Patent No. 10,759,715 PRC Patent No. ZL201780012770.X
IPO0612	Living Supramolecular Polymerization of Small Molecules Modulated by Polymers 一種活性超分子聚合物及其製備方法	PCT Application No. PCT/CN2017/076887 US Patent No. 10,865,290 PRC Patent No. ZL201710213486.0
IPO0671	Poly(m-phenylenediamine)-derived Nanoscale Electrocatalysis for Oxygen Reduction Reaction 用於氧還原反應的電催化劑、其製造方法及其用途	US Application No. 16/963,430 PRC Application No. 201880091557.7
IPO1093	Methods of Iron Catalyzed C-H Bond Amination 鐵催化的 C-H 鍵胺化的方法	US Application No. 17/821,314 PRC Application No. TBC EP Application No. EP22191626.5
IPO1096	Application of Metallo-supramolecular Branched Polymer in Cryo-EM Sample Preparation 金屬超分子支化聚合物在冷凍電鏡樣品製備中的應用	PCT Application No. PCT/CN2022/097629
IPO1191	Synthesis and Uses of Ginsenoside Compound K Derivatives 人參皂苷化合物 K 衍生物的合成及用途	US Prov Application No. 63/365,528
IPO1198	Super-high-permeance Thin-film Composite Nanofiltration Membrane Incorporating Silk Nanofiber Interlayer 含有絲納米纖維夾層的超高滲透薄膜複合納濾膜	US Prov Application No. 63/371,548
IPO1203	Compounds, Composition, and Methods for Constructing Conjugates 用於構建偶聯物的化合物、組合物和方法	US Prov Application No. 63/401,301

Others 其他

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0829	Synthesis and Application of Light Management with Thermochromic Hydrogel Microparticles 熱致變色水凝膠微粒的合成與光管理應用	US Application No. 17/287,651 PRC Application No. 201980071965.0
IPO1202	Methods and Apparatus for a Robust and Multilevel Anti-counterfeiting System Using CVD Grown Diamond Microparticles on Silicon Wafer 基於金剛石微粒的物理不可克隆功能材料及其製備方法	PRC Application No. 202210835536.X
SIRIO0035	Mesoporous Silica Nanoparticles Based Desiccant and Oxygen Scavenger 一種介孔二氧化矽基脫氧劑及其製備方法和用途	PRC Application No. 202110724829.6

2. Electronics and Electrical Applications 電子科技及應用

Electronics is the science of controlling electric energy, an energy in which electrons play a fundamental role. HKU researchers have been working in various technology fields, such as imaging technology, advanced electronics and wireless power transfer, to develop innovative technologies that offer effectiveness, convenience and ease-of-use at the same time.

電子是一門控制電能的科學。香港大學的科研人員一直致力於在電子科技領域的技術研發及探索更廣泛的技術應用，如：成像技術、先進電子科技和無線電力傳輸，以開發高效的、便捷的、易操作的新技術。

Electronic Applications 電子應用

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0516	Method and System of Atmospheric Pressure Megavolt Electrostatic Field Ionization Desorption (APME-FID) for Direct Sample Analysis by Mass Spectrometry 大氣壓兆伏靜電場電離解吸 (APME-FID) 的方法和系統	US Patent No. 10,381,211 EP Application No. 15777097.5 PRC Patent No. ZL201580019229.2 US Div Patent No. 11,276,567
IPO0519	A Fast Generation Adjustment Algorithm Used for the Energy Management System (EMS) 一種用於能源管理系統 (EMS) 的快速發電調整算法	US Patent No. 10,211,637
IPO0770	Efficient Bus Selection and Reactive Power Allocation for Optimal Power Flow with Shunt Compensations 用於電力系統的 OPF 優化及無功補償分配方法	PRC Patent No. ZL201810557975.2
IPO1061	Fall Risk Assessment Device 跌倒風險評估裝置	PCT Application No. PCT/CN2022/098354

Laser and Ultrasound Imaging Technologies 激光和超聲波成像技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0639	Airy-beam Optical Swept Source (ABOSS) 艾里光束光學掃頻源	US Patent No. 10,855,048 PRC Patent No. ZL201780033987.9
IPO0660	Spatio-temporally Incremental Fiber Swept Source (STIFSS) 時空增量光纖掃頻源	US Patent No. 9,977,184 EP Application No. 16921150.5 PRC Application No. 201680090688.4

IPO0685	Real-time Optical Spectro-temporal Analyzer (ROSTA) 實時光學光譜 - 時間分析儀和方法	US Patent No. 11,112,306 PRC Patent No. ZL201780091118.1
IPO0717	Panoramic-reconstruction Temporal Microscope 全景重建時間顯微鏡	US Patent No. 10,429,246
IPO0819	Apparatus and Method for Fast Volumetric Fluorescence Microscopy Using Temporally Multiplexed Light Sheets 用於使用時間覆用光片的快速體積熒光顯微術的裝置和方法	Japan Application No. 2021-517034 US Application No. 17/267,567 Germany Application No. 11 2019 004 851.1 PRC Application No. 201980063492.X
IPO0862	Dual-color Low Noise Picosecond Fiber Laser System for Pump-probe Applications 光纖激光器系統	EP Application No. 20879963.5 PRC Application No. TBC US Application No. 17/771,218

LED 發光二極體

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0420	White NanoLED Not Requiring Color Conversion 不需要顏色轉換的白色納米發光二極管	US Patent No. 9,401,453 KOR Patent No. 10-1754223 PRC Patent No. ZL201380026961.3 Germany Patent No. EP2856521
IPO0487	Method of Achieving High-quality Wide-range Dimming and Correlated Color Temperature Control of LEDs 相關色溫控制系統和方法	ROC Application No. 104115325 US Patent No. 9,839,090 PRC Application No. 201480079336.X UK Patent No. 3150030 Germany Patent No. 3150030
IPO0539	Flexible Iii-nitride Light-emitting Diodes 柔性 GaN 發光二極管	US Patent No. 10,615,222 PRC Patent No. ZL201580044661.7
IPO0645	Light-emitting Diodes (LEDs) with Monolithically-integrated Photodetectors for In Situ Real-time Intensity Monitoring 具有單片集成的光電檢測器用於原位實時強度監視的發光二極管	US Application No. 16/300,329 PRC Patent No. ZL201680085809.6 KOR Application No. 10-2018-7036350
IPO0694	Strain-inducing Nanostructures for Spectral Red-shifting of Light Emitting Device 用於發光裝置光譜紅移的應變誘導納米結構	US Patent No. 11,094,855 PRC Patent No. ZL201880017057.9 US Div Application No. 17/321,744
IPO0887	A Dimming Method and Device for Passive Light-emitting-diode (LED) Systems 限流驅動電路和方法	US Application No. 17/766,461 EP Application No. TBC PRC Application No. TBC

Power Electronics 電力電子

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0423	Control Methods of Distributed Reactive Power Controllers in Stabilizing AC Power Systems 功率補償器	UK Application No. 1206318.6 PRC Patent No. ZL201380019271.5 US Patent No. 10,790,666 Germany Patent No. 2837079 UK Patent No. 2837079 France Patent No. 2837079

IPO0424	Input AC Voltage Control Bi-directional AC-DC Power Converters 輸入 AC 電壓控制雙向功率轉換器	US Application No. 13/907,350 EP Application No. 13797168.5 PRC Patent No. ZL201380028775.3 HK Patent No. HK1208566
IPO0462	Adaptive AC Mains and DC Power Supplies 自適應 AC 和 / 或 DC 電源	PRC Application No. 201480039158.8 EP Application No. 14822394.4 PRC Div Application No. 202010944646.0
IPO0485	Electronic Apparatus and Control Method for High Frequency AC to DC Conversion 用於高頻 AC - DC 轉換的電子裝置和控制方法	US Patent No. 9,312,750 PRC Patent No. ZL201480073858.9 Germany Patent No. 3097636 France Patent No. 3097636 UK Patent No. 3097636
IPO0524	Configuration Method and Apparatus of Bidirectional Switched-capacitor Converters 功率轉換器和功率轉換方法	EP Application No. 15882965.5 US Application No. 15/546,574 PRC Patent No. ZL201580076950.5
IPO0555	Single-stage AC-DC Single-inductor Multiple-output (SIMO) Led Driving Topology with Power Factor Correction (PFC) and Independent Control of Output Currents AC-DC 單個電感器多個輸出 LED 驅動器	US Patent No. 10,212,770 PRC Patent No. ZL201580079078.X HK Patent No. HK1250870 Germany Patent No. 3286987 UK Patent No. 3286987
IPO0561	A Non-invasive Apparatus for Mitigating the Voltage Ripples on the DC Voltage Link of Power Supplies 用於電力電子系統和 DC 電網中的 DC 電壓鏈路的即插即用紋波平息器	US Patent No. 10,594,207 EP Application No. 15906503.6 PRC Application No. 201580085552.X
IPO0648	High-efficiency Switched-capacitor Power Supplies and Methods 高效率的開關電容器電源和方法	US Patent No. 10,715,037 PRC Patent No. ZL201680088318.7
IPO0667	A Single-stage Single-inductor Multiple-output (SIMO) Inverter Topology with Precise and Independent Amplitude Control for Each AC Output 具有針對每個 AC 輸出的精確且獨立的幅度控制的單級單電感器多輸出 (SIMO) 逆變器拓撲結構	US Patent No. 10,903,756 PRC Application No. 201680091618.0 UK Patent No. EP3556002 France Patent No. EP3556002 Germany Patent No. EP3556002
IPO0763	Planar Coil-resonator Structures for Embedment Inside High-voltage Insulation Discs 無線電力傳輸系統	US Patent No. 10,923,957 PRC Patent No. ZL201821125696.0
IPO0828	Apparatus and Methods for Conversion between AC and DC, and between DC and AC Power AC 至 DC 和 DC 至 AC 功率轉換	US Application No. 17/434,463 PRC Application No. 202080017290.4 EP Application No. 20769354.0
IPO1013	Bridgeless Single-stage Single-inductor Multiple-output (SIMO) AC-AC Converter Topology 用於單電感器多輸出開關轉換器的系統	US Patent No. 11,489,452 PRC Patent No. ZL202120733151.3 HK Patent No. HK30043353
IPO1078	Bidirectional AC-DC Power Conversion Method and Apparatus 雙向 AC-DC 電源轉換方法及裝置	PCT Application No. PCT/SG2022/050429
IPO1149	Apparatus and Method of Adaptive Subcarrier, Parameter, and Power Allocation for Partitioned Edge Learning over Broadband Channel 用於寬帶信道上分區邊緣學習的自適應子載波、參數和功率分配的裝置和方法	US Application No. 17/496,866

Semiconductor-related 半導體相關技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0618	Order O(1) Algorithm for First-principles Calculation of Transient Currents through Open Quantum Systems 用於通過開放量子系統的瞬態電流的第一原理計算的 O(1) 階算法	US Patent No. 10,330,712 PRC Patent No. ZL201780009783.1
IPO0769	A Novel Semiconductor Field Effect Transistor (the GS-FET) for Low Power Electronics Applications 具有冷源極的金屬氧化物半導體場效應晶體管	US Patent No. 11,329,164 PRC Patent No. ZL201980037287.6
IPO0782	Ultra-small p-type Ternary Metal Oxides 用於製造作為空穴傳輸材料的尖晶石型三元金屬氧化物的方法	US Application No. 17/057,119 PRC Application No. 201980043783.2
IPO0874	A Simple Chemical Approach for Integration of Ligand-free Metal Nanowire Network and Conducting Polymer 金屬納米線網絡至導電聚合物中的集成	PRC Application No. TBC US Application No. 17/754,993
IPO0885	A Method of Designing Rings for Transport Network 用於確定多核處理器中的布線網絡的系統和方法以及相關的多核處理器	US Application No. 17/630,524 PRC Application No. 201980098915.1
IPO0968	Semiconductor Device with Crystal Structure 具有溝槽結構的半導體器件	PRC Application No. 202020513822.0
IPO0995	Cu-Cu Direct Welding for Packaging Application in Semiconductor Industry 用于半導體行業封裝應用 Cu-Cu 可直焊材料	PCT Application No. PCT/CN2021/137846 ROC Application No. 110146742
IPO1005	Laser Interference Lithography Device and Method 數據可視化方法、裝置、計算機系統和可讀存儲介質	PRC Application No. 202011282106.7 PCT Application No. PCT/CN2021/130888
IPO1035	Flexible Transparent Electrodes of Silver Nanowires Sintered with Metal Oxide Nanoparticles 金屬氧化物納米粒子燒結銀納米線的柔性透明電極	PCT Application No. PCT/CN2022/072966
IPO1056	Semiconductor Device Integrating MOSFET and Diode and Its Manufacture 集成 MOSFET 和二極管的半導體裝置及其製造方法	PRC Application No. 201910696557.6 PRC Application No. 201921241096.5 PRC Application No. 201921241097.X PRC Application No. 201921230129.6 PRC Application No. 201921230128.1
IPO1057	Semiconductor Device Integrating MOSFET and Diode and Manufacturing Method Thereof 一種集成 MOSFET 及二極管的半導體裝置及其製造方法	PRC Application No. 202010378707.1 PRC Application No. 202020741006.5

Sensor Technologies 傳感器技術

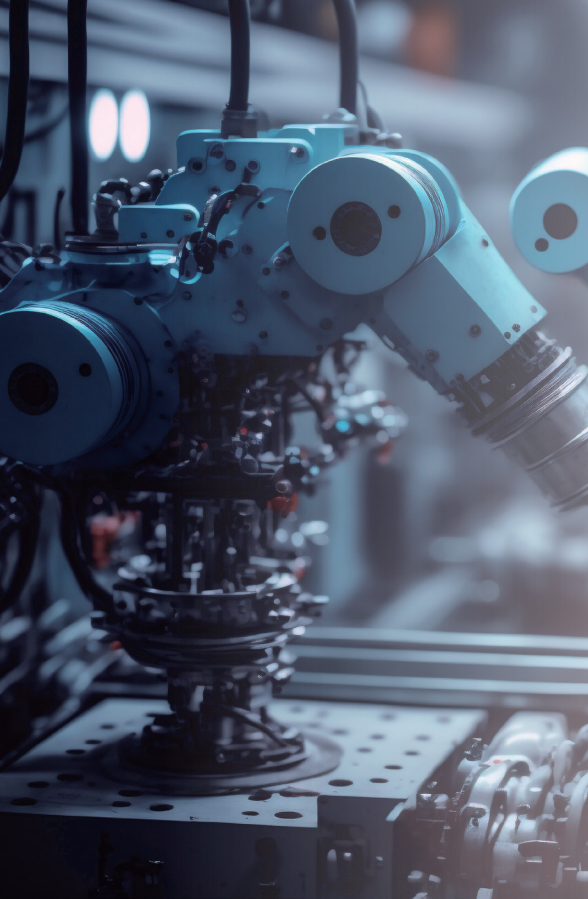
Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0628	Graphene-semiconductor Based Wavelength Selective Photodetector for Sub-bandgap Photo Detection 具有亞帶隙探測能力的石墨烯基波長選擇光探測器	PRC Patent No. ZL201710426252.4 US Patent No. 10,755,866 US Patent No. 11,222,756
IPO0796	Real-time FBG-based Surface Shape Sensor Design, Fabrication and Methods of Use for Surface Measurement of Flexible Structures 對柔性結構的實時表面形狀感測	US Application No. 16/449,063 PRC Application No. 201910552110.1
IPO0977	Optical Soft Skin System for Multimodal Sensing 用於多模式傳感的光學軟皮系統	PCT Application No. PCT/CN2021/128342
IPO1001	Methods and Apparatus for Integrating Diamond with LED towards On-chip Quantum Sensing 將金剛石與 LED 集成到片上量子傳感的方法和裝置	PCT Application No. PCT/CN2022/076011
IPO1003	A Soft Tactile Sensor by Flexible Magnetic Film 柔性磁性薄膜的軟觸覺傳感器	US Application No. 17/188,182
IPO1065	Optical Responsive Full Color Shifting Colloidal Ink 光學響應全色移膠體墨水	PCT Application No. PCT/CN2022/097814
IPO1079	Fabrication of a Scalable Quantum Sensing Device through Precisely Programmable Patterning Spin Defects on Universal Substrates 通過通用基板上精確可編程的圖案化自旋缺陷製造可擴展的量子傳感設備	PCT Application No. PCT/CN2022/113516
IPO1110	System and Methods for Ultrafast Widefield Quantum Sensing Using Neuromorphic Vision Sensors 使用神經形態視覺傳感器進行超快寬場量子傳感的系統和方法	PCT Application No. PCT/CN2022/129840
IPO1114	Systems and Methods for Radio Frequency Interference Suppression in Radar 雷達射頻干擾抑制系統和方法	PCT Application No. PCT/CN2022/135885
IPO1146	A Wireless, High-resolution, and Smartwatch-compatible Wearable Data Readout System for Low-voltage Transistor Characterization 用於低壓晶體管表徵的無線、高分辨率和智能手錶兼容的可穿戴數據讀出系統	PCT Application No. PCT/CN2022/135324
IPO1190	Breathable and Skin-conformal Electronics with Hybrid Integration of Microfabricated Multifunctional Sensors and Kirigami-structured Nanofibrous Substrates 混合集成微製造多功能傳感器和 Kirigami 結構納米纖維基板的透氣和皮膚保形電子產品	US Prov Application No. 63/365,740

Wireless Power Transfer 無線電力傳輸

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0469	Methods for Parameters Identification, Load Monitoring and Output Power Control for Wireless Power Transfer Systems without Using Direct Output Measurements 用於無線功率轉移系統中的參數辨識、負載監控和輸出功率控制的方法	PRC Patent No. ZL201480044624.1 US Patent No. 10,224,751 Germany Patent No. EP3031129
IPO0477	Omni-directional Wireless Power Transfer Systems 無線功率傳輸系統	US Patent No. 10,250,072 PRC Patent No. ZL201480058510.2 EP Application No. 14840713.3 US Patent No. 10,848,003
IPO0493	Auxiliary Circuits for Wireless Power Transfer Systems Using Multiple Frequencies 到多個負載的多頻無線功率傳輸的選擇和增強的輔助電路	US Patent No. 9,787,102 PRC Patent No. ZL201480075324.X HK Patent No. HK1234537 Germany Patent No. 3105835
IPO0530	Load Position Detection and Power Control of Omni-directional Wireless Power Transfer Systems 用於全向無線功率輸送的負載位置檢測和功率控制的系統和方法	UK Patent No. GB2548755 US Patent No. 10,270,294 PRC Patent No. ZL201580074627.4 US Patent No. 10,903,692
IPO0560	Fast Method for Identifying Coil Misalignment/Mutual Coupling of Transmitter and Receiver Coils in Wireless Charging Systems without Using Direct Measurement from the Receiver Coil 用於標識無線充電系統中的線圈未對準 / 互耦的快速方法	US Patent No. 10,868,447 PRC Patent No. ZL201580082148.7 Germany Patent No. 3304688
IPO0573	Charging Time Control of Wireless Power Transfer Systems 在不使用互耦信息或者無線反饋的情況下的無線電能傳輸系統的發送器側控制	Germany Application No. 12015006497.4 US Patent No. 10,305,331 PRC Patent No. ZL201580081360.1
IPO0599	Insulation Discs and Strings with Wireless Power Transfer Capability 無線電力傳送系統	US Patent No. 10,573,455 PRC Patent No. ZL201680079172.X Germany Patent No. 3378076 UK Patent No. 3378076 France Patent No. 3378076
IPO0664	Ball-joint Wireless Power Transfer Systems 球和套管無線功率傳送系統	US Patent No. 11,502,543 PRC Application No. 201680090931.2
IPO0705	Wireless Power Transfer Systems for Electric Vehicles 用於對電動載具進行充電的系統和方法	PRC Patent No. ZL201880019716.2 Germany Application No. 112018001471.1 US Patent No. 11,285,833
IPO0884	A Wireless Battery Charging System and Method for Battery Charging and Handshaking 用於電池充電和握手的無線電池充電系統和方法	EP Application No. 20867552.0 US Application No. 17/754,244 PRC Application No. 202080066489.6
IPO1165	A Wireless Power Modulator 一種無線功率傳輸系統	PRC Application No. 202110931327

Smart Grid Technologies 智能網絡技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0518	A Power Decomposition Method for Electric Springs, Static Synchronous Series Compensators, and Other DC/AC Power Inverters 功率控制器和功率控制方法	US Patent No. 10,468,977 PRC Patent No. ZL201480083301.3 Germany Patent No. 3218981
IPO0597	Power Supply Supporting Virtual Inertia for Grid Control (Micro-spring Converter) 支持電網控制的虛擬慣性的電源 (微型彈簧轉換器)	US Patent No. 11,050,257 PRC Patent No. ZL201780007510.3
SIRIO0031	Electric Autonomous Vehicle Charging and Parking Coordination for Vehicle-to-Grid Voltage Regulation with Renewable Energy 一種基於電動無人駕駛汽車和 V2G 技術的配電網電壓調節系統及方法	PRC Application No. 202010304962.1



3. Industrial and Manufacturing 工業及製造

The manufacturing industry is always looking for new technologies to help its factories maximize yield, reduce costs, improve efficiency and enhance quality. At HKU, we have a number of new technologies that can be used to improve manufacturing processes and develop more effective methods to conduct quality control and assurance.

製造業向來注重尋找新技術以最大限度地提高產量、降低成本、提高效率和提高品質。香港大學具有多項創新技術，可協助產商改進製造流程和更有效地進行品質控制和質量保證。

Acoustics Technologies 聲學技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0929	A Frequency Tuning Panel for Broadband Noise Absorption in Ducts 用於吸聲體的調頻面板及包括其的吸聲體和消聲器	PRC Application No. 202010190584.9
SIRIO0002	Broadband Perforated Panel Sound-absorbing Structure 寬頻穿孔板吸聲結構	PRC Patent No. ZL201310655629.5
ZIRIO0001	Partial Perforated Plate Anechoic Unit, Combined Perforated Plate Anechoic Unit, Composite Anechoic Sheet, Composite Anechoic Device and Piping System 局部穿孔板消聲單元、組合穿孔板消聲單元、覆合消聲片、覆合消聲裝置和管道系統	PRC Patent No. ZL201820991506.7
ZIRIO0002	Helmholtz Resonator with Circuit Adjustable Resonance Frequency 可用電路調整共振頻率的亥姆霍茲共振器	PRC Patent No. ZL201821314640.X
ZIRIO0003	Sound Absorbing Structures, Sound Absorbing Systems and Piping Systems 消音結構、消音系統以及管道系統	PRC Patent No. ZL201820991883.0
ZIRIO0005	Passive Radiators and Electroacoustic Devices Incorporating Passive Radiators 被動輻射器和包含被動輻射器的電聲裝置	PRC Application No. 201910521299.8
ZIRIO0006	A Loudspeaker with Passive Radiator 一種含有被動輻射器的音箱	PRC Patent No. ZL201920907789.7
ZIRIO0011	Impervious Cover Design for Sound Absorption Device 吸聲結構和吸聲裝置	PRC Application No. 202011500967.8 PCT Application No. PCT/CN2021/138641
ZIRIO0012	Impervious Rangehood Silencer Design 密封式抽油煙機消聲器設計	PRC Application No. 202011502570.2 PCT Application No. PCT/CN2021/138284

ZIRI00013	Design of an Intelligent Adjustable Sound Isolator Sealed Range Hood Muffler 一種智能可調隔聲器密封式抽油煙機消聲器設計	PRC Application No. 202011442546.4 PCT Application No. PCT/CN2021/128383
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Automotive Technology 汽車相關技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0600	In-vehicle Portable Inclinator with Automatic Calibration 具有自動校準功能的車載便攜式測斜儀	US Patent No. 10,002,469

Construction 建築相關技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO1103	A Method for Construction Materials and Industrial Materials 一種製備建築和工業材料的方法	HK Patent No. HK30049139
IPO1111	Horizontal Connection Structure and Construction Method of Multi-storey and High-rise Concrete Modular Composite Building 多層及高層混凝土模塊化組合建築的水平連接結構及建造方法	PRC Application No. 202111317550.2 PRC Application No. 202211381558.X
IPO1176	A System and Method for Calculating Window View Openness Index Using Window View Photo and View Distance 一種利用窗景照片和視距計算窗景開放度指數的系統及方法	US Prov Application No. 63/269,891
SIRI00042	Indoor 3D Barrier-free Map Generation Method Based on Lidar Point Cloud and BIM Collision Simulation 基於 Lidar 點雲和 BIM 碰撞模擬的室內三維無障礙地圖生成方法	PRC Application No. 202210302636.6 PCT Application No. TBC
SIRI00044	A Method and System for Museum Visit Analysis Based on BIM and Video Surveillance 一種基於 BIM 和視頻監控的博物館參觀分析的方法及系統	PRC Application No. 202210303655.0 PCT Application No. TBC

Manufacturing Process 工業製造過程

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0515	A Simple Approach for Integration of Silver Nanowires and Silver Nanoparticles as Conductive Metal Network 包括金屬納米線和金屬納米粒子的傳導金屬網絡以及製造其的方法	US Patent No. 9,808,781 PRC Patent No. ZL201580042697.1 Germany Patent No. 3178091
IPO0562	Hypromellose-graft-chitosan and the Synthetic Method Thereof for Sustained Drug Delivery 羥丙甲纖維素接枝的殼聚糖及其用於持續藥物遞送的方法	US Patent No. 9,867,787 PRC Patent No. ZL201680036999.2 Germany Patent No. 3288544 UK Patent No. 3288544
IPO0657	A High-yield Fabrication Method of Hierarchical Porous Activated Carbon 用於氧還原反應的源自廢生物質的無金屬催化劑	PRC Patent No. ZL201680091939.0
IPO0747	A Soft Robotic Gripper with Hybrid Structure and Grasping Reliability 具有混合結構和抓握可靠性的軟機器人抓手	US Patent No. 11,358,288 PRC Application No. 201880080833.X
IPO0839	Improved Composition Control and Stability of Quasi 2D Metal Halide Perovskites 一種 Ruddlesden-popper 鈣鈦礦膜及其製備方法和應用	PRC Application No. 201911095548.8
IPO0846	Imprinted Metallization on Polymeric Substrates 聚合物基材上的壓印金屬化	US Patent No. 10,874,020
IPO1027	Mask Designs with Extra-ordinary Breathability, Speech Intelligibility and Transparency 具有非凡透氣性、語言清晰度和透明度的面罩設計	PRC Patent No. ZL202120485601.1 HK Patent No. HK30043352
IPO1121	A Thermal Interface Method for Pre-installed Panels 一種用於預裝面板的熱接口方法	PRC Application No. 202111226071.X PCT Application No. PCT/CN2022/124636
SIRIO0009	An Electronic-gearless Magnetless In-wheel Machine 電子齒輪式非永磁輪轂電機	PRC Patent No. ZL201620293387.9
SIRIO0045	A Preparation Method of a Transparent Ceramic Optical Fiber with A Core-clad Structure 一種具有包芯結構的透明陶瓷光纖的製備方法	PRC Application No. 202010722788.2

Metallurgical Materials 冶金材料

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0654	A Method for the Fabrication of a Super-strong and Ductile Multi-phase Steel 雙相鋼及其製造方法	EP Application No. 16913763.5 US Patent No. 11,186,890 PRC Application No. 201680088638.2
IPO0742	Automotive Steel and Method for the Fabrication of the Same 一種汽車鋼及其製造方法	US Application No. 16/959,282 EP Application No. 18897903.3 PRC Application No. 201880088966.1
IPO0830	In-situ Decomposition Assisted Powder Metallurgy to Prepare Antibacterial Stainless Steel 原位分解輔助的粉末冶金方法製備抗菌不銹鋼	PRC Application No. 201910288262.5 HK Application No. 42021026902.3
IPO0840	Metal Hydroxides-based Actuator with Polymeric Supporting Film 具有聚合物支撐薄膜的基於金屬氫氧化物的致動器	US Patent No. 11,408,403 EP Application No. 20762302.6 PRC Application No. 202080015385.2
IPO0893	Austenitic Stainless Steel with Superior Corrosion Resistance and Excellent Mechanical Properties 一種高強度超耐腐蝕無磁不銹鋼及其製備方法	PRC Patent No. ZL202010563089.8 US Application No. 18/001,894
IPO0928	A Novel Powder Metallurgy Method to Prepare Ag-bearing Antibacterial Stainless Steel 一種新型抗菌覆合粉末和不銹鋼及其製備方法和應用	PRC Application No. 202010316518.1
IPO0954	Development of a New Antibacterial and Antivirus Stainless Steel Powder: Fabrication & Application 一種抗菌不銹鋼粉末及其製備方法和應用	PRC Application No. 202010862609.5
IPO0966	Anti Covid-19 Stainless Steel 一種抗菌抗病毒含銅不銹鋼及其製備和應用	PRC Patent No. ZL202010730748.2 PCT Application No. PCT/CN2021/130229 HK Application No. 42022054306.0
IPO0976	Rapid Cooling Process to Prepare Antibacterial Stainless Steel and Its Application 一種利用快速凝固過程製備抗菌不銹鋼的方法及其應用	PRC Application No. 202011441590.3 HK Application No. 42022065448.7
IPO0985	Strong and Ductile Medium Manganese Steel Produced through Warm Rolling, Cold Rolling and Annealing 高強度且高塑性中錳鋼及生產方法	PCT Application No. PCT/CN2021/091837 PRC Application No. 202110624296.4 HK Application No. 42022059008.7
IPO1124	800 MPa Grade Steel Bar and Production Method Thereof 一種 800MPa 級螺紋鋼及其生產方法	PRC Application No. 202111346117.1 US Application No. 17/980,888
IPO1201	High Manganese Austenitic Stainless Steel with Superior Corrosion Resistance and Its Application in Water Splitting 適用於電解水工業的一種超耐電化學腐蝕的雙層鈍化膜結構及不銹鋼	PRC Application No. 202210425259.5
SIRIO0007	Method for Fabricating an Ultrahigh Strength High Ductility Bearing Steel 軸承鋼及其製備方法	PRC Patent No. ZL2015110

Testing Method and Quality Assurance 測試方法和品質保證

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0547	Implementation Platform for Non-invasive Energization-status Identification and Operation-state Monitoring of Electricity Cable 能量系統中的異常檢測	EP Application No. 19945149.3 PRC Application No. 201980100255.6 US Application No. 17/753,766
IPO0720	A System for DC-component-based Fault Classification of Distribution Power Cables with Magnetic Sensing 用於三相配電電纜的故障分類的裝置和方法	US Patent No. 10,852,359 PRC Application No. 201811479765.2
IPO1126	Three-dimensional Perovskite Nanopixels for Ultrahigh-resolution Color Displays and Multilevel Anti-counterfeiting 用於超高分辨率彩色顯示器和多級防偽的三維鈣鈦礦納米像素	US Application No. 17/647,709
IPO1129	Methods and Apparatus for an Anti-counterfeiting System Using Color Space Correlated Raman Spectroscopy of Diamond 用於使用金剛石的顏色空間相關的拉曼光譜的防偽系統的方法和設備	PRC Application No. 202211531712.7 US Application No. 18/073,227
IPO1169	A Luminescence Method for In-production-line Atomic Scale Defect Detection for 4H-SiC Diode Fabrication 一種用於 4H-SiC 二極管製造的在線原子級缺陷檢測的發光方法	US Prov Application No. 63/415,516
SIRIO0041	Compact Environmental Chamber for Aging Test of Solar Cells 原位環境箱和原位老化測試系統	PRC Application No. 202111072835.4

Other 其他

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
SIRIO0001	An Apparatus and Method for Generation of Liquid-in-gas Droplet 用於製備存在於氣相中的液滴的設備和方法	PRC Patent No. ZL201210323200.1

4. Information and Communication Technologies 資訊科技及通訊技術

Information and Communication Technologies are powerful tools with the potential to drive economic growth and open up new business opportunities. This is demonstrated by a series of innovative technologies in artificial intelligence, communications, computer software and high-speed imaging developed by HKU researchers.

資訊及通訊科技是推進經濟增長及開通新商機的強大工具。伴隨資訊產業的變革發展，香港大學的科研團隊，在人工智能、先進通訊技術、計算機軟件及高速成像技術等前沿領域不斷進行應用創新。

Artificial Intelligence 人工智能

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0978	Method for Decoding Chord Information from Brain Activity 用於從大腦活動中解碼和弦信息的系統和方法	US Application No. 17/485,545 PRC Application No. 202111255701.6
IPO0998	Swimmer Performance Analysis System 游泳運動員成績分析系統	PCT Application No. PCT/CN2021/132091
IPO1044	An Apparatus for Detecting Entry and Exit by Crossing a Virtual Line 一種越過虛擬線進出檢測裝置	PCT Application No. PCT/CN2021/115312
IPO1101	An Action Detection Algorithm Based on End-to-end Training and Testing 基於端到端訓練測試的動作檢測算法	PRC Application No. 202110967689.5 PCT Application No. PCT/CN2022/113539
IPO1172	A Method for Detecting Dynamic Events from Sequential Point Scans 一種從順序點掃描中檢測動態事件的方法	US Prov Application No. 63/362,445
ZIRI00008	A Device for Indoor Human Behavior Detection 用於檢測用戶行為的檢測裝置及檢測系統	PRC Patent No. ZL201921778579.9
ZIRI00009	A Device for Non-invasive Human Thermal Comfort Detection 構建人體熱舒適預測模型的方法、預測方法及系統	PRC Application No. 202010376636.1

Communication Technologies 通訊技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0431	Enhancing Active Queue Management (AQM) for Combating Wireless Losses 增強 AQM 以對抗無線損失	US Patent No. 9,473,974 PRC Patent No. ZL201380040563.7 HK Patent No. HK1212133
IPO1034	Improving Classical and Quantum Free-space Communication by Adaptive Optics and by Separating the Reference and Signal Beams 通過自適應光學和分離參考光束和信號光束改進經典和量子自由空間通信	PCT Application No. PCT/CN2021/096100 PCT Application No. PCT/CN2022/094917 ROC Application No. 111119703
IPO1155	Apparatus and Method of Progressive Feature Transmission for Edge Inference 用於邊緣推理的漸進特徵傳輸的裝置和方法	PCT Application No. PCT/KR2021/013523
IPO1204	Synchronization Solution and System Design for OFDM-based Over-the-air Aggregation Technique 基於 OFDM 的無線聚合技術的同步解決方案和系統設計	US Prov Application No. 63/333,113

Software and Algorithm 軟件及算法

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0474	Wavelength-encoded Tomography (WET) 波長編碼的層析技術	US Patent No. 9,404,800 PRC Patent No. ZL201480055388.3 UK Patent No. 3055644 Germany Patent No. 3055644
IPO1031	A Crowd-driven Mapping, Localization and Social-friendly Navigation System 人群驅動的地圖繪製、本地化和社交友好型導航系統	US Application No. 17/751,713
IPO1098	A Camera Exposure Control Method Based on Event-based Irradiance Estimation 一種基於事件輻照度估計的相機曝光控制方法	PCT Application No. PCT/CN2022/114456
IPO1102	Video Timing Action Nomination Generation Method and System 視頻時序動作提名生成方法及系統	PRC Application No. 20211049034.6 PCT Application No. PCT/CN2022/113540
IPO1175	A Method for Place Recognition on 3D Point Cloud 一種基於 3D 點雲的地點識別方法	US Prov Application No. 63/373,602
SIRI0043	A Traceability Management System for Museum Cultural Relics Integrating Alliance Blockchain and Internet of Things 一種整合聯盟區塊鏈及物聯網的博物館文物可追溯性管理系統	PRC Application No. 202210303663.5 PCT Application No. TBC



5. Green and Environmental Technologies 綠色及環境保護技術

At HKU, researchers are dedicated to developing new and innovative technologies that help preserve the natural environment by reducing the consumption of natural resources or facilitating the use of renewable energy. Some promising examples of their work include innovative battery, fuel cell and solar cell-related technologies and environmental protection-related technologies.

香港大學的科研人員致力於發展創新的技術以保護自然生態。我們的技術可通過減少天然資源的消耗或促進再生能源的使用來實現。這些技術包括了創新電池、燃料電池、太陽能電池及環保相關的一系列技術。

Battery Technologies 電池技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0479	Photovoltaic Conversion Element and Photovoltaic Cell 光生伏打轉換元件和光生伏打電池	US Patent No. 9,306,183 PRC Patent No. ZL201480053775.3 Germany Patent No. 3052502
IPO0531	Novel Carbo and Heterocyclic Spiro-compounds Used in Organic Photovoltaics and Their Preparation 作為有機光伏器件的供體材料的新型碳環和雜環螺環化合物及其製備	US Patent No. 9,691,989 PRC Patent No. ZL201580042803.6
IPO0652	All Room-temperature Solution-process Approaches for Achieving Bendable Low-cost and High-performance Perovskite Solar Cells 有機鉛鹵化物鈣鈦礦薄膜及製造其的方法	PRC Patent No. ZL201680087284.X US Patent No. 10,840,030
IPO0653	Solid-liquid-solid Phase Transformation Approach to Fabricate Highly Crystalline Perovskite $\text{CH}_3\text{NH}_3\text{PbI}_3$ and $\text{HC}(\text{NH}_2)_2\text{PbI}_3$ Periodic Arrays for Optoelectronic Applications 用於光電應用的鈣鈦礦周期性陣列的製備	US Patent No. 11,404,657 PRC Patent No. ZL201680088058.3
IPO0688	Widely Work Function Tunable Nickel Oxide Based Hole Transport Materials for High Performance Optoelectronic Devices 一種功函數可調的空穴傳輸材料及其製備方法和應用	US Patent No. 9,972,780 PRC Patent No. ZL201810025555.X
IPO0725	Nickel Oxide Decorated Graphene Oxide As P-type Top Hole Transport Layer for Both Fullerene and Non-fullerene Inverted Organic Solar Cells 作為空穴傳輸層的氧化鎳修飾的氧化石墨烯納米覆合材料和製造其的方法	PRC Patent No. ZL201780096839.1

IPO0731	Paper-based Aluminium-air Batteries and Battery Packs for Portable Applications 適用於便攜式應用的基於紙的鋁 - 空氣電池和電池組	US Application No. 16/767,029 PRC Application No. 201880087373.3
IPO0735	A Ligand Induced Modification for Improving the Performance and Stability of Perovskite Solar Cells 配體修飾的鈣鈦礦光電子設備	US Application No. 16/759,606 PRC Application No. 201880069886.1
IPO0857	A Method for Controlling Battery Charging Mode 使用動態調整的電池電壓閾值的電池充電系統和方法	US Application No. 17/607,357 Japan Application No. 2021-569367 PRC Application No. 202080037930.8 KOR Application No. 10-2021-7042246
IPO0916	Flexible and Printable Paper-based Al Ion Batteries 柔性可印刷紙基鋁離子電池	US Application No. 17/687,718
IPO1008	Dynamic Urea Bond-based Passivators of Perovskite 基於動態尿素鍵的鈣鈦礦鈍化劑	PCT Application No. PCT/CN2022/074284 ROC Application No. 111103747
IPO1205	Rechargeable Aqueous Mg Battery with A Solid-state Polymer Electrolyte 具有固態聚合物電解質的可充電水性鎂電池	US Prov Application No. 63/354,666
SIRI00040	Encapsulation Architecture for Perovskite Solar Cell 用於半導體器件的封裝結構和封裝結構的半導體組件	PRC Application No. 202110879660.1

Environmental-related 環境保護相關技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0553	Freeway Air Cleaning System (FACS) 道路空氣淨化裝置	PRC Patent No. ZL201420719937.X
IPO0595	Identification of Three Novel Thermostable Cellulases from Metagenome Using Sequence-guided Strategy 纖維素酶及其編碼基因、重組載體和應用	PRC Application No. 201610145009.0
IPO0692	Additive to Release Nanosize Gas Bubble for Enhancing Membrane Permeability and Preparation Method of Thin Film Composite Membrane Wherein Additive is Present in Reaction System Thereof 具有納米尺寸氣泡的膜滲透性增強的薄膜覆合膜、其製備方法和用途	US Patent No. 11,148,102 PRC Patent No. ZL201880025846.7
IPO0970	Reusable Nanocomposite Porous Filter for Highly Efficient Air Filtration 可重複使用的納米複合多孔過濾器，用於高效空氣過濾	PCT Application No. PCT/CN2021/108418
IPO1053	A Compact Sampling Device for Sewage Surveillance 用於污水監測的緊湊型採樣裝置	HK Patent No. HK30057398 PRC Application No. 202223204538.3 PRC Application No. 202211527650.2
IPO1196	CuDATA Catalyst for Nitrate Electroreduction to Generate Ammonia 用於硝酸鹽電還原生成氨的 CuDATA 催化劑	US Prov Application No. 63/365,745

6. Robotics 機器人技術

Robot technology is a hot topic and has been used to help industries evolve over the past decades. HKU has developed several new technologies in soft robotics, high-performance and continuum robotic systems that offer disruptive solutions for medical devices and human-centred applications.

機器人技術一直是近年來的熱門話題並不斷推動了時代的發展。香港大學在軟體機器人、高性能和連續體機器人系統等方面擁有多項新技術，這些技術在醫療設備和以人為中心的系統中具有廣泛深遠的應用潛力。

Medical Device 醫療設備科技

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0744	MRI Tracking Device Design, Fabrication, and Methods of Use for MRI-guided Robotic System MRI 跟蹤裝置的設計、製造以及用於 MRI 引導機器人系統的使用方法	US Application No. 16/965,888 EP Application No. 19764344.8 PRC Application No. 201980015259.4
IPO0745	Robotic Stereotactic System for MRI-guided Neurosurgery 用於 MRI 引導的神經外科手術的機器人立體定向系統	US Application No. 16/955,364 PRC Application No. 201980010511.2 EP Application No. 19743404.6
IPO0923	Compact Needle Positioner for Robot-assisted MRI-guided Interventions 用於機器人輔助 MRI 引導干預的緊湊型針頭定位器	PCT Application No. PCT/CN2021/107372
IPO1030	A Robotic Platform to Navigate MRI-guided Focused Ultrasound System 用於導航 MRI 引導聚焦超聲系統的機器人平台	PCT Application No. PCT/CN2022/079908

Robotics 機器人技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO1073	Smart Walker for the Elderly 長者智能助行器	US Application No. 17/832,314 PRC Application No. TBC HK Patent No. HK30070283
IPO1137	Disinfection Robots 消毒機器人	US Application No. 17/969,850 PRC Application No. TBC
IPO1153	A Novel Aerial Continuum Manipulator with Cable Slack Prevention for Versatile Manipulation Tasks 一種新型空中連續體機械手，具有防止電纜鬆弛的功能，可用於多種操作任務	US Prov Application No. 63/363,228
IPO1214	Muscle-like Actuators for Wearable Systems 用於可穿戴系統的類肌肉執行器	US Prov Application No. 63/355,986
SIRIO0011	Precisely Controlled 7 Degrees of Freedom Dexterous Endoscopic Robotic Arm 一種具有柔性和多自由度的手術機器人	PRC Application No. 201611017518.1 PRC Patent No. ZL201621211265.7
SIRIO0012	Fiber-Reinforced Origami Pneumatic Actuator 閉合腔體、軟體肌肉、軟體機器人驅動系統和機器人系統	PRC Patent No. ZL201621354421.5 PRC Application No. 20161112844

7. Medical 醫療相關技術

At HKU, we have world-leading medical and dental schools which offer impactful medical technologies both through their own knowledge bases and interdisciplinary initiatives with other professionals in the fields of AI and Engineering.

香港大學擁有世界一流的醫學院和牙科學院，依託自身的學科經驗，融合人工智能和工程等專業領域的跨學科技術，為社會提供有影響力的醫療技術。

Dental-related 牙科相關技術

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0656	NJ Toothbrush NJ 牙刷	PRC Patent No. ZL201880010233.6 EP Application No. 18748339.1 US Patent No. 11,234,802
IPO0854	Micro-/Nano-structured Anti-biofilm Surfaces for Dental Appliances 用於牙科器具的微 / 納米結構抗生物膜表面	US Application No. 17/619,044
IPO0902	Real-time Gutta Percha (GP) Flow for Root Canal Therapy (RCT) in Endodontics Dentistry 牙髓學牙科根管治療 (RCT) 的實時牙膠 (GP) 流	US Application No. 16/655,590
IPO0956	Antifungal Compound and Uses Thereof 抗真菌化合物及其用途	PCT Application No. PCT/IN2022/050932
IPO1004	Antibacterial and Mineralizing Compositions and Methods of Use Thereof 抗菌和礦化組合物及其使用方法	PCT Application No. PCT/CN2022/072965
IPO1058	Oral-jet ProCleaning System 口腔噴射清潔系統	US Prov Application No. 63/320,619
IPO1099	Silver Complex Fluoride {bis(1,3,5-triaza-7-phosphaadamantane) silver fluoride} – A New Therapeutic Agent for Caries Management 氟化銀絡合物 {bis(1,3,5-triaza-7-phosphaadamantane) silver fluoride} – 一種用於齲齒管理的新型治療劑	PCT Application No. PCT/CN2022/112047
IPO1127	Evaporation Strategy Generated Antibacterial Enamel-like Fluorapatite-polyacrylic Acid Sheet for Functional Dental Restoration 蒸發策略生成的抗菌類牙釉質氟磷灰石 - 聚丙烯酸片用於功能性牙科修復	US Application No. 18/053,856

IPO1168	Micro Scale Mist Mouthguard Cleaning Device 微量霧護齒清潔裝置	US Prov Application No. 63/304,368
IPO1189	Copper Diamine Fluoride (CDF): A Cariostatic Agent 銅二胺氟化物 (CDF)：防齲劑	US Prov Application No. 63/365,531
IPO1208	Novel Anticaries Material for Dental Use 牙科用新型防齲材料	US Prov Application No. 63/368,562
IPO1213	A Novel Method for Facilely Synthesizing and Tuning CAU-17 Bismuth-doped Metal Organic Frameworks and the Applications 一種簡便合成和調整 CAU-17 鉍摻雜金屬有機框架的新方法及其應用	US Prov Application No. 63/364,985

MRI Technologies 磁力共振成像技術

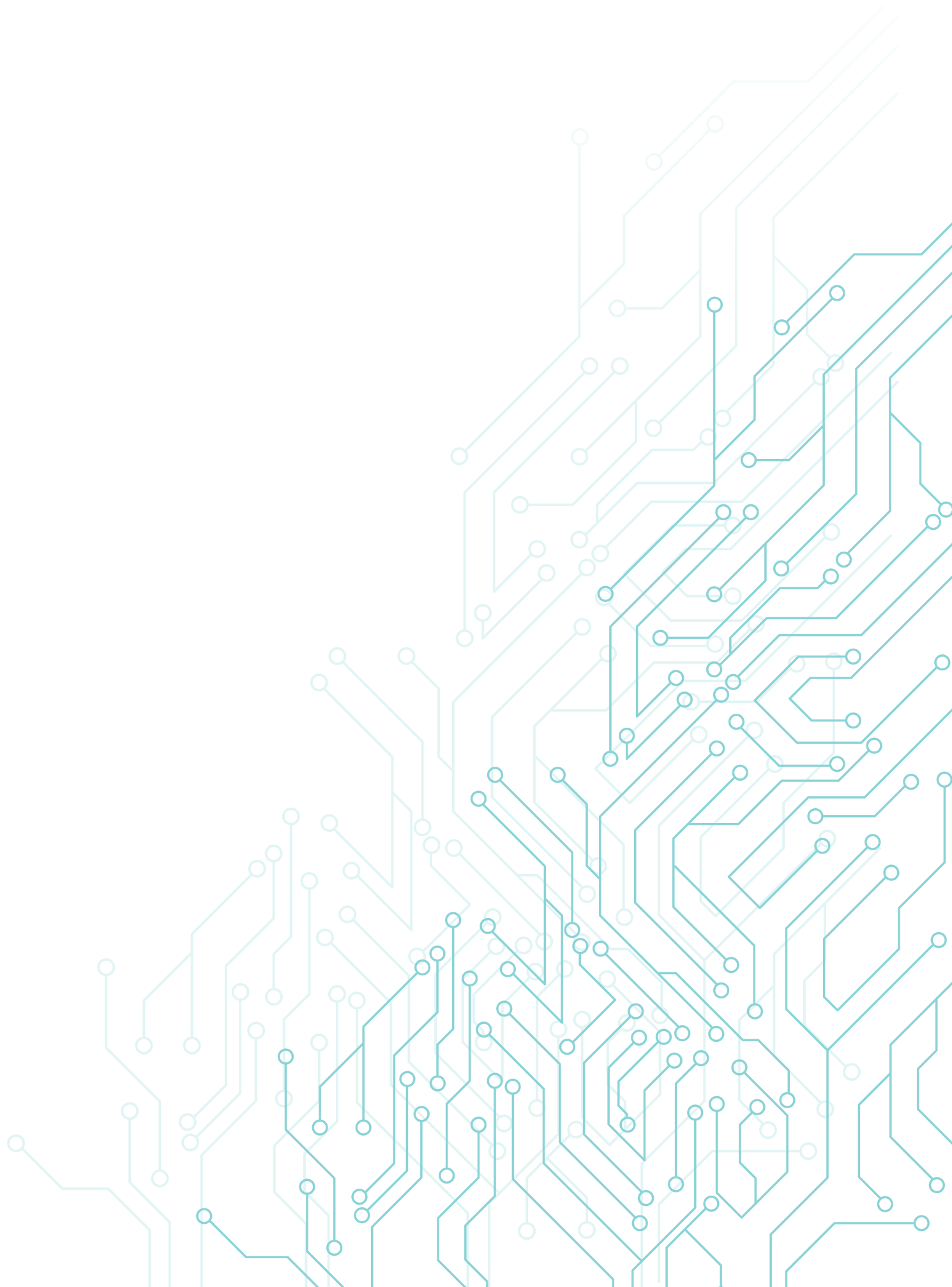
Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0938	Systems and Methods for Magnetic Resonance Image Reconstruction from Incomplete K-Space Data 圖像重建方法、裝置、終端及存儲介質	PRC Application No. 202010810587.8 US Application No. 17/797,119
IPO0944	Methods for Multi-slice and Multi-contrast Magnetic Resonance Imaging with Joint Image Reconstruction and Complementary Sampling Schemes 利用聯合圖像重構和互補採樣方案的用於多切片且多對比度磁力共振成像方法	US Application No. 17/798,572 PRC Application No. 202180014465.0
IPO1022	Systems and Methods for Magnetic Resonance Image Reconstruction with Denoising 帶去噪的磁力共振圖像重建系統和方法	PCT Application No. PCT/CN2022/077989
IPO1158	Systems and Methods for Fast and Calibrationless Magnetic Resonance Image Reconstruction 用於快速和無校準磁力共振圖像重建的系統和方法	US Prov Application No. 63/363,790
IPO1159	Temperature-insensitive MRI Permanent Magnet Designs 溫度不敏感 MRI 永磁體設計	US Prov Application No. 63/308,919

Tissue Engineering 組織工程

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0975	Multiphoton High-throughput Screening of Multiplex Cell Niche Factors-biochips, Methods and Preparation and Applications 多重細胞生態位因子的多光子高通量篩選 - 生物芯片、方法和製備及應用	PCT Application No. PCT/CN2022/075402
IPO0988	A Novel Biomaterial with High Glycosaminoglycan/Hydroxyproline Ratio, Methods and Applications for Tissue Engineering 一種具有高糖胺聚醣 / 羧脯氨酸比的新型生物材料、方法和組織工程應用	PCT Application No. PCT/CN2022/071012

Others 其他

Ref. No. 項目編碼	Title of Invention 發明項目名稱	Patent Application Number 相關專利
IPO0890	Eye Movement Analysis with Co-clustering of Hidden Markov Models (EMHMM with Co-clustering) and with Switching Hidden Markov Models (EMSHMM) 對通過無線鏈路的數據業務的冗余控制	US Application No. 17/755,658 PRC Application No. 201980103423.7
IPO0942	Dissimilar-siamese-u-net Model for Hyperdense Middle Cerebral Artery Sign Segmentation 用於高密度大腦中動脈體徵分割的不同連體 U 網模型	PCT Application No. PCT/CN2021/132919
IPO1018	A Soft Exoskeleton Wearable Device for Temporomandibular Disorder (TMD) Rehabilitation 用於顫下頷關節紊亂康復的軟外骨骼可穿戴設備	US Application No. 17/687,717 PRC Application No. 202210260970.X



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