

2022/23

Dissertation Topics	Supervisor
Estimating the Effects of Smart City Construction on Carbon Emissions in Hong Kong	Prof. Lin ZHANG
Understanding Corporate ESG Scores: The Impact of Market Regulation	Prof. Lin ZHANG
Activated Carbon Derived from Waste Coffee Beans for Super Capacitor	Prof. Guohua CHEN
Developing non-precious Metal Oxide Electrocatalyst for Acidic Water Oxidation	Prof. Jian WANG
Coordination of Smart Energy Station with Second-life Electric Vehicle Battery	Prof. Chunhua LIU
Photodegradation of Liquid Crystal Monomers: Kinetics, Mechanism and Degradation Pathway	Prof. Henry HE
Spatial Distribution Characteristics and Driving Mechanisms of Terrestrial Carbon Sinks in Southern China	Prof. Jin-Soo KIM
Heterojunction Photocatalysts Based on Cu-ZnIn <sub>2</sub> S <sub>4</sub> and Triazine-based Covalent Organic Frameworks (Cu-ZnIn <sub>2</sub> S <sub>4</sub> @Tr-COF) for Efficient Water Splitting	Prof. Michael LEUNG
The trend of electricity fuel mix, the efficiency and cost of central air conditioning and the guidance for enterprises to achieve carbon neutrality	Prof. Michael LEUNG
Direct Capture of CO <sub>2</sub> from Atmosphere by Selective Absorption using Porous Solids to Achieve Carbon Neutrality	Prof. Jin SHANG
Air Pollution Control: Design and Develop Porous Adsorbents for NO <sub>x</sub> Capture	Prof. Jin SHANG
Reshaping Hong Kong's role on Carbon Neutrality: Comparative Study on Carbon Neutrality Toolkit in Hong Kong, Singapore and Mainland China	Prof. Liang DONG
Study and Development of Thermochromic Materials for Window Applications	Prof. Edwin TSO
Bibliometric Analysis of Socio-technological Innovations in Water Governance under the high Water-intensive Industry Perspective: A Case Based on the CDP Water Impact Index Report	Prof. Wanxin LI
Techno-Economic Assessment of Emerging Technologies for the Circular Economy: Converting Food Waste to Novel Medical Textile Material	Prof. Shauhrat CHOPRA
Promoting Carbon Neutrality Towards 2050: Cost Benefit Analysis on Hydrogen Utilities in Hong Kong	Prof. Liang DONG
Electrometallurgical Treatment of Waste Printed Circuit Board for Valuable Metal Recovery	Prof. Jason LAM
Long-Term Feedback Between the Carbon Cycle and El Niño-Southern Oscillation	Prof. Jin-Soo KIM
Occurrence of Organic Light-emitting Materials (OLEMs) in the Indoor Dust	Prof. Henry HE
Using 222 nm far-UVC Light for Surface Disinfection of Microorganisms	Prof. Alvin LAI
Bibliometric Analysis of Socio-technological Innovations in Water Governance in Israel	Prof. Wanxin LI
Study and Development of Colored Daytime Passive Radiative Cooling Ceramic Tiles with Carbon Dots (C-DPRCCT-CDs)	Prof. Edwin TSO
Mitigation of Financial Sector Emissions: Comparative Study in Hong Kong and Singapore	Prof. Liang DONG
Estimating the Effects of Smart City Construction on Carbon Emissions in A Specific Region Using the United Nations' ForFITS Model	Prof. Lin ZHANG

2021/22

Dissertation Topics	Supervisor
Innovative Applications of Advanced Solar Photocatalysis	Prof. Michael LEUNG
Citizen Science and Smart City Development (wastewater recycling)	Dr. Wanxin LI
Life Cycle Sustainability Assessment for "Green" Hydrogen Technologies and Application in Hong Kong: A Technologies Synergism Perspective	Dr. Liang DONG
Plastic Leakage Baseline Assessment in Hong Kong	Dr. Carol LIN
Exploring the Waste Landscape and Urban Metabolism in Hong Kong: a Spatial Explicit Material Flows Analysis	Dr. Liang DONG
Citizen Science and Smart City Development (misconnection of sewage to storm water pipe)	Dr. Wanxin LI
Liquid Crystal Monomers in Air Condition Dust	Dr. Henry HE
Risk assessment of the impact of flood disasters on traffic in Hong Kong under extreme climate	Dr. Shauhrat CHOPRA
Exploring the Sustainability of a Novel Cryptocurrency Based on Proof of State (PoS) and Blockchain: Comparative Study with Bitcoin on Carbon Emission and Social Justice	Dr. Liang DONG
Lactic Acid and Lipase Production from Food Waste via Microbial Fermentation	Dr. Carol LIN
Development of Recycling Process for Primary Alkaline Batteries	Dr. Denis YU
Gas-Particle Partitioning and Human Inhalation Hazards of The Liquid Crystal Monomers (LCMs) In Indoor Air	Dr. Henry HE
Development of Photocatalyst for Hydrogen Production	Prof. Michael LEUNG
Wood Film application in Thermochromic Smart Window	Dr. Edwin TSO
Transition metal-based carbon nanomaterials for Hydrogen Evolution Reaction (HER)	Prof. Michael LEUNG
Photocatalytic H <sub>2</sub> splitting for hydrogen generation	Dr. Sam HSU
Dynamic performance investigation on absorption thermal energy storage	Dr. Wei WU
Integrated block chain and carbon footprint tool for the MRV on corporate's carbon mitigation performance	Dr. Liang DONG
Discovery of emerging organic contaminants in recycling e-device	Dr. Henry HE
Interim report of polymer electrolyte development for lithium-ion battery application	Dr. Denis YU

**2020/21**

<b>Dissertation Topics</b>	<b>Supervisor</b>
Bio-photoelectrochemical Hybrid Devices for Simultaneous Wastewater Treatment and Solar-fuel Generation	Dr. Sam HSU
Citizen Science and Smart City Development: An Exploratory Study of the Greater Bay Area	Dr. Wanxin LI
Development of an Integrated Motor Drive for Drone Propulsion	Dr. Chunhua LIU
Metal pollution in the Pearl River Estuary	Prof. Wenxiong WANG
Investigating VOCs concentrations and emissions from satellite over the Guangdong-Hong Kong-Macau Greater Bay Area	Dr. Xuan WANG
UV-resins for Battery Applications	Dr. Denis YU

2019/20

Dissertation Topics	Supervisor
Comparative Investigations of Different HVAC Systems with / without Desiccant Dehumidifiers	Dr. Wei WU
Comparative Study on Policies of Marine Plastic Litter Management between Two Asian Parts: Hong Kong and Mumbai, India	Dr. Liang DONG
Life Cycle Assessment for Circular Economy Decision-Making	Dr. Shauhrat CHOPRA
Thermal Effects on Urban Flow and Dispersion	Dr. Keith NGAN
Bio-photoelectrochemical Hybrid Devices for Simultaneous Wastewater Treatment and Solar-fuel Generation	Dr. Sam HSU
Citizen Science and Water Conservation in Hong Kong	Dr. Wanxin LI
Citizen Science and Water Conservation in Hong Kong	Dr. Wanxin LI
The Environmental Protection Policy and It's Application of Greater Bay Area	Dr. Wanxin LI
Resilience Analytics of Interdependent Infrastructure in Hong Kong	Dr. Shauhrat CHOPRA
Urban Green Space Management and Policy Implementation in Xi'an, China	Dr. Liang DONG

2018/19

Dissertation Topics	Supervisor
Crosslinking polymer for battery applications	Dr. Denis YU
Hybrid perovskite solar cells for electricity generation	Dr. Sam HSU
Develop Indicators of Sustainable Development Goals for Neighbourhoods in Hong Kong	Dr. Shauhrat CHOPRA
Spatio-temporal characteristics of micro-scale airflow at the Hong Kong International Airport as observed by a short-range LIDAR	Dr. Keith NGAN
Influence of supporting electrolytes and additives on carbon-based electrodes in the cerium solution	Dr. Walid DAOUD
(Bio-) photoelectrochemical devices for solar-fuel generation	Dr. Sam HSU
Development of Metal-Organic Framework (MOF) - Carbon Composite as adsorbents for high-performance gas adsorption and separation	Dr. Jin SHANG
Assess Resilience of Hong Kong's Transportation Infrastructure to gauge its Climate change adaption capabilities	Dr. Shauhrat CHOPRA
Development of zeolite-carbon composite as adsorbents for high-performance gas adsorption and separation	Dr. Jin SHANG
Comparison of Double-stator Permanent-Magnet Electric Machines for Low-speed Application	Dr. Chunhua LIU
Energy conversion between factories and residential buildings for energy conservation	Dr. Wei WU
Design of TiO <sub>2</sub> based nanomaterials for marine anti-corrosion and antifouling technology	Prof. Michael LEUNG
The development of Hybrid Semiconductors for Photovoltaic Cells	Dr. Sam HSU
Recycling of nickel metal hydride (NiMH) batteries	Dr. Denis YU
Stability of High-voltage High-capacity Cathode Material for Lithium ion Batteries	Dr. Denis YU
Iron and Nitrogen Doped on Carbon Material as Electrocatalyst for Oxygen Reduction Reaction (ORR) and Oxygen Evolution Reaction (OER)	Prof. Michael LEUNG
Comparative Investigations of Different HVAC Systems with / without Desiccant Dehumidifiers	Dr. Wei WU

2017/18

Dissertation Topics	Supervisor
Development of a wireless charging system for city tram	Dr. Chunhua LIU
Development of a low-speed machine for electric robotics	Dr. Chunhua LIU
Photovoltaic And Battery Systems for Peak Electricity demand reduction in Hong Kong Residences	Dr. Ian RIDLEY
Development of porous "Nano Containers" for smart gas storage and release	Dr. Jin SHANG
Pollution haven hypothesis and regional heterogeneity in environmental regulation	Dr. Lin ZHANG
The effectiveness of emission trading on the energy efficiency in China	Dr. Lin ZHANG
Energising Business Models of Solar Energy in Asia	Dr. Masaru YARIME
Policy and Institutional Analysis of Innovation Systems on Smart Cities	Dr. Masaru YARIME
Variability of Solar Radiation in Hong Kong	Dr. Wen ZHOU
Secondary organic aerosol formation	Prof. Chak K. CHAN
Atmospheric heterogeneous reactions	Prof. Chak K. CHAN
Modelling changes in particulate dispersion in HK parks induced by the replacement of exotic trees with native varieties	Prof. Peter BRIMBLECOMBE
APEC 2014, blue skies and short term improvement to Beijing's air quality	Prof. Peter BRIMBLECOMBE
Evaluate impacts of Southeast Asia biomass burning on Hong Kong air quality using WRF-CMAQ models	Dr. Nicky LAM
The diurnal cycle along South China coast during summer monsoon season	Dr. Wen ZHOU

2016/17

Dissertation Topics	Supervisor
Smart Environment: Superhydrophobic membrane distillation for wastewater resource recovery and reuse	Dr. Alicia AN
Noble Development for Seawater Desalination	Dr. Alicia AN
Air pollution	Prof. Peter BRIMBLECOMBE
Spatial decoration of cocatalysts on tungsten oxide for the remediation of micropollutants	Dr. Wey Yang TEOH
Development of a Wireless Power Transfer System for Aircraft Charging	Dr. Chunhua LIU
Development of a New Wireless Charging for Micro Medical Robotics	Dr. Chunhua LIU
Recycling of Primary Batteries	Dr. Denis YU
Direct Fermentation of Sugars to Jet Fuel	Dr. Carol LIN
Carbon Audit	Prof. Michael LEUNG
Electrochemical Study of cerium redox couple for flow battery application	Dr. Walid DAOUD
Self-cleaning materials and surfaces via nanotechnology	Dr. Walid DAOUD
Economic Analysis and Climate Change Policy: Lessons Learned and Future Challenges	Dr. Aude POMMERET
Post Occupation Evaluation (POE) of Academic Building 3, CityU, Hong Kong	Dr. Ian RIDLEY
Simulation Derived Multiple Regression Models of Indoor Thermal Comfort and Energy Performance in Residential Units of Hong Kong's Public Housing	Dr. Ian RIDLEY
Building Performance Assessment in Energy Use of Commercial Buildings in Hong Kong	Prof. Michael LEUNG
Stratosphere - troposphere Coupling and Blocking	Dr. Keith NGAN
Turning waste into energy for waste reduction and resource saving	Dr. Alicia AN
Cathode materials for sodium-ion batteries	Dr. Denis YU

2015/16

<b>Dissertation Topics</b>	<b>Supervisor</b>
Enhanced oil sorption performance of polystyrene nanofibers using carbon nanotube composite fabricated by electrospinning	Dr. Alicia AN
Quantitative Comparison of Stator-PM Machines for Wind Power Generation	Dr. Chunhua LIU
Design and Analysis of Dynamic Charging of Electric Vehicle by Wireless Power Transfer	Dr. Chunhua LIU
Electrochemical Characteristics of Layered-Spinel Li <sub>2</sub> MnO <sub>3</sub> /Li <sub>4</sub> Mn <sub>5</sub> O <sub>12</sub> Composite Powders as Lithium Battery Electrode Materials	Dr. Denis YU
Analysis on the possibility in adopting the Passive Architectural Design for high-rise buildings in Hong Kong	Dr. Ian RIDLEY
An Analyse in the Feasibility of Adapting Renewable Energy for Hong Kong	Dr. Aude POMMERET
Long Term Trends in Visibility and Air Pollution in Hong Kong	Prof. Peter BRIMBLECOMBE
Effect of anthropogenic behavior on air pollution during Chinese New Year in different cities: A case study of 2015	Prof. Peter BRIMBLECOMBE
Vertical profile campaign using CE-DOAS and bag sampling technique	Dr. Nicky LAM
Developing a Technique to Combine Active and Passive DOAS Measurements using a LP-DOAS Instrument	Dr. Nicky LAM
Data Assimilation of Personal Exposure Profile with Air Pollution and Environmental Sensors	Dr. Zhi NING
Evaluation of Evaporative VOCs in Passenger Vehicles for Regional Air Quality Management	Dr. Nicky LAM
Local Governance for Mitigating Climate Change in Hong Kong	Dr. Scott VALENTINE
Sustainability Assessment for Metropolitan City	Prof. Michael LEUNG



2014/15

Dissertation Topics	Supervisor
Designing of Organic Capped Noble Metal Functional Nanomaterial as Novel Sensitizers for Solar Cells	Dr. Michael LEUNG
Aerogel in Thermoelectric Material	Dr. Walid DAOUD
Functional evaluation of novel cellulose-degrading enzyme	Dr. Patrick LEE
Greenhouse Gas Accounting in Waste Sector in Hong Kong	Dr. Alicia AN
Implementation of Environmental Education in Hong Kong: A Evaluation of the Environmental Education Outcome	Dr. Aude POMMERET
Impact of traffic block on the urban roadside and general air quality in Hong Kong	Dr. Zhi NING
Fast charging anode material for Li-ion batteries	Dr. Denis YU
Modification of Carbon-based Electrode for Electrochemical Energy Storage	Dr. Walid DAOUD
Vertical NO <sub>2</sub> measurements with cavity enhanced differential optical absorption spectroscopy	Dr. Nicky LAM
Benchmarking Greenhouse Gas Emissions of Office Buildings in Hong Kong	Dr. Michael LEUNG
Temporal variation of black carbon concentration in Hong Kong and its possible reasons	Dr. Zhi NING
Particle Size and Alloy Composite Effect on Aluminum Anode Material for Li-ion Batteries	Dr. Denis YU

2013/14

Dissertation Topics	Supervisor
Turning carbon dioxide into fuel: computational study of catalytic CO <sub>2</sub> reduction	Dr. Patrick SIT
Aging and High Temperature Testing of Li-rich Materials as Cathode for Li-ion Battery	Dr. Denis YU
Spatial and temporal variability of precipitation over Hong Kong, 2010-2013	Dr. Keith NGAN
Feasibility Study of Co-Generation by Landfill Gas in Hospitals in Hong Kong	Dr. Michael LEUNG
Air-conditioner with direct contact between air and chilled water	Dr. Michael LEUNG
Relationship between mechanical properties of binder and stability of alloy anodes — Feasibility Research of Polyimide DB100 binder in Tin-Based Materials	Dr. Denis YU
Studying the relationship between PM <sub>2.5</sub> concentration and meteorological conditions in Beijing	Dr. Zhi NING
Waste to Energy – A sustainable Solution to Municipal Solid Waste Management in Hong Kong	Dr. Patrick LEE
Investigation of Vehicle Emissions Control on Urban Air Quality	Dr. Zhi NING
Develop a Portable and Open Source Air Quality Monitors Based on Arduino Platform	Dr. Zhi NING
Development of an algorithm for automatic calculation of passing-by vehicle emission factor from roadside measurement	Dr. Zhi NING
A STUDY OF THE PHOTOCATALYTIC PROPERTIES OF GLUTATHIONE (GSH)-CAPPED GOLD NANOCCLUSERS (Au <sub>x</sub> -NCS)/TiO <sub>2</sub> IN THE PHOTODEGRADATION OF BISPHENOL A (BPA) UNDER VISIBLE LIGHT	Dr. Wey Yang TEOH
Energy Efficiency and Thermodynamic Analysis of Advanced Oil Free Magnetic Bearing Chiller System	Dr. Michael LEUNG
Determination of the air, surface, and skin microbiomes of Hong Kong's households using high-throughput metagenomic sequencing analysis	Dr. Patrick LEE
Production of lactic acid in Escherichia coli (E. coli) SDU4 under different fermentation conditions	Dr. Carol LIN
Urban Ambient Air Monitor of Black Carbon Concentration by Busing Aethalometer <sup>TM</sup> Instrument	Dr. Zhi NING
Numerical Investigation for Optimizing Performance of Triboelectric Generators for Mechanical Energy Harvesting	Dr. Walid DAOUD

2012/13

Dissertation Topics	Supervisor
Elucidating the mechanism of novel Fe-based nanocatalysts in the preferential oxidation of carbon monoxide	Dr. Wey Yang TEOH
Photodeposition of noble metals and metal-oxides on colloidal semiconductor nanocrystals for solar energy harvesting, water splitting and hydrogen generation	Dr. Wey Yang TEOH
Graphene oxide modified gold electrode as electrochemical sensor for detection heavy metal ions in drinking water	Dr. Wey Yang TEOH
Trigeneration – A Study of Trigeneration System and Its Potential of Development in Hong Kong	Dr. Josie CLOSE
Identification of novel anaerobic fermentative bacteria in cellulose-degrading consortia	Dr. Patrick LEE
Life-cycle evaluation of greenhouse gas emission of precast concrete panel	Dr. Michael LEUNG
Fabrication of Hematite Photoanode for Photoelectrochemical Water Splitting	Dr. Wey Yang TEOH
Photocatalytic Microfluidic Reactor for Dye Degradation	Dr. Michael LEUNG
Investigation of indoor air quality: two case studies	Dr. Zhi NING
Energy-Efficient Cold Water Drop Air Conditioner	Dr. Michael LEUNG
Fabrication of Nanogenerator	Dr. Walid DAOUD
Towards a small scale tidal energy generation system in remote shallow areas with low speed currents	Dr. Josie CLOSE
Research on the synoptic weather pattern of extreme temperature in Macao	Dr. Wen ZHOU
Can we predict heat waves a season ahead in Hong Kong?	Dr. Francis TAM
Factors Effecting a Solar-TEG Hybrid System	Dr. Walid DAOUD
Waste heat recovery for enhancing heat dissipation by thermoelectric materials	Dr. Walid DAOUD

2011/12

Dissertation Topics	Supervisor
Commuter Pollution Exposure in Hong Kong Transport System	Dr. Zhi Ning
Photocatalytic Water Splitting Over Quantum Dot-Sensitised Titanium-Graphene Nanoassemblies	Dr. Wey Yang Teoh
PM, NOx and Butane emissions from on-road vehicle fleets in Hong Kong and their implications on emission control policy	Dr. Zhi Ning
Advanced Cooling of LED Lighting System by Heat Pipe	Dr. Michael Leung
Advices on greener consumption of clothing in Hong Kong by evaluation of carbon footprint for garment products through Life Cycle Analysis	Dr. Michael Leung
Doppler Weather Radar Dynamics Retrieval for Thunderstorm Nowcasting	Co-supervised by Dr. Wen Zhou and Dr. Li Ping Wah from HKO
Life cycle GHG analysis for crystalline silicon and thin film generation photovoltaics	Dr. Michael Leung
Optimal use of green technologies on roof of high-rise buildings to achieve high green-building performance	Dr. Michael Leung
Life cycle assessment of waste management options in megacity Focus on food waste	Dr. Nicky Lam
Life cycle assessment of food waste management options in megacity such as Hong Kong	Dr. Patrick Lee
Remediation of contaminated drinking water using novel graphene/photocatalyst nanocomposites	Dr. Wey Yang Teoh
Developing a smart bus distribution model for improving Hong Kong roadside air quality	Dr. Zhi Ning + Dr. Nicky Lam
Predicting the day-to-day variations of air quality of Hong Kong using an NWP model	Dr. Francis Tam

**2010/11**

<b>Dissertation Topic</b>	<b>Supervisor</b>
Designing of nanotubular arrays as efficient photoelectrodes	Dr. Wey Yang TEOH
The impact of ENSO on the East Asian winter climate and its decadal variability	Dr. Francis TAM
Nanostructured photocatalysts for solar water purification	Dr. Michael LEUNG