

SKLMP NEWSLETTER

VOL. 1
AUG 2021

DIRECTOR'S WELCOME MESSAGE

Dear Friends, Colleagues and Students,

“

“Each giant tree grew from a tiny bud.

A nine-story terrace was built from piles of soil.

A journey of a thousand miles started from a first step.”

by Lao Tzu in “The Classic of the Way and Virtue”

「合抱之木，生於毫末；九層之臺，起於累土；

千里之行，始於足下。」

老子《道德經》

”

I am immensely gratified to launch this inauguration newsletter of SKLMP. It symbolizes a step forward for strengthening our communication, connection and community. In this newsletter, we would like to introduce our new SKLMP members, highlight some of our recent research outputs, report on the latest development of the lab, share good news and promote upcoming events. We target to produce two newsletters per annum. Your suggestions and contributions for advancing the newsletter will be most welcome. Let's embark on our exciting journey together!

Kenneth Leung, Director of SKLMP

Aug 2021



BREAKING NEWS

SKLMP leads a ten-year "Global Estuaries Monitoring (GEM)" Programme, endorsed by United Nations

SKLMP has been endorsed by the United Nations (UN) to lead the ten-year "Global Estuaries Monitoring (GEM) Programme" as one of the 'Ocean Decade Actions' for the "UN Decade of Ocean Science for Sustainable Development". *"The Decade is embracing a participative and transformative process so that scientists, policy makers, managers, and service users can work together to ensure that ocean science delivers greater benefits for both the ocean ecosystem and for society."* The GEM Programme led by Professor Kenneth Leung is the only endorsed proposal from Hong Kong in this first round of application and one of two endorsed "Ocean Decade Actions" from China. The results of GEM Programme will reveal the pollution situation around the globe, identify the estuaries that require attention and improvement, recommend priority contaminants for control, and promote best practices to combat the pollution problems and thereby creating cleaner estuaries for all.

The core collaborative partners of the GEM Programme include, Professor Alistair Boxall from the University of York, UK, Professor Martina Doblin from the Sydney Institute of Marine Science (SIMS), Australia, Professor



Photo: WorldHarbour project

Bryan Brooks from Baylor University, USA, and Dr Yuan Shen from the State Key Laboratory of Marine Environmental Science (MEL) in Xiamen University, China.

The first phase of the sampling will be launched in May 2022 in major urbanised estuaries in the southern hemisphere, and extended to the northern hemisphere in November of the same year. It is expected that about 100 countries or regions will participate. The research team expects to publish the report after the completion of the first phase in 2023, revealing the pollution status of global estuaries.

Find out more:
www.globalestuar.org



SUMMARY OF RESEARCH SCOPES

The first round of SRT brainstorming meetings were successfully held in April 2021 led by the SRT leaders. A total of 43 members and staff participated in co-designing the research topics and proposals for each theme which are summarised as follows:



Theme 1 Innovative Technology for Pollution Monitoring and Control

- **Monitoring:** Focus on monitoring of faecal bacteria using biosensor-, protein- and DNA sequencing-based approaches.
- **Pollution Control:** Focus on top priority endocrine disrupting chemical contaminants with higher concentrations in the environment and develop novel technologies to remove them.



Theme 2 Eco-Safety and Environmental Risk Assessment

- **Exposure analysis:** Investigate the environmental fate and transformation of i) microplastics and ii) selected top priority chemicals of emerging concerns.
- **Effect analysis:** Examine the toxicity of the above pollutants using novel and integrative approaches, and develop predictive toxicity models.



Theme 3 Ecosystem Responses and Ecological Restoration

- **Ecosystem Responses:** Write a review paper on pressing problems (e.g. eutrophication, hypoxia, debris) and develop eDNA library for studying ecosystem responses in Hong Kong and the Greater Bay Area.
- **Ecological Restoration:** Identify problems affecting coral reefs and develop a multi-purpose super device for coral restoration. Test and recommend the most effective approach to governments in Hong Kong and beyond.



Research highlights



Prof.
W.X. Wang

Associate Dean
& Chair Professor
School of Energy &
Environment, CityU

Adenine deficient yeast: A fluorescent biosensor for the detection of Labile Zn(II) in aqueous solution

A novel biosensor for detecting zinc (Zn) in ocean was established, based on the autofluorescence intensity of an adenine deficient yeast (Ade(-) yeast). This biosensor could detect Zn²⁺ at ultralow concentration (0.01 μM) and accurately quantify the extracellular concentration of Zn²⁺ ranging from 0.01 to 0.5 μM. High tolerance of Ade(-) yeast to salinity, pH variation and other metals enabled its application in complex marine environments.

Biosensors &
Bioelectronics 79:113075



Dr. Yuefei Ruan

Research
Assistant Professor
SKLMP

Target, Nontarget, and Suspect Screening and Temporal Trends of Per- and Polyfluoroalkyl Substances in Marine Mammals from the South China Sea

The research team conducted target and non-target screening of PFASs in marine mammals in the South China Sea, stranded between 2012 and 2018. Significant increasing temporal trends were found in concentrations of some emerging PFASs. 44 PFASs were additionally identified by non-target screening, among which 15 compounds were reported for the first time in marine mammals. A primary risk assessment showed that 6:2 Cl-PFESA might pose adverse impact on reproduction of the marine mammals.

Environmental Science &
Technology 55:1045-56



Dr. Leo Lai Chan

Associate
Director
SKLMP

Characterizing the Host Coral Proteome of *Platygyra carnosa* Using Suspension Trapping (S-Trap)

Stony corals form the foundation of coral reefs. A robust workflow for investigating the coral proteome is essential in understanding coral biology. The research team found that a combination of bead homogenization with suspension trapping preparation could yield more than 2,700 proteins from stony coral samples. Additionally, this method achieved good reproducibility in quantitative analysis, and obtained efficient characterization in coral host proteomic landscape, providing a foundation to explore the molecular basis of the responses of coral host to environmental stressors.

Journal of Proteome
Research 3:1783-91



ITB VISIT

On 13th July 2021, we had the honour of hosting the visit of Mr Alfred Sit, Secretary for Innovation and Technology, and Ms Rebecca Pun, Commissioner for Innovation and Technology, the HKSAR Government. Mr Sit and Ms Pun were very interested in our research endeavours and our ongoing R&D development in China and beyond. They also had a fruitful discussion with members, staff and students of SKLMP.



SKLMP UPDATES

10th Anniversary Book is Published

SKLMP is now ten! To celebrate its first double-digit anniversary milestone, SKLMP published a book to bring our members, collaborators and supporters together for beautiful moments of reflection, commemoration and celebration.



Lab Equipment Booking at Your Fingertips

SKLMP laboratory equipment is provided exclusively for our members from seven local universities for free of charge. Members are encouraged to reserve lab equipment for their experiments via our new online booking system. New instruments such as GC Orbitrap, Elementar vario TOC analyser, Nano sequencer are now available for reservation.



Find out more:
<http://www.cityu.edu.hk/sklmp/booking>



UPCOMING EVENTS

BECOME 2022

The 2nd International Conference on biodiversity, ecology and conservation of marine ecosystems (BECOME-2022) will be held during 2-8 January 2022 at CityU serving as a platform for participants around the world to share latest findings and ideas on pressing global marine biodiversity challenges.



Find out more:
<https://www.become2022.com>



East Asian Seas Congress 2021

East Asian Seas Congress 2021 will be held during 1-2 December 2021 and organised by PEMSEA. SKLMP has been invited to organise two 'Collab' sessions on 'Pollution Assessment and Management' via an online platform between October and November.



Find out more:
<https://bit.ly/3iB35Gi>



NEW MEMBERS



Dr. Yun Hing CHEUNG

Associate Professor
Department of Chemistry, CityU
Expertise:
Marine pollution and toxicology



Dr. Patrick Kwan Hon LEE

Associate Professor,
School of Energy and Environment, CityU
Expertise:
Microbiome, Environmental microbiology,
Microbial ecology, Bioinformatics, Environmental
sciences and engineering



Dr. Laura FALKENBERG

Assistant Professor
Simon FS Li Marine Science Laboratory,
School of Life Sciences, CUHK
Expertise:
Global change biology, Marine ecology,
Ocean acidification, Ocean warming,
Marine pollution



Dr. Celia SCHUNTER

Assistant Professor
School of Biological Science, HKU
Expertise:
Molecular ecology, Transcriptomic,
Epigenomics, Global change biology



Dr. Yi JIANG

Assistant Professor
Department of Civil and Environmental
Engineering, PolyU
Expertise:
Environmental fate and transport of
emerging nanoscale contaminants,
Advanced water treatment technologies



Dr. Ruquan YE

Assistant Professor
Department of Chemistry, CityU
Expertise:
Water desalination, Pollutant removal &
degradation, Energy harvest and
conversion, Sensor, Materials science



Dr. Chun Ho Jason LAM

Assistant Professor
School of Energy and Environment,
CityU
Expertise:
Electrocatalysis, Pollutant degradation,
Mechanistic study, Biomass valorization,
Green chemistry



Prof. Xiaoling ZHANG

Professor
Department of Public Policy, CityU
Expertise:
Sustainability science, Environment
economics/Management studies, Energy policy
renewable, Sustainable energy use



Prof. Wen ZHOU

Professor
School of Energy and Environment, CityU
Expertise:
Climate change, Extreme weather, Marine
heatwaves, Sea level rise, Risk assessment



Call for Contributions

To better capture the news, updates and great work of the SKLMP members and community, we are now calling for contributions for the next issue of our newsletter. Please email us your contributions (up to 100 words) to sklmp.info@cityu.edu.hk by November 30th 2021. Ideas of contributions include your new publications or projects, received awards, and conferences or meetings that are of particular interest to the SKLMP members. We look forward to your contributions!



We are on social media

We are hoping to get in touch with members who would love to connect with us on social media networks. Please like and follow us on Facebook, Twitter and WeChat to receive our latest news and notices.

