Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2022-71
Project Title:	Environment and Conservation Fund - Monitoring the real-time temporal trends, concentrations, and sources of bioaerosols in the indoor air of commercial buildings in Hong Kong
Principal Investigator:	Dr Lee Patrick Kwan Hon, School of Energy and Environment, City University of Hong Kong
Total Approved Grant:	$499,200
Duration:	1/7/2023 to 31/12/2024
Project Status/Remarks:	On-going
Project Scope:	Bioaerosols, which mainly comprise bacteria, fungi, and pollen, account for ~34% of particulate matter in indoor air. With people spending more than 85% of their time indoors, exposure to bioaerosols is a serious public health concern. The conventional culture-based methods for monitoring indoor bioaerosols are labour-intensive, provide no real-time data, and tend to underestimate concentrations. Alternatively, advanced ultraviolet light/laser-induced fluorescence (UV-LIF) instrumentation can provide high-resolution, real-time, and size-resolved data on airborne biological particles. In the proposed study, the project team will monitor the real-time diurnal trends and concentrations of bioaerosols in four representative commercial buildings in Hong Kong in summer and fall using UV-LIF instruments. The project team will monitor the outdoor bioaerosols in parallel and conduct regression modelling to determine the relative contributions of indoor and outdoor sources to indoor bioaerosols. The concentration of indoor bioaerosols will also be correlated with other physical and chemical indoor air quality parameters and occupant activities to evaluate their influences on indoor bioaerosols. The results of the proposed study will elucidate the real-time temporal trends, concentrations, and sources of bioaerosols in the indoor environments of commercial buildings in Hong Kong to inform the implementation of measures by building operators to better protect the health of occupants.
Summary of the Findings/ Outcomes:	To be available upon completion of the project