

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2021-149
Project Title:	Photoluminescent carbon dots converted from biomass for VOCs sensing
Principal Investigator:	Dr Au Yeung Ho Yu, Associate Professor, Department of Chemistry, The University of Hong Kong
Total Approved Grant:	\$498,000 (ECF & WWGF: 50/50)
Duration:	1/10/2022 to 31/3/2025
Project Status/Remarks:	On-going
Project Scope:	<p>Volatile organic compounds (VOCs) are organic chemicals with a relatively low boiling point and hence are easily emitted to air from products that contain VOCs including building materials, home furnishing or household products. Many VOCs, such as formaldehyde, acetaldehyde and benzene, are toxic and carcinogenic, and can pose imminent threats to human health. Rapid and sensitive detection of VOCs is therefore of a critical importance to health and environmental safety.</p> <p>This project aims at developing a convenient and inexpensive approach for the efficient sensing of VOCs by luminescent carbon dots produced from biomass. Compared with other conventional VOC detection methods, luminescent sensing by the use of a luminescent probe is fast, selective, and easy to operate. Luminescent carbon dots, derived from locally produced biomass as the carbon source, will be developed as luminescent probes for VOCs. These new carbon dot-based VOC probes not only offer an easy and inexpensive method for air quality management, but also provide an opportunity for the up-valuing of local wastes and reducing carbon emission.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project