

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2021-152
Project Title:	Clean photocatalytic re-solutioning of precious elements from eWaste and re-use as single-atom catalysts
Principal Investigator:	Professor Guo Zheng Xiao, Department of Chemistry, The University of Hong Kong
Total Approved Grant:	\$1,281,360
Duration:	1/9/2022 to 31/8/2025
Project Status/Remarks:	On-going
Project Scope:	<p>A future eco-friendly society, as an overall objective for electronic waste (eWaste) management in Hong Kong (HK), relies on the full treatment of eWaste to meet the increasingly stringent environmental / health requirements - ideally with economic benefit. As a global city well-known for its electronic goods, HK generates around 70,000 tonnes of electrical and electronic waste per year, rising by 2% annually. Direct export of the eWaste (currently ~ 80% in HK) is both costly and increasingly restricted, and random disposal to landfills (currently ~20%) causes environmental / health concerns. This project aims to develop both a clean and economically viable technology - by solar-driven photocatalytic re-solutioning of precious elements (e.g. Au, Ag, Pd) from eWaste and then transform those into highly effective single-atom catalysts, e.g. for batteries. The project not only leads to effective eWaste management, but also turn waste into high-value added and highly desirable resources.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project