

THE EDUCATION UNIVERSITY OF HONG KONG  
FACULTY OF LIBERAL ARTS AND SOCIAL SCIENCES

**Research Output/Impact/Knowledge Transfer Prize**  
**for the Dean's Research Fund 2018-19**

**Brief Introduction of Awardee's  
Research/KT Publication/Study/Output and Future Research/KT Development**

**Awardee (Dept):** Dr. Tsang Yiu Fai, Associate Professor (SES)  
**Publication Title/KT project:** Inhibitory effect of self-generated extracellular dissolved organic carbon on carbon dioxide fixation in sulfur-oxidizing bacteria during a chemoautotrophic cultivation process and its elimination

A. *Briefly introduce your research/KT publication/study/output for which you have received the prize.*

The features of extracellular dissolved organic carbon (EDOC) generation in two typical aerobic sulfur-oxidizing bacteria (i.e., *Thiobacillus thioparus* DSM 505 and *Halothiobacillus neapolitanus* DSM 15147) and its impact on CO<sub>2</sub> fixation during chemoautotrophic cultivation process were investigated. The results showed that EDOC accumulated in both strains during CO<sub>2</sub> fixation process. In addition, the tailor-made membrane bioreactor effectively decreased the EDOC/TOC ratio and improved carbon fixation yield.

B. *How you used/will use your prize and perhaps its usefulness to your research/KT development?*

The prize will be used to recruit a research assistant and to support the necessary technical services to conduct follow-up experiments about this topic.

C. *Expected research/KT outcomes/outputs/impacts arising from this prize.*

I expect that a GRF proposal will be developed for submission.