



## Development and Modification of Semiconductor Photocatalysts for Air Purification

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### ABSTRACT

Volatile Organic Compounds (VOCs) are major components of indoor air pollution. VOCs are composed of various alcohols, aromatics (benzene, toluene), aldehydes (acetaldehyde, formaldehyde), and halocarbons. VOCs cause adverse effects on human health and are the main culprit for sick building syndrome. Photocatalysis is an ideal method for removing VOCs present at low concentrations in an indoor environment because it operates at ambient temperature and pressure to mineralize them to CO<sub>2</sub> and H<sub>2</sub>O. Our laboratory studies highly efficient and economical photocatalyst for VOC degradation and aims to commercialize photocatalyst for air-purification.

In the case of pollutants degradation, semiconductor-based photocatalysts produce highly reactive oxygen species such as hydroxyl radical by absorbing a photon that has equivalent or greater energy than the band gap of the semiconductor. The hydroxyl radical is the most eco-friendly oxidant because it changes into the H<sub>2</sub>O after the redox reaction.

**Date:** 14 June 2019 (Friday)  
**Time:** 16:00 – 18:00  
**Venue:** Room Y409, 4/F, Block Y,  
The Hong Kong Polytechnic University,  
Hung Hom, Kowloon

### SPEAKER'S BIOGRAPHY

Prof. Wonyong Choi is a Professor of the Division of Environmental Science and Engineering, Department of Chemical Engineering, Pohang University of Science and Technology (POSTECH) since 1998. He has been working on semiconductor photocatalysis for environmental and energy applications, solar hydrogen production, development of visible light active photocatalysts; Advanced Oxidation Processes (AOPs), and environmental photochemistry and ice chemistry. Prof. Choi earned a Doctorate in Environmental Chemistry at California Institute of Technology, USA in 1996. Prof. Choi has been elected as the Fellow of Korean Academy of Science and Technology (KAST) and Fellow of the Royal Society of Chemistry (FRSC). He won the KAST Science and Technology Award in 2014 and the Korea Engineering Award in 2018. He has published 291 SCI journal papers with total citation >35,300 times (H-index: 78), as of April 2019. He serves as an Associate Editor of Environmental Science and Technology (ES&T) and has been in the Editorial Advisory Board of Energy and Environmental Science (RSC).

\*\*\* All Interested Are Welcome \*\*\*

For further information, please contact Prof. S.C. Lee at Tel. 2766 6011.

Free Admission. Certificates of attendance will be provided to participants if they attend the whole lecture.