Chemical Engineering

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Chan-Li, Hsueh(薛展立)
Membrane, AOPs

Wang-Ping, Ting (丁泳屏)
Electro-Fenton,
Zero-valent iron

Yi-Fong, Huang (黃毅峰)
Photo-Electro-Fenton

Chun-Ping, Huang(黃君平)
AOPs, Phase Transfer Cat.

Hung-Chih, Tsai (蔡宏志)
Photo-assisted Fenton

Chi-Chang, Hung (洪啓昌)
Phosphorus removal

Yu-Wen, Lu (盧郁文)
Fenton Family

Li-Wei, Lin (林立偉)
FBR-Fenton, AOPs,
Microfiltration

Chun-Yi ,Lu (呂俊毅)
Pervaporation, Fuel Cell

Research Interests:

Our research group is interested in water purification and wastewater treatment processes. We mainly focus on advanced chemical oxidation. In Taiwan, many industrial wastewater treatment plants must add advanced treatment units to meet the effluent standards. Advanced oxidation processes (AOPs) which involve the generation of hydroxyl radical (·OH) are widely being used for treating not only industrial wastewater but also drinking water and domestic sewage. AOPs are concerned as the technology for treating non-biodegradable organics or toxic industrial organic compounds. Advanced oxidation process comprise a variety of reactions such as ozone/ultraviolet, ozone/hydrogen peroxide, Fenton oxidation, and sonolysis etc., depending on the way of producing ·OH. Among various advanced oxidation processes, Fenton's reagent (H_2O_2/Fe^{2+}) has been known to be effective. The major drawback of Fenton's reaction, however, is the production of substantial amount of sludge that requires further disposal. To address this problem, our research group has studied and developed a series of modified Fenton technologies. These technologies, herein termed "Fenton Family Technologies", not only reduce the iron sludge but also improve the COD removal efficiency.

Photo 1. The outer view of FBR-Fenton process.

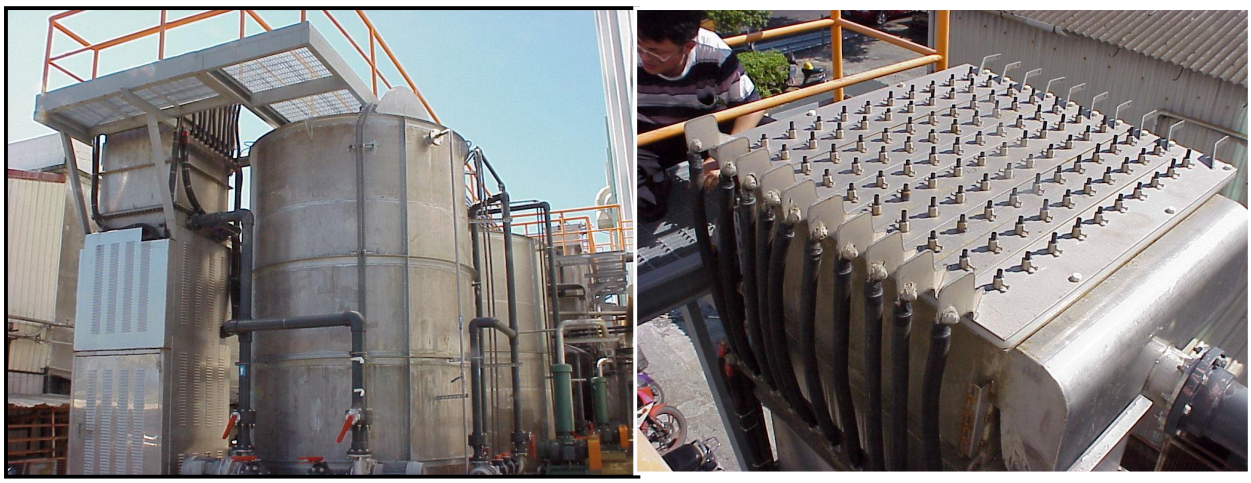

Photo 2. The outer view of Electro-Fenton process.

The right photo shows the electrolytic tank with 100 anodes and cathodes.