



Online Technical Talk

Constructing Sustainable Semiconductor Manufacturing through Open Learning



IEM

The Institution of Engineers, Malaysia
(Penang Branch)

Topic 1: Sustainability in Semiconductor Manufacturing

Synopsis

Semiconductor is a fuel to boost digital economy. Demand for chips increases as the application of Artificial Intelligence puts more pressure on the semiconductor supply chain. This needs to be achieved through sustainable manufacturing to minimize negative impacts to the environment. In manufacturing, there are many ways to become more sustainable while achieving the bottom line.

In this talk, ways to achieve sustainability in manufacturing, challenges as well as learning from other industries will be discussed.

About the Speaker

Dr. Beth Yam graduated from University Sains Malaysia with a PhD, major in Polymer Science. She joined Intel in 2000 as Senior Materials Engineer and engaged in development. Her role expanded from Underfill to other materials (flux, paste, spheres), and eventually became the Materials Development Lead for several products. In 2006, she joined Assembly Test Manufacturing (ATM) as a Group Leader (GL) and experienced a brown field startup to ramp and to grow the factory.

Aligning to her passion as technical contributor, she was nominated as ATM Principal Engineer and being the 1st female Principal Engineer in Intel Malaysia in 2016. She has progressed as Advanced Packaging Factory Manager, a greenfield startup. Recently she has transitioned as Sr Director Assembly Technology Development – Asia. Outside of work, she is also actively engaged in International Editorial Board for Materials Science in Semiconductor Processing, Elsevier & Industry/Community Advisory Panel (ICAP) for School of Materials Engineering, University Sains Malaysia.

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17 Feb 2025 (Mon)



3:00pm – 5:00pm



BEM CPD Hours: 2

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Speaker

Dr. Beth Yam Wei Yin

Sr Director

Asia Assembly Technology Development

Topic 2:

Study on practical application of advanced oxidation process (AOP) & RO membrane for treatment of wastewater from semiconductor and electronics industry

Synopsis

In this study, a treatment plant for semiconductor and electronics wastewater was investigated. The treatment includes (i) Fenton-related advanced oxidation process (AOP) accompanied by coagulation, and (ii) microfiltration (MF) and reverse osmosis (RO). The pre-treatment processes were operated based on optimal conditions which were experimentally determined. For RO membrane system, the plate frame RO (PFRO) and spiral wound RO (SPRO) were used to obtain high-quality permeate, while the high pressure (HP PFRO) module was employed for recovering of concentrated streams.

Results showed that during 5 months on-site operation, significant COD removal efficiency of 26.23%, 19.64%, and 99.62% were found at Fenton, coagulation, and SPRO units, respectively. The heavy metal concentration (i.e., Cu, Fe, Zn, Mn, Cr) measured in the effluent also satisfied the allowable discharge levels. In addition, high recovery rate of permeate can be obtained from different RO modules (i.e., PFRO 56%, HP PFRO 9.11%, especially SPRO > 80-90%).

About the Speaker

Dr. Ho Ngo Anh Dao is the Dean of the Faculty of Environment and Labour Safety at Ton Duc Thang University, Vietnam. She holds a PhD in Engineering and Technology and specializes in environmental engineering, sustainable waste management, and advanced water and wastewater treatment technologies. Her research focuses on bio-electrochemical systems for resource recovery, wastewater treatment and reuse, recycling of waste to produce valuable materials.

She is the author of numerous publications in this field and has actively led national and international research projects. Her research outcomes have significantly advanced sustainable development through innovative engineering solutions and environmental technology.

In Collaboration with:



Speaker

Dr. Ho Ngo Anh Dao

Dean of Faculty of Environment & Labour Safety
Ton Duc Thang University, Vietnam



Moderator

Assoc. Prof. Ir. Dr. Leo Choe Peng