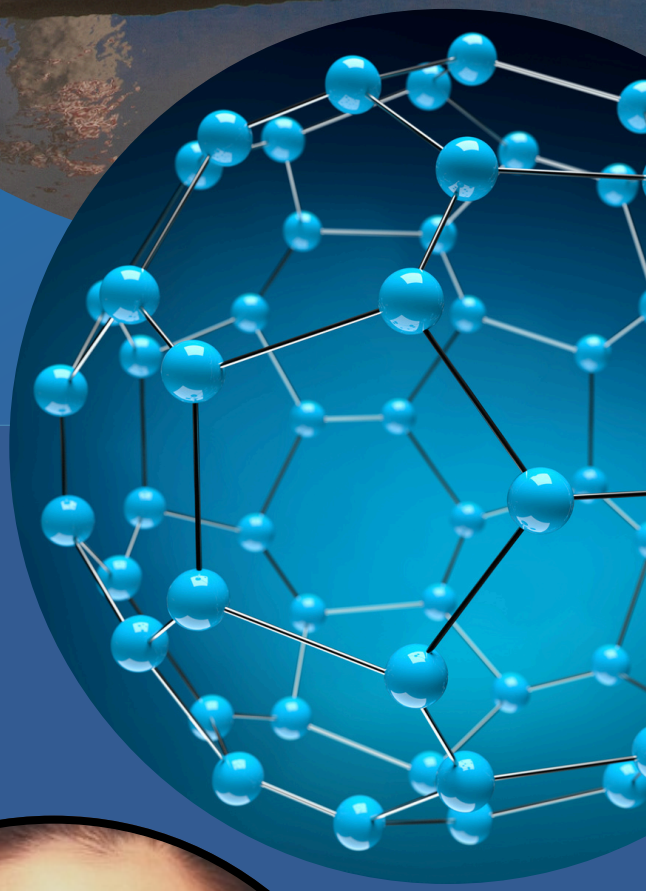
The Institution of Engineers, Malaysia

WEBINAR TALK ON

NANOPARTICLE-BASED SOLUTIONS FOR SEWAGE AND RUBBER WASTEWATER TREATMENT



ORGANISED BY:
ENGINEERING EDUCATION TECHNICAL DIVISION, IEM

BEM APPROVED CPD: 2 **REF. NO: IEM25/HQ/177/T (w)**

SPEAKER:
ASSOC. PROF. DR. CHAN MIEOW KEE

14 JUNE 2025, SATURDAY

9.00AM - 11.00AM

zoom

REGISTRATION

IEM STUDENT: FOC
IEM MEMBER: RM15
NON IEM MEMBER: RM70

www.myiem.org.my myiem_offcial myiem.offcial

SYNOPSIS

Industrial wastewater, particularly from sewage and rubber processing, poses a significant environmental challenge due to its high ammonia, organic, and suspended solid content. Conventional treatment methods, including biological treatments, membrane separation, and chemical coagulation, often face limitations such as long retention times, high energy consumption, membrane fouling, and secondary pollution.

This talk explores the use of immobilized iron-copper (nanoFeCu) bimetallic nanoparticles as an advanced nanotechnology-driven solution for treating sewage and rubber wastewater. NanoFeCu oxidizes ammonia into nitrogen gas, effectively reducing harmful pollutants without producing excessive nitrate or sludge. Studies have demonstrated that nanoFeCu-treated rubber wastewater achieved 95.83% ammonia removal within nine hours, bringing it close to the regulatory discharge standard. Similarly, in sewage treatment, optimized flow rates significantly enhanced ammonia removal, while maintaining high removal efficiency for COD, BOD, and total suspended solids.

The presentation will highlight key findings from recent research, including:

- Optimized nanoFeCu treatment conditions for maximum pollutant removal.
- Long-Term reusability and stability of nanoFeCu

By leveraging nanoparticle-based remediation, this technology offers a cost-effective, scalable, and environmentally sustainable alternative for wastewater treatment in industrial applications.

SPEAKER'S PROFILE

Dr. Chan Mieow Kee is a distinguished researcher in nanoparticle synthesis and wastewater treatment, with expertise in membrane fabrication, green separation processes, and machine learning applications. Holding a Ph.D. in Chemical Bioprocess Engineering from Universiti Teknologi Malaysia, Dr. Chan has spearheaded multiple advanced wastewater treatment projects utilizing nanotechnology. This includes the development of iron-copper nanoparticles for ammonia removal in rubber and sewage treatment and nanocomposite membranes for palm oil mill effluent treatment.

With extensive experience in securing research grants and collaborating with industry leaders, Dr. Chan has significantly contributed to sustainable water treatment innovations. A widely published scholar in high-impact journals, Dr. Chan remains committed to advancing wastewater treatment through groundbreaking research and industrial partnerships, driving the integration of nanotechnology for environmental sustainability.