

Dr. Juhana binti Jaafar 講演会

(マレーシア工科大学上級講師)

講演 1

Recent trends and prospects on membrane science in Malaysia Part 1

マレーシアにおける膜科学研究の最新動向と将来展望(1)

■ **講義概要** High methanol crossover and low proton conductivity are two technical challenges encountered by PEM in DMFC application. The development of organic・inorganic nanocomposite PEMs seems to be attractive in solving the issues. The effect of clay filler loading has been proved as an important parameter that have to be addressed as it determines whether the composite formed is exfoliated, normal or intercalated composite and it affects the state of filler dispersion in SPEEK matrix. Hence, electrospinning is another approach towards the improvement of exfoliated nanocomposite surface structure and producing a membrane with desirable physico-chemicals properties.

- **開催日時** : 11月28日(火) 9:00 ~ 10:30
- **会場** : 生田キャンパス A号館 A207教室



講演 2

Recent trends and prospects on membrane science in Malaysia Part 2

マレーシアにおける膜科学研究の最新動向と将来展望(2)

■ **講義概要** To minimize energy consumption and fouling tendency of common pressure-driven membrane process, a natural osmotic-based forward osmosis (FO) membrane were explored. In the presence of EDC and NOM presence, inducing strong oxidant is necessary to degrade the contaminant. Photocatalytic membrane is combination of separation capability of membrane and photocatalysis materials as a single unit. Adsorptive membrane combined the adsorptive material to improve separation capability for heavy metal removals while simultaneously recover pure water. Although the aforementioned membrane technologies are still under research stage, the results produced are overwhelmingly promising and would replace current separation system in the next few decades.

- **開催日時** : 12月5日(火) 13:30 ~ 15:00
- **会場** : 生田キャンパス 2号館 2002教室

講演 3

Recent trends and prospects on membrane science in Malaysia Part 3

マレーシアにおける膜科学研究の最新動向と将来展望(3)

■ **講義概要** The morphological structural of a composite membrane is a crucial physical property that can contribute towards better separation performance in fuel cell and wastewater treatment system. Benefiting from the nano-size of nanofibers, inorganic fillers were successfully formed in nanofibers using electrospinning. While in wastewater treatment, the employment of thin film composite membrane was found could provide a desirable membrane especially for forward osmosis and photocatalytic membrane. The idea of using thin film was based on the concerned issues such as internal concentration polarization and photocatalysis activities in forward osmosis and photocatalytic membrane processes, respectively.

- **開催日時** : 12月12日(火) 9:00 ~ 10:30
- **会場** : 生田キャンパス A号館 A207教室

※英語(通訳なし) ※参加無料, 予約不要