

Speaker: Norfamila Che Mat

Title: PVA-Calcium Oxide Membrane for Direct Methanol Fuel Cell

The large scale utilization of Nafion® in Direct Methanol Fuel Cell(DMFC) is still constrained by high methanol permeability and high temperature dehydration. The methanol crossover in DMFC can be minimized by using pervaporation membrane such as Poly-vinyl alcohol (PVA) due to higher water selectivity over alcohol. Incorporation of hygroscopic oxide particle into polyelectrolyte membrane for DMFC has draw interest among researchers as it has been reported being able to improve the water retentation at the elevated temperature attributed to the excellences thermal stability and high swelling resistances. In this work, new composite membrane comprised of poly-vinyl alcohol (PVA) and Calcium Oxide were fabricated by using sol-gel method. The objectives of this study were to investigate the effect of CaO addition to the PVA conductivity, water uptake, and methanol permeability properties. From the result of the study, CaO have the profound effects on the PVA conductivity, water uptakes and methanol permeability properties thus show a potential to be used for direct methanol fuel cell applications.