



# The Second Regional Electrochemistry Meeting of South-East Asia

16-19 November 2010

Maha Chulalongkorn Building, Chulalongkorn University, Bangkok, Thailand

## BOOK OF ABSTRACTS REMSEA 2010

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**The 2<sup>nd</sup> Regional Electrochemistry Meeting of South-East Asia 2010**

**(REMSEA 2010)**

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Petroleum industry is a non renewable energy, sooner or later it will be used up from our life due to continual consumption by human activities. Energy scientists are really concerned for energy demand options by doing a lot of researches and investigations on searching for alternative energy resources. Some considerations are taken into account in the new energy development and policy that it should be environmental friendly and has low polluted impact. Hydrogen fuel cell, is one of the alternative choice for energy development by using a hydrogen proton exchange membrane fuel cell (PEMFC) to display as potential power resource. The important factor in hydrogen PEMFC is the role of membrane electrode as the important component in electrochemical process to produce electricity from hydrogen and oxygen. The fabrication of membrane electrode assembly (MEA) is to enhance the hydrogen fuel cell performance. A platinum catalyst dispersed in carbon black powder, nafion solution and isopropyl alcohol are required for MEA fabrication. The performance test is carried out by using a fuel cell test (FCT) device. A MITS Pro software is employed for data processing and assessment. Several factors are involved in hydrogen PEM fuel cell included mass transport in membrane layer, current polarization, pore size distribution in gas diffusion layer, spraying method, and membrane fabrication. This study more underlines on the electrochemical aspects in membrane electrode that it affects the performance of hydrogen PEMFC.

**Keywords** hydrogen PEMFC • MEA fabrication • electrode thickness

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