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Direct Alcohol Fuel Cells 2018

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Message from the Guest Editors

Direct alcohol fuel cells (DAFCs) are emerging technologies for the electrochemical conversion of chemical energy of an alcohol fuel into electrical energy, with low environmental impact and high efficiency. However, before DAFCs can reach large-scale diffusion, specific issues due to unsatisfactory performance, high cost of cell components and limited fuel cell durability must be solved. In a DAFC system, high capital costs coming from the usage of noble metal catalysts, perfluorosulfonate polymer electrolyte membranes (PEM) and expensive bipolar plates. Therefore, the development of cost-effective and highly performing PEMs, enhanced electro-catalysts and cheap bipolar plates, satisfying target requirements of high performance and durability, represent important challenges. Nowadays, the research is oriented to development of cost-effective materials, such as novel hydrocarbon membranes, low precious metal loading electrodes, non-platinum catalysts for DAFC applications. These can find application in portable, distributed and remote power generation. Papers addressing the development of cell components, full systems, performance and durability of DAFCs, are warmly invited.

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Message from the Editor-in-Chief

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