



Catalysts for Polymer Membrane Fuel Cells

Guest Editors:

Prof. Dr. William Mustain

Department of Chemical
Engineering, University of South
Carolina, Swearingen
Engineering Center, Columbia SC
29208, USA

mustainw@mailbox.sc.edu

Dr. Bryan Pivovar

National Renewable Energy
Laboratory, Golden, CO, USA

bryan.pivovar@nrel.gov

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Message from the Guest Editors

Polymer membrane fuel cells are at an exciting time in their development. State-of-the-art proton exchange membrane fuel cells (PEMFCs) have high activity, stable Pt-based catalysts that have been integrated into cells, and stacks that can operate over many thousands of hours—providing clean power for a myriad of applications and PEMFCs have seen near-exponential growth in their commercial application over the last decade. However, for many applications (e.g., automotive) the overall cost remains above government and industrial targets.

Anion exchange membrane fuel cells (AEMFCs) have been rapidly increasing in popularity. It is thought that AEMFCs will allow for lower cost catalysts, bipolar plates and balance-of-plant than PEMFCs. However, from a catalysis perspective, AEMFCs suffer from sluggish kinetics at the anode and the cathode, and the choices for catalysts outside of the PGM family are limited.

