3D Structured Liquid/Gas Diffusion Layers with Flow Enhanced Microchannels for Proton Exchange Membrane Electrolyzers

Weitian Wang a, Lei Ding a, Zhiqiang Xie a, Shule Yu a, Christopher B. Capuano b, Alex Keane b, Kathy Ayers b, and Feng-Yuan Zhang a*

*Nanodynamics and High-Efficiency Lab for Propulsion and Power, Department of Mechanical, Aerospace & Biomedical Engineering, University of Tennessee, Knoxville, TN 37996, USA
bNel Hydrogen, 10 Technology Drive, Wallingford, CT 06492, USA
*Corresponding author email: fzhang@utk.edu

3. Unveiling mass transport issues: Bubble Blockage in Electrode/PEM interface

4. Method: Wet etching technique for PTL fabrication (ORNL)

5. Results: Performance and Bubble dynamics

- The long-term gas blockage of PTL/TTLGDL pores under BP lands is resolved by the developed flow enhanced liquid/gas diffusion layer (FELGDL).
- FELGDL achieved a hydrogen production efficiency increase of 7.9% at 6 A/cm².
- The mass transport limitation is extended 42.9% at 6 A/cm² and water flow rate of 20 mL/min.
- The produced gas can be periodically removed from the pores under BP lands.

Summary

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**1. Background: Channel/Land Configuration in PEM Electrolyzer**

**2. Visualization: Interface-visible water electrolyzer cell**

**3. Unveiling mass transport issues: Bubble Blockage in Electrode/PEM interface**

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