

## Durability study of Membrane Electrode Assembly in the Proton Exchange Membrane Fuel Cell fabricated via Electrostatic Spray Deposition

홍채원, 이화우<sup>1</sup>, 이성철<sup>1,†</sup>

한양대학교; <sup>1</sup>한양대학교 화학공학과

A proton exchange membrane fuel cell (PEMFC) is expected as one of the most promising technology for power sources due to their low emissions, low operating temperature, and high power density. One major challenge associated with proton exchange membrane fuel cells is to preserve higher proton conductivity under low-humidity atmosphere. This work intends to evaluate the durability of Pt/C catalyst in fuel cell including carbon corrosion and platinum dissolution. Among various electrode deposition methods, Electrostatic spray deposition gets huge attention due to this deposition method improve fuel cell performance even with a lower Pt-loading than conventional deposition method. The electrode (9cm<sup>2</sup>) morphology and performance of the electro-sprayed catalyst layer is compared with that of the commercial decal-transferred catalyst layer. Various techniques for evaluating the electrochemical performance are proceeded by polarization curve, cyclic voltammetry, and EIS.