

Electrochemical property evaluation of continuously graded functional electrode deposited by electrostatic slurry spray deposition

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Abstract

Protonic ceramic fuel cells (PCFCs) have remarkable attention in the world for their high energy conversion efficiency and low environmental impact [1]. Furthermore, the PCFCs are favorable to reduce comparing to solid oxide fuel cells (SOFCs) due to their high conductivity and low activation energy [2,3]. Also, the optimization of anode microstructure has been found to be quite beneficial for the performance of SOFCs with oxygen-ion conductors, suggesting that the anode microstructure is another important factor for the fuel cell performance, though it received much less attention before. In particular, the anode functional layer (AFL) has rarely been

applied to the PCFCs.

In this study, we develop the PCFCs having the functional layer and continuously graded functional layer between dense electrolyte and porous anode support to improve the fuel cell performance.

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