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(Supporting Information)

Enhanced charge transfer with Ag grids at electrolyte/electrode interfaces in solid oxide fuel cells

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Figure S1. (a) Zoom-in view of the Ag grid using field-emission secondary electron microscope. Each grid was composed of Ag nanoparticles, forming the dense structure. (b) 3-D profiler images showing that each Ag grid had a width of 4-6 μ m and a height of 1.5-2 μ m.



Figure S2. Cross-section view of samples (a) without Ag grids and (b) with Ag grids. Both samples showed the similar microstructures with the thickness of $\sim 20 \,\mu$ m, confirming no significant effects from the microstructural difference due to Ag grids. In addition, Ag grid was well embedded without structural delamination between the electrode and the electrolyte.



Figure S3. Sheet resistance (Ω /sq) with various pitches from 400 to 50 µm measured by 4-point probe measurement. We assumed the uniform geometry of each line in both directions. As reported in many previous studies,^{1,2} the positive linear correlation between the pitch and the sheet resistance of Ag grids was observed. Hence, the sheet resistance of Ag grids could be the relevant indicator for comparing the facilitation of charge transport among the samples.

References

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