Supporting information for

Experimental study on current distribution in parallel-connected solid oxide fuel cell strings

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Table S1 Recent publications related to the SOFC stacks[a]

Ref.	Connection	Method	Research objective
[1]	Parallel (like)	Modelling	Optimizing interconnector design to balance electrical and mechanical performance of SOFC stack
[2]	Series	Experiment	Studying the power degradation rates under different discharge mode, i. e., constant-current or constant-voltage
[3]	Series (like)	Modelling	Investing gas flows and temperature uniformities within a new SOFC stack
[4]	Series (like)	Modelling	Finding key operating parameters to improve the nonuniformities in thermal and electrochemical distribution within the SOFC stack
[5]	Series	Experiment	Studying the effect of propane as fuel and a new current collecting window on microtubular SOFC stack
[6]	Series (like)	Modelling	Studying the thermo-mechanical behavior of a SOFC stack running on methane fuel
[7]	Parallel (like)	Modelling	Investigating the effect of non-uniform distribution of air inlet flow rate on total power generation and thermal stress distribution of a SOFC stack
[8]	Series	Modelling & Experiment	Developing a multiscale 3D model of an SOFC stack to investigate degradation phenomena
[9]	Series (like)	Modelling	Studying temperature, species concentration, internal current density and voltage distribution in a kW-class SOFC stack
[10]	Series	Experiment	Investigating the performance of a reversible solid oxide cell stack as a whole for a practical 150 kW power plant
[11]	Series (like)	Modelling	Studying local mechanical stresses in solid oxide cell stacks
[12]	Parallel (like)	Modelling	Designing a new interconnect design for thermal balance of a planar SOFC stack
[13]	Series	Experiment	Fabricating a direct carbon solid oxide fuel cell stack on a single electrolyte plate by tape casting technique
[14]	Series (like)	Modelling & Experiment	Comparing voltage and temperature distributions from a 3D CFD model and an 18-cell SOFC stack in a test furnace
[15]	Series (like)	Modelling	Studying the effect of distribution of flow rates to each cell in a 100-cell stack on the temperature distribution and overall electrochemical performance in large stacks
[16]	Series & parallel & series-parallel mixed	Experiment	Evaluating the power output in different connections and the performance of stack when any fuel cell fails
[17]	Parallel		Designing a new stack concept for parallel-connected cells
[18]	Series	Experiment	Investigating a 200 W-class stack for cyclic mode-

			changing and long-term operation
[19]	Series-parallel mixed	Experiment	Optimizing current-collection method for a 6 kW class interconnector-type anode-supported tubular solid oxide fuel cell stack
[20]	Series & parallel	Modelling	Comparing the serial and parallel connection under the aspects of failure probability, power drop and stress on the single cells
[21]	Series	Experiment	Developing a 2.5 kW class SOFC stack and estimating the temperature distribution in the stack
[22]	Series & Parallel	Experiment	Investigating the transient performance of six-cell stacks with the micro-tubular cells arranged both in series and parallel
[23]	Series-parallel mixed	Experiment	Optimizing the current collecting method, the induction brazing process and uniformly gas supply
[24]	Series	Experiment	Developing a 1 kW class stack composed of 50 anode-supported planar 120-mm-diameter SOFCs
[25]	Series	Modeling	Presenting a model for stack degradation when one of the cells exhibits a negative voltage

Note: [a]The not-well-defined connection method for some modelling publications was defined in table by boundary conditions that mentioned in papers. That is, when the cell current is fixed, it was specified as series (like). In contrast, when the cell voltage is fixed, it was specified as parallel (like).

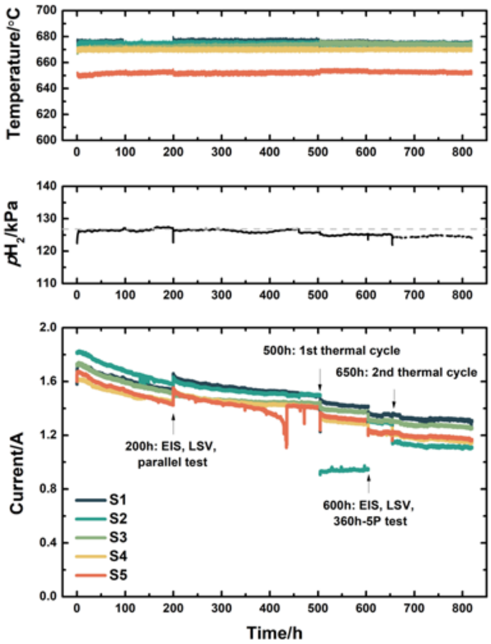

Fig. S1. The evolution of five cell strings at constant 0.7 V over time.

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