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Title: Solid oxide fuel cell reactor analysis and optimisation through a novel multi-scale modelling strategy

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Highlights

This study developed a non-isothermal, spatially distributed model for a SOFC channel and cell.

The model can capture any fuel-air flow pattern within a flowsheeting environment.

Sensitivity analysis and thermal optimisation are carried out by using the process analysis facilities within Aspen Plus.

An optimum air distribution profile was determined for a cell of a SOFC that minimises the temperature gradient.

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