# SOFC Operation with Syngas Fuel: Experiments and Model Validation

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## Abstract

SOFC is considered as a promising clear and efficient technology for power generation. SOFC has the advantage to accommodate syngas ($H_2$/CO). Both $H_2$ and CO can be oxidized in SOFC to produce $H_2O$, $CO_2$ and electricity. Syngas used in SOFC has been researched only in the last couple of years. Past studies were essecntially experimental work. Very few modeling works have been focused on syngas. This work is to develop and validate a mechanistic model of a single cell SOFC operating with simulated synthesis gas ($H_2$, $H_2P$, CO, $CO_2$, and $N_2$) and study the impacts of syngas compositions and operating temperature on the performance of a single cell SOFC.