

OverviewIntroductionOperationPolarizationsMechanical PropertiesTargetResearchSee alsoSolid oxide fuel cells are a class of fuel cells characterized by the use of a solid oxide material as the electrolyte. SOFCs use a solid oxide electrolyte to conduct negative oxygen ions from the cathode to the anode. The electrochemical oxidation of the hydrogen, carbon monoxide or other organic intermediates by oxygen ions thus occurs on the anode side. More recently, proton-conducting SOFCs (PC-SOFC) are being developed which transport protons instead of oxygen ...

The methane-SR-SOFC and methanol-DR-SOFC systems have the highest electrical efficiency, while diesel is unsuitable for the DR-SOFC system. This work can advise engineers to select the appropriate fuel types and reform technologies for ...

This paper overviews the technology by means of the analysis of the results provided by a numerical model, built up ad hoc, and validated, also deepening the techno-energy performance of SOFC systems and all the ways to manage a SOFC system by changing the exercise parameters.

SOFC systems have been extensively studied because they can generate their own electricity and act as energy storage devices. Common high-temperature SOFC systems operate at 800-1000 °C and can use inexpensive catalysts and a ...

To solve this dilemma, in this paper, the grid-connected solid oxide fuel cell (SOFC) model which is fed by green hydrogen to produce AC power, is developed by an Adaptive neuro-fuzzy inference...

SOFC is a highly coupled, nonlinear, and multivariable complex system, and thus it is very important to design an appropriate control strategy for an SOFC system to ensure its safe, reliable, and efficient operation.

Bosch has turned this revolutionary innovation into a universally deployable, high-performance system that can be mass-produced. It can help satisfy the world's appetite for electricity in a sustainable way. Bosch engineer Havva Ana ...

Our Bosch SOFC systems generate about 60 percent electricity and up to 30 percent heat. They are special high-temperature fuel cells that can already run on natural gas, biomethane*, or a mixture with hydrogen.

Solid oxide fuel cells (SOFC) are ceramic-based fuel cells that operate at high temperature (600-1000 °C) and are considered among the most efficient FCs developed worldwide [24]. In SOFC, the solid electrolyte is sandwiched between the two porous electrodes i.e. anode and cathode (see Fig. 1).

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