Special Issue

High-Performance Applications of Solid Oxide Fuel Cells

Message from the Guest Editor

Solid oxide fuel cells (SOFCs) can convert the chemical energy of fuels into electrical energy with high efficiency and have the other advantages of low emission and fuel flexibility. Therefore, the direct use of many hydrocarbons in SOFCs (e.g., methane, ethanol, natural gas, coal mine fuels, and biogas) has attracted a great deal of attention. Ni-based cermet anode is the most ideal anode candidate for SOFCs owing to its excellent comprehensive performance in terms of electrical conductivity, fuel oxidation catalysis, thermal matching with electrolyte, and mechanical properties. However, carbon deposition is generated on the surface of Ni catalyst because of its great cracking capacity for hydrocarbon fuels, and leads to performance degradation. The carbon deposition of Ni-based cermet anode when using hydrocarbon as fuel is a key challenge to be solved.

Guest Editor

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