



Ceramic Electrolytes for SOFC

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Message from the Guest Editors

Over the past decades, fuel cell performances have been dramatically improved, because of three-phase boundary improvements, the development of new materials, electrolyte thickness reduction, and the broadening of operating temperature ranges. SOFCs are the fuel cells with the longest development period, and early on, the limited conductivity of solid electrolytes required cell operations at around 1000°C. As time went on, thinner or different electrolytes along with improved cathodes allowed a reduction in operating temperature down to 650–850°C, even if the ongoing research is pushing SOFC operating temperatures even lower in the intermediate-temperature SOFCs. Because of these improvements, SOFCs are considered for a wide range of applications, including stationary power generation, mobile power, auxiliary power for vehicles, and specialty applications. Ceria-based materials are one of the main reasons for this interest, and they are one of the most promising candidates as electrolyte materials for IT-SOFCs. The aim of this SI is to gather cutting-edge research in the field of IT-SOFCs and, in particular, on ceria-related materials for solid electrolytes.





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Message from the Editor-in-Chief

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