

Dopant-matrix interaction in solid oxide electrolytes and electrodes

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Materials for solid oxide fuel cells (SOFC) are extensively investigated aiming at achieving better performances and device durability in view of the hopefully next implementation of hydrogen technology for the production of energy. This contribution deals with the structural aspects of the interaction of dopants with the solid matrix, either for electrodes or electrolytes. The report concerns materials that are likely fit for implementation, such as ceria-based electrolytes and mixed-oxide electrodes. However, in view of the importance of achieving a deeper insight in the mechanism of solid-state O^{2-} conduction, results about Bi_2O_3 compounds are also reported. Finally, the host matrix-dopant interaction in proton-conducting electrolytes for intermediate temperature SOFC's is discussed.