

1. Record Nr.	UNINA9910346927203321
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Titolo	Grain-size effects in nanoscaled electrolyte and cathode thin films for solid oxide fuel cells (SOFC)
Pubbl/distr/stampa	KIT Scientific Publishing, 2009
ISBN	1000010126
Descrizione fisica	1 online resource (VIII, 155 p. p.)
Collana	Schriften des Instituts für Werkstoffe der Elektrotechnik, Universität Karlsruhe (TH) / Institut für Werkstoffe der Elektrotechnik
Soggetti	Technology: general issues
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	Due to their high energy conversion efficiencies and low emissions, Solid Oxide Fuel Cells (SOFCs) show promise as a replacement for combustion-based electrical generators at all sizes. Further increase of SOFC efficiency can be achieved by microstructural optimization of the oxygen-ion conducting electrolyte and the mixed ionic-electronic conducting cathode. By application of nanoscaled thin films, the exceptionally high efficiency allows the realization of mobile SOFCs.