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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.