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Autore	Kromp Alexander
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Sommario/riassunto	Solid oxide fuel cells offer great prospects for the sustainable, clean and safe conversion of various fuels into electrical energy. In this thesis, the performance-determining loss processes for the cell operation on reformat fuels are elucidated via electrochemical impedance spectroscopy. Model-based analyses reveal the electrochemical fuel oxidation mechanism, the coupling of fuel gas transport and reforming chemistry and the impact of fuel impurities on the degradation of each loss process.