This is the first book being purely focused on one of the most important fuel cell technologies, Molten Carbonate Fuel Cells (MCFC). It covers different aspects of cell operation, analysis, optimization and control. In recent years the editors and the authors have done intense research on MCFC processes in the framework of a joint research network being funded by the German Federal Ministry of Education and Research (BMBF). As a unique feature, the book presents model-based concepts for process analysis and control on a generalized basis. The book is written for a broad audience of researchers and engineers from industry and academia.

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Since more than 30 years, the physicist ***Gerhard Huppmann*** *is working in the field of energy technologies with a focus on high effective renewable and secondary energy utilizing systems. Since 1989 in the field of carbonate fuel cells, he created basically the design of MTU's Carbonate Fuel Cell HotModule. He is head of the group "New Fuel Cell Concepts and Applications" at MTU CFC Solutions GmbH, a company of Tognum group. Gerhard Huppmann is member and convener of several working groups within the IEC fuel cell standardization work and convener of the working group investigating "Fuels for Fuel Cells" under the IEA Implementing Agreement "Advanced Fuel Cells", Annex 19. He helds presentations on international seminars and symposia and authored many articles concerning fuel cells and their applications.*

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