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Titolo	Attainable region theory : an introduction to choosing an optimal reactor // by David Ming [and three others]
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Descrizione fisica	1 online resource (370 p.)
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Soggetti	Chemical reactors - Design and construction Statistical tolerance regions
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Acknowledgments; Prior Knowledge; How this book is Structured; Software and Companion Website; Nomenclature; Section I Basic Theory; Chapter 1 Introduction; 1.1 Introduction; 1.2 Motivation; 1.3 Reactor Network Synthesis; 1.4 Solving the Reactor Network Synthesis Problem; 1.5 Chapter Review; References; Chapter 2 Concentration and Mixing; 2.1 Introduction; 2.2 Concentration Vectors and Dimension; 2.3 Mixing; 2.4 Chapter Review; References; Chapter 3 The Attainable Region; 3.1 Introduction; 3.2 A Mixing and Reaction Game; 3.3 The AR 3.4 Elementary Properties of the AR 3.5 Chapter Review; References; Chapter 4 Reaction; 4.1 Introduction; 4.2 Reaction Rates and Stoichiometry; 4.3 Reaction from a Geometric Viewpoint; 4.4 Three Fundamental Continuous Reactor Types; 4.5 Summary; 4.6 Mixing Temperatures; 4.7 Additional Properties of the AR; 4.8 Chapter Review; References; Chapter 5 Two-Dimensional Constructions; 5.1 Introduction; 5.2 A Framework for Tackling AR Problems; 5.3 Two-Dimensional Van De Vusse Kinetics; 5.4 Multiple CSTR Steady States and ISOLAS; 5.5 Constructions in Residence Time Space; 5.6 Chapter Review

ReferencesSection II Extended Topics; Chapter 6 Higher Dimensional AR Theory; 6.1 Introduction; 6.2 Dimension and Stoichiometry; 6.3 The Three Fundamental Reactor Types Used in AR Theory; 6.4 Critical DSR\textscs and CSTR\textscs; 6.5 Chapter Review; References; Chapter 7 Applications of AR Theory; 7.1 Introduction; 7.2 Higher Dimensional Constructions; 7.3 Nonisothermal Constructions and Reactor Type Constraints; 7.4 AR Theory for Batch Reactors; 7.5 Chapter Review; References; Chapter 8 AR Construction Algorithms; 8.1 Introduction; 8.2 Preliminaries; 8.3 Overview of AR Construction Methods
8.4 Inside-out Construction Methods8.5 Outside-in Construction Methods; 8.6 Superstructure Methods; 8.7 Chapter Review; References; Chapter 9 Attainable Regions for Variable Density Systems; 9.1 Introduction; 9.2 Common Conversions to Mass Fraction Space; 9.3 Examples; 9.4 Chapter Review; References; Chapter 10 Final Remarks, Further Reading, and Future Directions; 10.1 Introduction; 10.2 Chapter Summaries and Final Remarks; 10.3 Further Reading; 10.4 Future Directions; References; Appendix A Fundamental Reactor Types; A.1 The Plug Flow Reactor; A.2 The Continuous-Flow Stirred Tank Reactor A.3 The Differential Sidestream ReactorAppendix B Mathematical Topics; B.1 Set Notation; B.2 Aspects of Linear Algebra; B.3 The Complement Principle; References; Appendix C Companion Software and Website; C.1 Introduction; C.2 Obtaining Python and Jupyter; Index; Supplemental Images; EULA
