## **Table of Contents**

Modeling: Significance, Fundamentals, and Methods

Significance of Mathematical Modeling and Simulation for Optimization, Q.T. Ho, H.K. Mebatsion, B. Nicolaï, and P. Verboven

Analytical Solutions in Conduction Heat Transfer Problems, F. Erdogdu and M. Turhan

Numerical Solutions: Finite Difference Methods, T.K, Palazoglu and F. Erdogdu

Numerical Solutions: Finite Element and Finite Volume Methods, R.C. Martins, V.V. Lopes, A.A. Vicente, and J.A. Teixeira

## **Optimization**

Optimization: An Introduction, F. Erdogdu

Statistical Optimization: Response Surface Methodology, K.-N. Chen and M.-J Chen

Random-Centroid Optimization, S. Nakai, Y. Horimoto, J. Dou, and R.A. Verdini

Multi-Objective Optimization in Food Engineering, C.K. Seng and G.P. Rangaiah

Applications of the Minimum Principle of Pontryagin for Solving Optimal Control Problems, *A.V. Kuznetsov* 

Neural Networks and Genetic Algorithms, Y. Meng and H.S. Ramaswamy

Computational Fluid Dynamics for Optimization in Food Processing, F. Erdogdu

Dynamic Optimization, J.R. Pérez-Correa, C.A. Gelmi, and L.T. Biegler

Tabu Search: Development, Algorithm, Performance, and Applications, M. Srinivas and G.P. Rangaiah

Eigenvalue Optimization Techniques for Nonlinear Dynamic Analysis and Design, *L.G. Matallana*, *A.M. Blanco*, *and J.A. Bandoni* 

Complex Method Optimization, F. Erdogdu and M.O. Balaban

Mixed Integer Linear Programming Scheduling in the Food Industry, *P. Doganis and H. Sarimveis* 

Mixed Integer Nonlinear Programming: Applications to Food Dehydration and Deep Chilling, *P.P. Repoussis and C.T. Kiranoudis* 

## **Optimization Studies for Different Food Processes**

Optimization and Control Strategy to Improve the Performance of Batch Reactors, I.M. Mujtaba

Pulsed Microwave Heating of Foods: Temperature Measurement and Optimization, S. Gunasekaran

Optimization of Freeze-Drying Process Applied to Food and Biological Products: From Response Surface Methodologies to an Interactive Tool, *M. Marin, S. Passot, F. Fonseca, and I.C. Trelea* 

Optimization of Spray Drying of Sugar-Rich Foods, V. Truong

Structural Optimization Techniques for Developing Beverage Containers, K. Yamazaki, J. Han, and S. Nishiyama

Optimization for Continuous Shortest Paths in Transportation, J.M. Díaz-Báñez

Real-Time Nonlinear Optimal Control of Refrigeration Processes, J.C. Trelea

Optimization of Apple Juice Extraction, M.T. González and M.J. Urbicain

Optimization of Canned Food Processing, R. Simpson and A.A. Teixeira

Optimal Design of Continuous Thermal Processing with Plate Heat Exchangers, J.A.W. Gut and J.M. Pinto

Process Optimization Strategies to Reduce Variability in Thermal Processing of Packaged Foods, *K. Cronin and P. Baucour* 

Loading Optimization, R. Morabito and V. Pureza

Optimization of the Arrays of Impinging Jets, M. Can and A.B. Etemoglu

Optimal Operational Planning in the Fruit Industry Supply Chain, G.L. Masini, A.M. Blanco, N.C. Petracci, and J.A. Bandoni

Optimizing the Management of Curing Chambers, J. Bon and A. Mulet

Index