



1st ed. 2019, XV, 137 p. 28 illus., 25 illus. in color.

#### Printed book

Hardcover

119,99 € | £109.99 | \$149.99

<sup>[1]</sup>128,39 € (D) | 131,99 € (A) | CHF

141,50

Softcover

119,99 € | £109.99 | \$149.99

<sup>[1]</sup>128,39 € (D) | 131,99 € (A) | CHF

141,50

#### eBook

96,29 € | £87.50 | \$109.00

<sup>[2]</sup>96,29 € (D) | 96,29 € (A) | CHF

113,00

Available from your library or  
[springer.com/shop](http://springer.com/shop)

#### MyCopy <sup>[3]</sup>

Printed eBook for just

€ | \$ 24.99

[springer.com/mycopy](http://springer.com/mycopy)

Ridong Zhang, Anke Xue, Furong Gao

# Model Predictive Control

Approaches Based on the Extended State Space Model and Extended Non-minimal State Space Model

- The first monograph on extended state space and extended non-minimal state space approaches to model predictive control design
- Introduces the multi-degree of freedom into the controller design of chemical processes
- Discusses useful technologies and algorithms for theoretical background development and industrial application

This monograph introduces the authors' work on model predictive control system design using extended state space and extended non-minimal state space approaches. It systematically describes model predictive control design for chemical processes, including the basic control algorithms, the extension to predictive functional control, constrained control, closed-loop system analysis, model predictive control optimization-based PID control, genetic algorithm optimization-based model predictive control, and industrial applications. Providing important insights, useful methods and practical algorithms that can be used in chemical process control and optimization, it offers a valuable resource for researchers, scientists and engineers in the field of process system engineering and control engineering.

Order online at [springer.com](http://springer.com) / or for the Americas call (toll free) 1-800-SPRINGER / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com). / For outside the Americas call +49 (0) 6221-345-4301 / or email us at: [customerservice@springernature.com](mailto:customerservice@springernature.com).

The first € price and the £ and \$ price are net prices, subject to local VAT. Prices indicated with [1] include VAT for books; the €(D) includes 7% for Germany, the €(A) includes 10% for Austria. Prices indicated with [2] include VAT for electronic products; 19% for Germany, 20% for Austria. All prices exclusive of carriage charges. Prices and other details are subject to change without notice. All errors and omissions excepted. [3] No discount for MyCopy.

