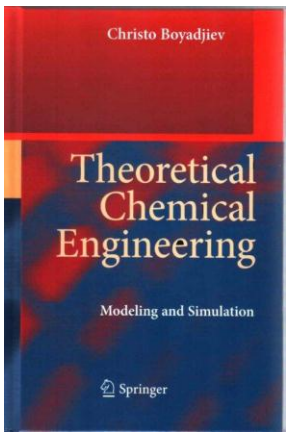
Book review

Christo Boyadjiev. **Theoretical Chemical Engineering (Modeling and Simulation)**
Springer-Verlag, Berlin Heidelberg, 2010.



Chemical engineering is an applied science dealing with the powerful methodologies of mathematics, physics, chemistry and engineering sciences. Since it is designed to transfer the fundamental results of chemical research activity to practical applications chemical engineering has to solve many practical tasks, usually associated with the very complicated conditions in practice, i.e. complicated geometry in the real apparatuses, turbulent multiphase flows, high rates of the processes, etc., the different simplified approaches for process modeling are used with different level of complexity.

Usually the similarity theory is helpless to solve correctly the scale-up problems. That is why mathematical models contribute to the best approximations to the reality to make scaling-up more reliable.

The monograph "Theoretical Chemical Engineering" written by Prof. Christo Boyadjiev, DSc has the ambitious goal to cover all of the directions of modeling and mathematical descriptions of the most frequently met processes in chemical industry and the flow sheets in chemical industry as a whole.

It started with considerations on the models describing the flow patterns and their impact on the transport phenomena in relatively simple geometries. The cases of physical transport processes as well as the cases of chemical reactions occurring in the liquid phase are discussed. A big merit of this part of the book is the detailed description of the non-linear transport phenomena and their effect on the net mass transfer. The hydrodynamic stability is considered in this context.

A significant part of the book is dedicated to the mathematical methods used for solving the differential transport equations coupled with the procedures of parameter identification, particularly for inverse problems.

Comparative analysis of the variety of mathematical models – starting from the lowest level of comprehensiveness, like the experiment design methods to the highest level of partial differential equations for defined flows and shapes is made.

The optimization methods are considered in the context of optimal design and control of total plants in chemical technology.

It could be emphasized that the main part of the book is based on own research results of the author, showing a broad variety of expertise.

The book will be useful either for researchers or for students as a tool for solution of various chemical engineering tasks.

If someone wants to know what does chemical engineering is, he can read this book.

V. Beschkov.

Bulgarian Chemical Communications, Volume 44, Number 2 (pp. 189 – 189) 2012

ERRATUM

The authors and their affiliations of the article "Catalytic synthesis of diphenylmethyl ethers (DPME) using Preyssler acid $H_{14}[NaP_5W_{30}O_{110}]$ and silica-supported Preyssler catalysts" published in Bulgarian Chemical Communications, volume 44, issue 1, pp. 11-19 should be read as follows:

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