



# Integrated Design and Simulation of Chemical Processes, Volume 13, Second Edition (Computer Aided Chemical Engineering)

By Alexandre C. Dimian, Costin S. Bildea, Anton A. Kiss

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This comprehensive work shows how to design and develop innovative, optimal and sustainable chemical processes by applying the principles of process systems engineering, leading to integrated sustainable processes with 'green' attributes. Generic systematic methods are employed, supported by intensive use of computer simulation as a powerful tool for mastering the complexity of physical models.

New to the second edition are chapters on product design and batch processes with applications in specialty chemicals, process intensification methods for designing compact equipment with high energetic efficiency, plantwide control for managing the key factors affecting the plant dynamics and operation, health, safety and environment issues, as well as sustainability analysis for achieving high environmental performance. All chapters are completely rewritten or have been revised.

This new edition is suitable as teaching material for Chemical Process and Product Design courses for graduate MSc students, being compatible with academic requirements world-wide. The inclusion of the newest design methods will be of great value to professional chemical engineers.

- Systematic approach to developing innovative and sustainable chemical processes
- Presents generic principles of process simulation for analysis, creation and assessment
- Emphasis on sustainable development for the future of process industries

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## **Editorial Review**

### **About the Author**

Alexandre C. Dimian is a retired Professor from the University of Amsterdam, The Netherlands, where he taught Process Design and Integration from 1993 to 2008, as well as at Technical University Eindhoven from 2009 to 2011. He wrote his PhD thesis in chemical engineering at the Technical University of Bucharest, Romania, and TU Hannover, Germany. His career embraced the evolution of process simulation in the last 30 years. He is one of the pioneers in Europe of using scientific computation and process simulation in industry since 1982, working many years as consultant for computer-aided process design in various industries in France and in The Netherlands. He published more than 100 refereed scientific papers and five books, from which two books about chemical process design were published by Elsevier and Wiley, and has five patents to his name.

Costin Sorin Bildea is currently professor at the University "Politehnica" of Bucharest (Romania) where he teaches process design and process control courses. Previously he worked as assistant professor at Delft University of Technology and researcher at University of Amsterdam, the Netherlands. He holds two MSc degrees in chemical engineering and industrial process control from University "Politehnica" of Bucharest, as well as a PhD title from the University of Amsterdam, the Netherlands. Prof. Bildea is a specialist in the field of nonlinear dynamics and in integration between process design and process control. He published more than 70 scientific papers, as well as a book by Wiley (a complete list of publications can be found at [www.researcherid.com/rid/B-3075-2010](http://www.researcherid.com/rid/B-3075-2010)). In 2009, he received the prestigious "Nicolae Teclu" prize of Romanian Academy for his publications in the field of design, control and automation in industrial process engineering.

Anton Alexandru Kiss holds a scientific position of Senior Project Leader at AkzoNobel - Research, Development & Innovation (The Netherlands), where he acts as the principal expert in separation technologies, reactive-separation processes, process intensification and integrated sustainable processes with 'green' attributes, while mastering as well process modeling and simulation of industrial processes. He holds a PhD title from University of Amsterdam, and he was also Post Doctoral research fellow at TU Delft and University of Amsterdam. In the past decade, he carried out more than 120 research & industrial projects, supervised numerous graduation projects, while also publishing several textbooks, book chapters, and patents, as well as over 60 scientific articles in highly-ranked peer-reviewed journals (Elsevier and Wiley). Recently, he was rewarded for his pioneering work and remarkable achievements with the AkzoNobel Innovation Excellence Award 2013, and the Hoogewerff Jongerenprijs 2013 - a very prestigious award recognizing the most promising young scientist in chemical engineering. More information is available at the personal website of the author: [www.tonykiss.com](http://www.tonykiss.com)

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