**DESCRIPTION**

Demonstrates the advantages of catalytic cascade reactions for synthesizing natural products and pharmaceuticals

Riding the wave of green chemistry, catalytic cascade reactions have become one of the most active research areas in organic synthesis. During a cascade reaction, just one reaction solvent, one workup procedure, and one purification step are needed, thus significantly increasing synthetic efficiency.

Featuring contributions from an international team of pioneers in the field, *Catalytic Cascade Reactions* demonstrates the versatility and application of these reactions for synthesizing valuable compounds. The book examines both organocatalysis and transition-metal catalysis reactions, bringing readers up to date with the latest discoveries and activities in all major areas of catalytic cascade reaction research.

*Catalytic Cascade Reactions* begins with three chapters dedicated to organocatalytic cascade reactions, exploring amines, Brønsted acids, and the application of organocatalytic cascade reactions in natural product synthesis and drug discovery. Next, the book covers:

- Gold-catalyzed cascade reactions
- Cascade reactions catalyzed by ruthenium, iron, iridium, rhodium, and copper
- Palladium-catalyzed cascade reactions of alkenes, alkynes, and allenes
• Application of transition-metal catalyzed cascade reactions in natural product synthesis and drug discovery

• Engineering mono- and multifunctional nanocatalysts for cascade reactions

• Multiple-catalyst-promoted cascade reactions

All chapters are thoroughly referenced, providing quick access to important original research findings and reviews so that readers can explore individual topics in greater depth.

Drawing together and analyzing published findings scattered across the literature, this book provides a single source that encapsulates our current understanding of catalytic cascade processes. Moreover, it sets the stage for the development of new catalytic cascade reactions and their applications.

About the Author

PENG-FEI XU, PhD, is Director of Teaching Affairs and Professor of Chemistry at Lanzhou University and Deputy Director at the State Key Laboratory of Applied Organic Chemistry. Dr. Xu also serves as an Advisory Board member for the Chinese Chemical Society. During his scientific career, he has published more than 130 papers and received numerous honors and awards, most recently the Award of New Century Excellent Talents in Universities of China and the Thieme Journal Award.

WEI WANG, PhD, is Professor of Chemistry at the University of New Mexico. Dr. Wang has published more than 160 peer-reviewed papers. He has received several awards, including The Creative Award from University of New Mexico, The Chinese-American Chemistry & Chemical Biology Professors Association Distinguished Junior Faculty Award, and The American Peptide Society Bruce W. Erickson Young Investigator Award.

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