

Editorial for *Progress in Reaction Kinetics and Mechanism*

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For centuries, reaction kinetics and mechanism research has been a cornerstone in the development of chemistry, materials, and engineering. Uncovering the underlying mechanisms of chemical reactions in the gas phase, liquid phase, on surfaces, or at interfaces enables us to optimize industrial processes, develop novel materials, and enhance energy efficiency. Today, when challenges such as climate change, energy shortages, and the demand for sustainable solutions take center stage, reaction kinetics and mechanism research is more vital than ever.

It is within this context that we are proud to introduce *Progress in Reaction Kinetics and Mechanism* (PRKM), an international, peer-reviewed journal dedicated to advancing knowledge in reaction kinetics and mechanism research. Through this journal, we aim to provide a platform for the publication of groundbreaking research spanning diverse topics, including gas-phase kinetics, liquid-phase reactions, surface and interface chemistry, and theoretical and computational approaches. Our mission is to facilitate academic exchange, bridge the gap between experimental and theoretical studies, and promote interdisciplinary collaborations that push the boundaries of what is possible in reaction kinetics and mechanism research.

From the foundational work of Arrhenius on activation energies to contemporary breakthroughs in experimental and computational chemistry, reaction kinetics and mechanism research has continually illuminated the complexities of chemical systems. Despite significant progress, this kind of research remains rich with opportunities and challenges. For example, understanding reactions at interfaces, incorporating quantum effects into chemical models, and accurately simulating multiscale phenomena are areas of active exploration. These questions underscore the importance of platforms like PRKM to foster innovation and guide cutting-edge research.

The scope of PRKM reflects the diversity and interdisciplinary nature of reaction kinetics and mechanism research. We welcome submissions in areas such as:

1. Gas-phase reaction kinetics and mechanism research, covering fields such as combustion chemistry, gas-phase catalysis, atmospheric chemistry, radical chemistry, interstellar chemistry, astrochemistry, and plasma chemistry;
2. Liquid-phase reaction kinetics and mechanism research, covering fields such as organic chemistry, liquid-phase catalysis, liquid-phase environmental chemistry, enzyme chemistry, and electrochemistry;
3. Surface reaction kinetics and mechanism research, covering fields such as surface catalysis, heterogeneous catalysis, nanocatalysis, adsorption kinetics, and corrosion and protection studies;
4. Interfacial reaction kinetics and mechanism research, covering fields such as gas-liquid interface chemistry, liquid-solid interface chemistry, and gas-solid interface chemistry;
5. Theoretical chemistry, computational chemistry, and numerical simulation related to reaction kinetics and mechanism research,

including quantum chemical calculations, molecular dynamics simulations, statistical kinetics calculations, chemical kinetics simulations, and reactive flow simulations.

In addition to original research articles, PRKM will publish reviews, methodologies, perspectives, and special issues that highlight emerging trends and critical challenges in related fields. Our journal is particularly committed to encouraging interdisciplinary research that combines experimental, theoretical, and computational approaches. We believe that by fostering collaboration across fields such as physical chemistry, chemical engineering, materials science, and computational chemistry, PRKM can help push the boundaries of what is possible in reaction kinetics and mechanism research.

As PRKM embarks on this new chapter, we are honored to have assembled an exceptional Editorial Board composed of leading experts in reaction kinetics and mechanism research from around the world. I would like to extend my deepest gratitude to these experts for their dedication to advancing a high-quality and efficient manuscript review process and their support in shaping PRKM into a trusted hub for innovative research. We also extend a heartfelt invitation to all researchers, whether specializing in experimental studies, numerical simulations, or theoretical approaches, to submit their valuable work to PRKM.

In conclusion, I am confident that, through the combined efforts of the Editorial Board, our authors, reviewers, and readers, PRKM will not only serve as a platform for publishing high-quality research but also play a crucial role in guiding the future of related fields by highlighting emerging trends, fostering interdisciplinary collaboration, and promoting novel methodologies. We will build PRKM into a leading journal in reaction kinetics and mechanism research by upholding the highest standards of academic integrity and ensuring timely and rigorous peer review. Thank you for your support, and we look forward to your contributions to PRKM.



Conflict of interest

The author declares that there is no conflict of interest.

Dates

Received 16 December 2024; Accepted 16 December 2024;
Published online 20 December 2024



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