Chemical Reactions and Processes
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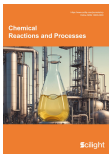

Editorial

Chemical Reactions and Processes

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How To Cite: Murzin, D.Y. Chemical Reactions and Processes. *Chemical Reactions and Processes* **2025**, *1*(1), 1.

Why to start with another journal, while there are so many journals already out there? There could be many answers to this question. I would like to provide a specific one related to *Chemical Reactions and Processes* journal, which is somewhat connected to my personal experience.

I studied myself chemistry and chemical engineering at Mendeleev University of Chemical Technology with the courses almost 50/50 split between chemistry and engineering. My PhD and DrSc theses were related to physical chemistry of heterogeneous catalysis, and the research interests along the years, including those spent in industry, were focused on different aspects of organic transformations, inorganic materials as catalysis, physical chemistry, chemical kinetics and reaction engineering.

Such multidisciplinarity needed in chemical manufacturing requires crossing various boundaries between the disciplines, which is in fact rather difficult to achieve. On the contrary it is easy to build isolated towers efficiently separating chemistry from chemical engineering and chemical engineering from chemistry even for the areas where such boundaries are artificial, like reaction chemistry and reaction engineering.

Along the years I have seen many examples of so-called process development claims, while in fact only experiments in a small-scale fixed bed reactor were performed without any assessment of a potential impact of mass transfer limitations at a larger scale. At the same time very often the engineering models for describing for example kinetics of chemical reactions are very rudimentary not being in line with the reaction mechanisms.

Personally, as somebody working in the field of heterogeneous catalysis for almost four decades, I fully understand that it is much easier to ask for a multidisciplinary approach covering many length scales than to implement this. Catalysis, covering the scale from nm (active site) to tens of meters (height of an industrial reactor), requires understanding of the mechanism of elementary reactions, materials synthesis, reaction kinetics, thermodynamics, reaction engineering and in a broader context chemical technology in general, as the latter defines feed treatment and product separation.

I remember when I started as a young researcher, an organic chemist few years older than me was wondering what was the point in investigating kinetics of hydrogenation of aromatic compounds as the field was so mature and nothing new or exciting can be discovered. Fast forward for a couple of decades and we are witnessing some sort of a renaissance in hydrotreating/hydrodeoxygenation of phenolics derived from biomass lignin. In fact, entirely new catalytic strategies have been developed to exploit various transformations of biomass as a renewable feedstock, which was like a vitamin injection in a mature field. There are still many challenges remaining, like for example, production of sustainable aviation fuels from biomass.

Among other challenges, valorization of CO_2 or catalytic upcycling of polymers can be mentioned, along with electrification of processes, novel process approaches (dynamic cycling and plasma processing), synthesis of pharmaceuticals in a continuous mode or processing of solids. This list is far from being conclusive and obviously we are going to witness many new discoveries in the coming years.

In *Chemical Reactions and Processes* we would like to be a part of this discovery process and welcome submissions which will cover experimental, theoretical and modelling studies of reaction chemistry and reaction engineering, as well as catalysis, separation technology, manufacturing, process design and control for fuels, (bio)chemicals and pharmaceuticals, effectively bridging chemistry with chemical engineering.

The scope of the journal includes different types of reactions (organic, inorganic, polymerization, electrochemical and photochemical, chain, enzymatic, heterogeneous and homogeneous catalysis), mechanistic studies, kinetics, engineering of the reactions mentioned above, including bioreaction and environmental

engineering, process analytics, mass transfer and heat transfer, reactor intensification and modelling, unit operations, separation and purification, process simulation, control and optimization, process automation and control, artificial neural networks, process development and design, process system engineering, various aspects of chemical process industries, including green processes, biorefineries, pharmaceutical processing and sustainability in process design.

The journal *Chemical Reactions and Processes* is thus offering a dissemination platform for researchers working in academia and industry to present their innovative research covering various aspects of *chemical reactions and processes* to advance fundamental understanding of currently existing or novel chemical manufacturing processes, leading respectively to their improvement or implementation in reality.

Based on the previous experience launching new journals, I have a vision how the journal will and could evolve. My dream is to have a journal, which will have a transformative impact on the field bringing chemistry, chemical and process engineering together under one roof. This is possible to achieve, but it would require an effort from the community. I could only strongly encourage the scholars working in our field of *chemical reactions and processes* to support the growth of the journal by sending their excellent papers.

Conflicts of Interest

The author declares no conflict of interest.