

Foreword

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Guest Editor

With great pleasure and a deep sense of historical significance, we introduce this special issue of *Periodica Polytechnica Chemical Engineering* to celebrate the 150th anniversary of Faculty of Chemical Technology and Biotechnology. The Faculty of Chemical Technology and Biotechnology has been at the forefront of pioneering developments in chemical and bioengineering for a century and a half. From its modest beginnings to its current status as a leader in education and research in related disciplines in Hungary, the Faculty has consistently demonstrated a commitment to excellence in the field of chemical technology and biotechnology.

In the past five years, the Faculty of Chemical Technology and Biotechnology, comprising five distinct departments, has produced an impressive body of academic work. Approximately 2,000 publications originating from these departments have been disseminated. Notably, these publications have received about 50,000 independent citations. This substantial level of citations underscores the significant impact and recognition of the Faculty's research output within the academic and scientific community.

This special issue showcases a collection of peer-reviewed original research papers contributed by our scholars, researchers, and alumni, highlighting the diverse and groundbreaking work that has emanated from our Faculty. The articles within these pages not only reflect the depth and breadth of our research activity but also underscore our unwavering commitment to addressing some of the most pressing challenges facing society today. Our Faculty actively participates in the Sustainable Development Goals of the United Nations' Agenda 2030 of Sustainable Development in fields as green chemistry, environmental technology, and eco-friendly industrial technology.

Significant obstacles to the pursuit of sustainable development mark this period. Natural resource depletion and the detrimental consequences of environmental degradation, such as desertification, drought, land degradation, freshwater scarcity, and biodiversity loss, compound the array of challenges confronting humanity. Among these

challenges, climate change stands out as one of the paramount concerns of our era.

In response to these concerns, it is worth highlighting the research endeavors undertaken by our five distinct departments. These efforts encompass a wide range of topics, including but not limited to the utilization of waste materials for soil enhancement, the development of eco-friendly alternative solvents and microbial polymers and biodegradable plastics, the advancement of microbial fuel cells and innovative electrobiochemical remediation techniques, as well as initiatives aimed at recycling waste tire components and the utilization of supercritical drug technology. Severe efforts are also made to preserve biological diversity considering the advantages and disadvantages of monocultural agriculture, exploring new types of crop rotations, increasing species diversity in food ingredient production and processing, or transitioning to a circular economy for sustainable food systems.

The serendipitous convergence of our Faculty's 150th anniversary with the momentous occasion of Professor Katalin Karikó being honored with the Nobel Prize in Physiology or Medicine for her pioneering research is an encouraging affirmation for those of us engaged in biotechnology research at our Faculty. Additionally, in this celebratory anniversary year, she has been bestowed with the prestigious titles of Honorary Doctor and the John von Neumann Professor at the Budapest University of Technology and Economics, underscoring the profound recognition of her exceptional contributions to science and medicine.

As we celebrate the 150th anniversary of the existence of the Faculty, we also reflect on the future. The field of chemical and biotechnological engineering is undergoing rapid transformation, driven by technological advancements, environmental concerns, and the ever-evolving needs of society. We firmly believe that the Faculty of Chemical Technology and Biotechnology, with its rich heritage and strong commitment to excellence, is well-prepared to continue leading the way in addressing these challenges and shaping the future of chemical and bioengineering.

We extend our deepest appreciation to the authors, reviewers, and editorial team who have made this special issue possible. We hope that the discoveries, insights, and innovations presented within these pages inspire our readers to engage with the ever-evolving field of chemical and bioengineering.

We look forward to the next chapter in our Faculty's story with optimism and enthusiasm. Thank you for joining us in celebrating 150 years of excellence in chemical and bioengineering!

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