Editorial

Editorial for the First Issue of Bioresource: From Innovation to Intelligence (BII)

Lijian Leng

School of Energy Science and Engineering, Central South University, Changsha 410083, China; l.leng2019@csu.edu.cn

Welcome to the inaugural issue of *Bioresource: From Innovation to Intelligence* (*BII*). In an era where sustainable development and intelligent technologies are driving global progress, the integration of bioresource technologies with artificial intelligence (AI) has become a pivotal frontier. *BII* is dedicated to advancing innovative bioresource technologies and exploring their integration with AI, offering a vital academic platform for students, researchers, engineers, and industry professionals in the field of bioresources.

1. Introduction

The world is facing unprecedented challenges related to resource scarcity, environmental degradation, and climate change. Bioresources, as renewable and sustainable alternatives, hold immense potential for addressing these challenges. However, the effective development, utilization, and management of bioresources require innovative and intelligent solutions. The advent of innovative bioresource technologies and AI technologies provides new opportunities to unlock the full potential of bioresources. *BII* aims to showcase the up-to-date innovations in the bioresource area and bridge the gap between bioresource technologies and intelligent technologies, promoting knowledge dissemination and technological progress in this rapidly evolving field.

2. Main Research Areas

BII encompasses a broad spectrum of research areas, focusing on innovative bioresource technologies and the intersection of bioresources and intelligent technologies. Our main research areas include, but are not limited to:

(1) Bioresource Feedstocks and Artificial Intelligence

- Development and application of innovative technologies and/or AI algorithms for the assessment, monitoring, and management of bioresources, such as using machine learning models to predict biomass yields.
- Innovative and/or AI-based modeling and optimization of bioresource systems, such as supply chain optimization for biomass.
- Utilization of innovative and/or big data analytics to uncover hidden values in bioresource data, providing decision support for sustainable bioresource utilization.

(2) Bioenergy and Intelligent Technologies

- Production, modeling, and economic analysis of liquid, gaseous, and solid biofuels from biomass through thermochemical conversions, including combustion, pyrolysis, gasification, and hydrothermal treatments, with or without AI.
- Intelligent integration and management of bioenergy systems, including energy storage and smart grid integration, to ensure a stable and reliable energy supply.

(3) Bioprocesses and Intelligent Bio-Products

- Development of novel bio-products, such as bioplastics, biomaterials, and bio-pharmaceuticals.
- Intelligent control and optimization of bio-processes, such as biocatalysis and fermentation, to improve the efficiency and quality of bio-product production.
- Life cycle assessment (LCA) and environmental impact evaluation of bioresource systems.

(4) Sustainable Utilization of Bioresources and Environmental Protection

- Application of biotechnology for the treatment of agricultural and industrial wastes, developing efficient bioconversion processes for waste-to-resource utilization.
- Intelligent technology applications in environmental protection, such as automated monitoring and optimization of biological wastewater treatment systems, and intelligent decision support for pollution control.
- Smart assessment and management of ecosystem services, using remote sensing, Geographic Information System (GIS), and AI technologies to evaluate the impact of bioresources on ecosystems and formulate sustainable management strategies.

3. For Authors, Reviewers, and Editors

BII is built on the collaborative efforts of authors, reviewers, and editors. We invite researchers and practitioners to submit their groundbreaking work, emphasizing rigorous scientific analysis and real-world applications. Our review process is designed to ensure the highest standards of scientific integrity and excellence, with transparent and constructive feedback aimed at enhancing the quality of submissions.

We are committed to fostering diversity in thought and inclusivity in participation. Our editorial team comprises leading experts from various backgrounds, ensuring a thorough and fair evaluation of each manuscript. We believe that the collective dedication of our contributors will establish *BII* as a leading journal in the field.

4. Outlook

As we launch *BII*, we envision a journal that not only disseminates pioneering research but also fosters a robust community of collaboration and innovation. We aim to be at the vanguard of scientific research, driving forward the frontiers of bioresource technologies and intelligent technologies. We invite researchers, practitioners, and academics to join us in this endeavor. Your contributions will be instrumental in shaping the future of bioresource technologies and intelligent technologies, leading to transformative discoveries with significant real-world impact. We look forward to your engagement and support in making *BII* a success.

Conflicts of Interest

The author declares no conflict of interest.