Milestones and Best Papers 2017–2020

Santanu Bandyopadhyay¹ · Dominic C. Y. Foo² · Raymond R. Tan³

Accepted: 23 January 2021 / Published online: 10 February 2021

© The Author(s), under exclusive licence to Springer Nature Singapore Pte Ltd. part of Springer Nature 2021

This issue marks the start of the fifth year of existence of *Process Integration and Optimization for Sustainability* and the end of the initial infancy period covering the years 2017–2020. The past year has seen significant milestones for the journal that we first conceived of in 2008. We envisioned a journal that puts a premium on tools with universal applicability regardless of geographic context; such a philosophy has a greater impact on sustainability than case-based research with limited generalizability (Chiu et al. 2020). Our serious planning for a journal dedicated to the development and use of modeling and optimization techniques to enhance overall sustainability, with a particular emphasis on industrial sustainability, began in 2016, leading to the launch of the maiden issue in 2017. The journal has since grown steadily ever since; a total of 130 papers were published in the first four volumes of this journal. One critical development in 2020 was the inclusion of *Process Integration and Optimization for Sustainability* in the Scopus database. We also expanded and diversified the editorial board, which now includes 33 renowned researchers from 19 different countries to reflect the global scope of the journal core priorities.

One significant change we have decided to implement from hereon is to recognize the best paper published in each volume of *Process Integration and Optimization for Sustainability*. The best papers are selected based on our assessment of reviewer reports, citation, and download statistics, as well as our own expert judgment of how the papers contribute

scientifically to the journal's core priority areas. We have excluded review papers from consideration, as these are judged by a different set of criteria compared to research papers that advance the state-of-the-art. The best paper will be announced in an editorial note in the first issue of each volume of *Process Integration and Optimization for Sustainability*, starting with this one. We have selected the best paper in each of the first four volumes of the journal and provide a brief synopsis of these excellent contributions.

In the best paper of Volume 1, El-Halwagi (2017) developed a shortcut approach for rapid targeting and synthesis of *carbon-hydrogen-oxygen (C-H-O) symbiosis networks* (CHOSYNs). This approach is based on tracking individual carbon, hydrogen, and oxygen atoms through a mass integration framework. This technique provides a rigorous basis for the design of more sustainable hydrocarbon processing systems and can be applied to cases involving fossil-based or biomass-based feedstocks. The method is particularly useful for benchmarking of carbon, hydrogen, and oxygen atoms in an *eco-industrial park* (EIP). With the benchmarks established, the other system-level targets of the EIP can also be identified, e.g., external chemical species to be purchased and discharged, chemical reactions that transform the involved compounds into feedstocks, intermediates, and products.

In the best paper of Volume 2, Dhull and Narwal (2018) developed a decision aid for incorporating multiple stakeholder perspectives in green supply chain management. They applied the tool to an Indian case study, but this technique has general applicability in other contexts. The proposed approach may help the policy makers identify different drivers and formulate different policies to develop a greener supply chain.

In the best paper of Volume 3, How and Lam (2019) developed a method based on principal components analysis (PCA) to debottleneck biomass supply chains. Debottlenecking at the preliminary stage allows the identification of root cause(s) for a supply chain system, which enables its revamp for overall improvement. This serves as a guide for decision-makers during the planning phase of biomass industry development. Given the vital role of biomass as

✉ Santanu Bandyopadhyay
santanub@iitb.ac.in

Dominic C. Y. Foo
Dominic.Foo@nottingham.edu.my

Raymond R. Tan
Raymond.Tan@dlsu.edu.ph

¹ Indian Institute of Technology Bombay, Mumbai, India

² University of Nottingham Malaysia Campus, Semenyih, Malaysia

³ De La Salle University, Manila, Philippines

an emerging feedstock for many industrial systems, this newly proposed method is a significant contribution.

Finally, in the best paper of Volume 4, Serrano-Arévalo et al. (2020) developed an optimization model for capacity expansion planning for the electricity generation sector considering economics, emissions, and water footprint. Their work addresses a critical issue that is faced by many countries facing the specter of climate change.

We extend warm congratulations to the authors of these four papers and thank them for their substantial contributions to the growth of *Process Integration and Optimization for Sustainability*. These winning papers have been announced on the journal updates section¹ and will be free to read for four weeks. Finally, in response to today's most urgent global issue, we have launched a topical collection titled *COVID-19: optimization strategies to combat the pandemic*. This collection² consists of previously published articles, as well as future contributions. The journal now welcomes new submissions on different models for addressing various aspects of the pandemic.

References

- Chiu ASF, Aviso KB, Tan RR (2020) On general principles at the sustainability science-policy interface. *Resources, Conservation and Recycling* 158:104828
- Dhull S, Narwal MS (2018) Prioritizing the drivers of green supply chain management in Indian manufacturing industries using fuzzy TOPSIS method: government, industry, environment, and public perspectives. *Process Integration and Optimization for Sustainability* 2:47–60
- El-Halwagi MM (2017) A shortcut approach to the multi-scale atomic targeting and design of C–H–O symbiosis networks. *Process Integration and Optimization for Sustainability* 1:3–13
- How BS, Lam HL (2019) PCA method for debottlenecking of sustainability performance in integrated biomass supply chain. *Process Integration and Optimization for Sustainability* 3:43–64
- Serrano-Arévalo TI, Juárez-García M, Ponce-Ortega JM (2020) Optimal planning for satisfying future electricity demands involving simultaneously economic, emissions, and water concerns. *Process Integration and Optimization for Sustainability* 4:379–389

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

¹ Journal Updates. <https://www.springer.com/journal/41660/updates>

² COVID-19: optimization strategies to combat the pandemic (Topical Collection). <https://link.springer.com/journal/volumesAndIssues/41660?tabName=topicalCollections>