PRES'13: contribution of process integration and intensification to development of clean technologies

Panos Seferlis · Petar Sabev Varbanov

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Process industry faces one of the greatest challenges of all times. It needs to remain competitive while meeting the highest possible standards for product quality and minimal environmental impact. This is a challenging task, as targeted properties involve a combination of chemical, mechanical and thermal behaviour resulting from the structural and compositional nature of the product. Process design involves the identification of the necessary transformation stages of raw materials to the desired products through a series of operations satisfying a set of objectives, constraints and goals for environmental, safety and economic performance. *Process Integration* investigates the interactions and exploits favourable synergies within a process or an industrial site proposing highly performing solutions in terms of the set objectives.

Inspired by such a challenging task the organisers of the 16th *International Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction—PRES'13*—and the publishers of the *Clean Technologies and Environmental Policy* have joined efforts that resulted in the publication of this Special Issue.

PRES'13 was held in the island of Rhodes in Greece from September 29th to October 2nd, 2013. The main aims of the PRES series of conferences are to review the latest

research developments and applications as well as preliminary results in new and emerging technologies in the fields of process integration, mathematical modelling and optimisation for energy conservation, pollution reduction and cleaner production. The interaction of researchers in academia with industrial practitioners is particularly encouraged, adding a unique dimension to the conference. *PRES'13* attracted 342 abstracts by more than 800 authors from 57 countries. The peer-review process of the manuscripts resulted in 213 papers selected for the final programme, of which 15 were presented as keynote lectures. In addition, the programme was expanded by three plenary lectures from world's leading scientists. The International Scientific Committee of *PRES'13* invited a carefully selected set of contributions for publication of extended articles in the current special issue of *Clean Technologies and Environmental Policy*.

Forty-two contributions were invited for submission. After a thorough peer-review procedure according to the standards of *Clean Technologies and Environmental Policy*, 21 manuscripts have been accepted. They have been authored by researchers from 37 institutions in 18 countries.

The papers have been grouped into several categories: (I) *Process Integration Tools for Sustainable Production*, (II) *Process Development for Intensified Production*, (III) *Waste Management and Emissions Control*, (IV) *Biorefinery and Biomass Utilisation Technologies*.

It is the strong belief of the Guest Editors of the current Special Issue that the selected papers will be of interest and relevance to a broad range of the scientific community well beyond the PRES Conference series participants. The 17th PRES 2014 conference is once more a joint conference with CHISA 2014. It has been held in Prague from August 23th to 27th 2014. The 18th event, *PRES'15*, will take

P. Seferlis (✉)
Department of Mechanical Engineering, Aristotle University of
Thessaloniki, 54124 Thessaloníki, Greece
e-mail: seferlis@auth.gr

P. S. Varbanov
Faculty of Information Technology, Centre for Process
Integration and Intensification - CPI2, Research Institute of
Chemical and Process Engineering - MÚKKI, University of
Pannonia, Egyetem u. 10, Veszprém 8200, Hungary
e-mail: varbanov@cpi.uni-pannon.hu

place in Sarawak, Malaysia, following an increasing growth of Process Integration and sustainable technologies in Asia. As guest editors of this Special issue of the *Clean Technologies and Environmental Policy*, we would like to express our gratitude to the more than 60 reviewers for their high quality reviews of the submitted manuscripts and the invaluable comments and suggestions for revisions in order to achieve excellent contributions. Many of them

handled multiple assignments and served as members of the PRES International Scientific Committee. Their dedicated effort was critical to bringing this Special Issue to publication within a tight time schedule and a relatively short period after the conference. Their contribution has been most appreciated by PRES and the Editorial Board of this Journal.