



ESCAPE

33RD EUROPEAN SYMPOSIUM ON COMPUTER-AIDED PROCESS ENGINEERING

GREEN AND SUSTAINABLE PROCESS SYSTEMS
ENGINEERING IN THE DIGITAL AGE

ATHENS - GREECE
Royal Olympic Hotel



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ESCAPE



EFCE

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THEMATIC AREAS

GREEN AND SUSTAINABLE PROCESS SYSTEMS ENGINEERING IN THE DIGITAL AGE

1 Modelling and optimization for multi-scale integration

- ◆ Synthesis, design and optimization methods and algorithms
- ◆ Digital twins and data-enabled modelling
- ◆ Data engineering in multi-scale integration and decision support

2 Control, scheduling, and operability at the process and enterprise-level

- ◆ Advances in scheduling, planning, and supply chain optimization
- ◆ Integration of process control with data and network structures
- ◆ Decision making for security and resiliency
- ◆ Smart operations and knowledge extraction using machine learning and AI

3 Safe and sustainable products by design

- ◆ Molecular and materials systems engineering
- ◆ Process intensification and additive manufacturing
- ◆ Smart and agile manufacturing for the future

4 Green and sustainable processes for the circular economy

- ◆ Technology and process integration for circular economy ecosystems
- ◆ Integrated biorefineries using thermal and biochemical processes
- ◆ Use of waste as a feedstock: modelling and process development applications

5 Systems methods in industrial biotechnology and biomedical applications

- ◆ Tools and methods to expand the industrial exploitation of microbial biodiversity
- ◆ Simultaneous integration of strain and process design
- ◆ Digital twins and embedded models for autonomous bioprocesses
- ◆ Novel PAT instruments and biosensors for in-process monitoring

6 Multi-scale energy systems engineering (organized by the EFCE energy section)

- ◆ Energy efficiency and renewable energy integration
- ◆ Energy management and process system engineering in energy applications
- ◆ CO₂ capture, usage and sequestration
- ◆ Mitigating Global Warming impact of industrial processes
- ◆ Water–Energy–Waste nexus, energy storage, power to renewable fuels and hydrogen

7 Sustainable supply chains and ecosystems

- ◆ Systems paradigms for eco-efficiency and intelligence in supply chains
- ◆ Social engagement and incentivization: methods and tools
- ◆ Urban systems engineering and social network models
- ◆ Life Cycle Analysis in the Digital Age

8 Education and knowledge transfer

- ◆ Interactive environments, open science and education
- ◆ Best practices in design education
- ◆ Promoting systems thinking in engineering curricula