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# Section

## Process Control and Supervision

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**Section Editor-in-Chief:**

Prof. Dr. Vicenç Puig

Institute of Robotics and Industrial Informatics, Technical University of Catalonia, Barcelona 08028, Spain

## About the Section "Process Control and Supervision"

The Control and Supervision section of *Processes* welcomes high-quality manuscripts concerning control and supervision methodologies, including related topics such as simulation, modeling, identification, and optimization, for solving problems related to process systems engineering. This section encourages submissions that focus on methodologies and their analysis, as opposed to applications that use existing methodologies. All submissions in this section should relate directly to process systems engineering within the aims and scope of the journal *Processes* (chemistry, biology, materials, and allied engineering fields). Contributions that are purely computational in nature without a clear relationship to the aims and scope will not be accepted. To facilitate the rapid, open exchange of knowledge, all authors are strongly encouraged (but not required) to submit any associated source code, models, simulations, software, and data either as supplementary material and/or to an open-access repository such as LAPSE (the Living Archive for Process Systems Engineering).

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## Keywords

### Simulation & Modeling Methods
- Numerical methods
- Equation-system solving algorithms and heuristics
- Initialization problems
- Solution strategies
- Multi-scale modeling approaches
- Problem formulation strategies

### Process Data-Based Approaches
- Multivariate analysis
- Principal component analysis
- Big data methods
- Artificial intelligence
- Machine learning
- Industry 4.0 related

### Model Identification
- Model identification
- Model reduction
- State-space sampling techniques
- Design-of-experiments
- Model fitting

### Process Control
- Advanced control algorithms
- Closed-loop performance monitoring
- Hierarchical control
- Non-centralized control
- Robustness in control
- Optimization-based control

### Process Supervision
- Decision support systems
- Uncertainty and risk
- Process monitoring
- Fault diagnosis
- Fault-tolerant control
- Sensor placement

### Process Optimization
- Mathematical programming
- Heuristic-based algorithms
- Stochastic algorithms
- Evolutionary algorithms
- Derivative-free optimization
- General optimization theory
- Computational complexity
- Related numerical methods

### Process Intensification
- New technologies for process intensification
- Knowledge-based methods
- Optimization-based methods
- Hybrid methods
- Operability, controllability, and safety

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St. Alban-Anlage 66
CH-4052 Basel
Switzerland
Tel: +41 61 683 77 34
Fax: +41 61 302 89 18

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