
# Special Session on
# Intelligent Control and Metaheuristic Optimization for Energy-Efficient Complex Systems

The control and optimization of complex systems is a critical challenge in modern industrial, energy, and technological domains. With increasing system complexity and rising energy demands, it is essential to develop advanced control strategies that maximize performance while minimizing energy consumption. This special session focuses on the integration of Artificial Intelligence (AI) techniques such as neural networks, reinforcement learning, and adaptive systems with metaheuristic algorithms (PSO, GA, ACO, etc.) to design intelligent and energy-efficient systems.

Contributions are sought across diverse applications, including renewable energy systems, autonomous robotic systems, smart infrastructures, industrial process optimization, and predictive control of energy networks. The session aims to provide a forum to share innovative research, advanced methodologies, and practical case studies, fostering solutions for energy-aware control of complex systems in both industrial and scientific contexts.

**Topics of interest include, but are not limited to:**

- Intelligent control of complex systems for high energy performance.
- Energy optimization of industrial systems using AI.
- Metaheuristic algorithms for efficient energy management.
- Reinforcement learning for adaptive control of energy systems.
- Cyber-physical systems and IoT for minimal energy consumption.
- Multi-objective optimization in smart energy networks.
- AI-based predictive control for energy consumption reduction.
- Applications of metaheuristics in energy-efficient autonomous robotic systems.
- Hybrid methods combining AI and metaheuristics for energy performance.
- Analysis of energy consumption in complex systems and optimization strategies.
- Simulation and modeling of energy in complex industrial systems.
- Benchmarking and evaluation of energy optimization and control techniques for intelligent systems.

**Organizer(s):**

Pr. Mellouli El Mehdi
University of Sidi Mohamed Ben Abdellah, National School of Applied Sciences, Fez-Morocco
elmehdi.mellouli@usmba.ac.ma

Pr. Elyaqouti Mustapha
University of IBN ZOHR, Faculty of Sciences of Agadir, Agadir-Morocco
elyaqouti@gmail.com

Pr. Arjdal El Hanafi
University of IBN ZOHR, Faculty of Sciences of Agadir, Agadir-Morocco
e.arjdal@uiz.ac.ma

**Deadlines of the special session:**

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| Full paper submission (maximum 6 pages): | **March 15, 2026** |
| Notification of acceptance: | **April 12, 2026** |
| Final submissions due: | **April 26, 2026** |

All the instructions for paper submission are included at the conference website.
https://gpecom.org/2026/guidelines/