

Numerical and Simulation-Based Methods for Decision Making under Uncertainty

organized by :

Prof. DSc Stefka Fidanova, Institute of Information and Communication Technologies, Bulgarian Academy of Science, 1113 Sofia, Bulgaria, e-mail:stefka.fidanova@gmail.com

Associate Professor Dr. Velichka Traneva, Faculty of Natural Sciences, Burgas State University "Prof. Dr. Assen Zlatarov", Bulgaria E-Mail veleka13@gmail.com

Abstract:

This special session focuses on numerical and simulation methods and their applications to decision-making problems under uncertainty. It aims to highlight the role of computational techniques in the modeling, simulation, and analysis of complex systems characterized by incomplete, imprecise, or stochastic information.

The session welcomes contributions involving numerical algorithms, Monte Carlo and simulation-based approaches, as well as optimization and heuristic methods for efficient decision-support. Emphasis is placed on computational performance, numerical stability, and applicability in realistic settings.

Hybrid frameworks incorporating uncertainty modeling, including fuzzy, intuitionistic fuzzy, and stochastic approaches, are also encouraged, particularly when integrated within computational and simulation-based methodologies.

Applications of interest include engineering systems, logistics, environmental modeling, and other real-world domains requiring reliable numerical and simulation-based solutions under uncertainty.

Topics of Interest

- 1 Numerical methods for systems under uncertainty
- 2 Monte Carlo and simulation techniques
- 3 Optimization and heuristic algorithms
- 4 Numerical analysis of complex and uncertain systems
- 5 Sensitivity and robustness analysis
- 6 Simulation-based decision-support models
- 7 Hybrid uncertainty modeling (fuzzy, intuitionistic, stochastic)
- 8 Applications in engineering, logistics, environmental modeling, and sustainability