The 18th International Symposium on Operations Research in Slovenia - SOR'25

> Bled, Slovenia, September 24-26, 2025 https://sor.fov.um.si/

Call for Papers for Special Session

SPECIAL SESSION ON HIGH PERFORMANCE COMPUTING AND QUANTUM COMPUTING FOR OPERATIONS RESEARCH

at the 18th International Symposium on Operations Research in Slovenia (SOR '25) which will be held in Bled, Slovenia, September 22 – 24, 2025.

Organized and chaired by: prof. dr. Janez Povh and dr. Roman Kužel

Operations Research (OR) focuses on developing mathematical models to address a wide array of real-world challenges. A significant subclass of these models involves optimization problems, which are often NP-hard and cannot be solved exactly within a reasonable timeframe. Traditionally, these problems are tackled using state-of-the-art metaheuristics and heuristics, providing approximate solutions that are computationally feasible.

However, often we want to compute optimum solutions. As problem sizes and complexities increase, achieving optimal solutions becomes more challenging. Classical exact methods are limited to small or medium-sized instances due to their computational demands. To overcome these limitations, the engagement of High-Performance Computing (HPC) systems has become essential, enabling the handling of larger problem instances and facilitating more sophisticated solution approaches.

In recent years, quantum computing technologies - including quantum annealers, quantum emulators, and Noisy Intermediate-Scale Quantum (NISQ) devices - have garnered significant attention for their potential to address complex optimization problems. While still in the early stages, these technologies offer new avenues for solving problems that are currently intractable for classical systems.

This session aims to showcase recent advancements in Operations Research where HPC systems and quantum computers have been effectively utilized. Topics will include, but are not limited to:

- Solving Quadratic Unconstrained Binary Optimization (QUBO) problems and other discrete optimization challenges.
- Addressing complex linear algebra problems pertinent to OR.
- Tackling general combinatorial optimization problems across various applications.

The 18th International Symposium on Operations Research in Slovenia - SOR'25

> Bled, Slovenia, September 24-26, 2025 https://sor.fov.um.si/



Prospective authors are invited to submit original papers prepared according to SOR'25 instructions for authors.

DEADLINES:

- Submission of contributed papers: June 1, 2025
- Referee's reports: July 1, 2025
- Submission of revised papers and copies of bank transfer: August 25, 2025

Note: When submitting the paper, please select "Special Session: Special Session on High Performance Computing and Quantum Computing for Operations Research".