

Recent Advances of Discrete Optimization and Scheduling

Chair: Prof. Alexander Lazarev, head of the laboratory "Scheduling Theory and Discrete Optimization", Institute of Control Sciences of Russian Academy of Sciences, Moscow, Russia.

Abstract: The development of software products that enable effective planning and optimization of production processes is necessary to improve the quality of the industrial sector. Our section will devote to modern approaches to solving discrete optimization problems and scheduling problems. Special attention is paid to problems with practical applications. First of all, this concerns the tasks that were updated as a result of the pandemic crisis of 2020–2021: the tasks of managing medical institutions, the tasks of cargo transportation, the tasks of production planning, and so on. NP-hard problems are the most difficult since they require significant computational resources to find a solution in general cases. Various models are studied, and their effectiveness is compared based on the study of special (pseudo-)polynomial solvable cases of problems, the measure of (pseudo-)polynomial unsolvability, the radius of stability, and the efficiency of algorithms.
