UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

DOTTORATO DI RICERCA / PHD PROGRAM IN
INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING

Seminar announcement

Thursday 15th May 2025, Time: 12:30 - 14:30
Room CL-T2, Building 1, - Via Claudio, 21 - NAPOLI

Dr. Roberto Maria Rosati

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How complex is to schedule the Italian Serie A? Problems and methods in sports timetabling.

Abstract: The double round-robin tournament, in which each team plays twice against each other, once in its home venue and once away, is a common structure for team sports, including major European football, volleyball, and basketball leagues. It is a highly complex combinatorial problem, for which we can find optimal solutions only to small instances, when all constraints and objectives are considered, while we inevitably need to resort to heuristics to solve real-world instances. For its mathematical complexity and for the economic relevance of major leagues, sports timetabling is an active research field. In this seminar, we will give an overview of the most studied problems in sports timetabling, with their constraints and objectives, and of the solution methods that have been proposed so far. Additionally, we will consider the underlying mathematical representation of the problem, as a 1-factorization of the complete graph. Finally, we will analyze the results of the recent International Timetabling Competition 2021 (ITC2021), that marked a milestone in the standardization of sports timetabling instances and in the benchmarking of algorithms for the problem.

Lecturer short bio: *Roberto Maria Rosati is a postdoctoral researcher at the WU Vienna University of Economics and Business, where he is working on the project "improving the performance of railway systems by using real-time algorithms in disruption management". He completed his PhD at the University of Udine in March 2024 with a thesis titled "Multi-Neighborhood Search for Combinatorial Optimization", under the supervision of Prof. Andrea Schaerf. During his PhD, he has visiting student at the Artificial Intelligence Research Institute (IIIA-CSIC), in Barcelona, and at the Technical University of Vienna (TU Wien). His broad research interests concern the design of efficient algorithms for solving complex, large-scale scheduling and timetabling problems.*

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