Editorial

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Received: 20 November 2008 / Accepted: 13 January 2009 / Published online: 24 February 2009
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The biannual workshop “Models and Algorithms for Planning and Scheduling Problems (MAPSP 2007)” was organized at Koç University during the week July 2–6, 2007. This workshop was dedicated to all theoretical and practical aspects of scheduling, planning, and timetabling. It was the eighth meeting and gathered 81 participants from universities and research centers in Australia, Austria, Belarus, Czech Republic, France, Germany, Greece, Hungary, India, Iran, Italy, Japan, Poland, Russia, Spain, Sweden, The Netherlands, the U.K., the U.S.A., and Turkey. Koç University provided a stimulating atmosphere to discuss various research topics presented in 65 talks focusing on the most promising theoretical and applied advances in scheduling. The highlight of the meeting was honoring Professor Peter Brucker for his contributions to the scheduling field.

Papers covering research presented at the workshop were solicited for this special issue. The papers were reviewed using the same standards and procedures as regular submissions to *Journal of Scheduling*. The 10 accepted papers provide an overview of the current research in scheduling area.

In the paper “On truthfulness and approximation for scheduling selfish tasks”, Angel, Bampis, Pascual and Tchetgnia consider the problem of designing truthful mechanisms for scheduling tasks, each owned by a selfish agent, on parallel related machines to minimize the makespan. They introduce the notion of an increasing algorithm and a simple reduction that transforms any increasing algorithm into a truthful one. They later introduce payments to study the

trade-off that one can obtain between truthfulness and approximation.

In the paper “The Resource-Constrained Activity Insertion Problem with Minimum and Maximum Time Lags”, Artigues and Briand study the resource-constrained activity insertion problem with minimum and maximum time lags. They show that the considered insertion problem is NP-hard in the general case and provide a new polynomial algorithm when maximum time lags are ignored, which generalizes the results in the literature.

In the paper “Bounded-space online bin cover”, Asgeirsson and Stein look at the online bounded-space bin cover problem and show how the language of Markov chains can be used to model and analyze the problem. They use the insights to design an algorithm for the online bounded-space bin cover problem, analyze it and compare to a well known online bin cover algorithm.

In the paper “Inverse Scheduling with Maximum Lateness Objective”, Brucker and Shakhlevich study a range of counterparts of the single machine scheduling problem with the maximum lateness criterion that arises in the context of inverse optimization. In inverse scheduling the exact values of processing times or due dates are unknown and they should be determined so that a pre-specified solution becomes optimal. They provide an almost complete classification of the corresponding inverse models under different types of norms that measure the deviation of adjusted parameters from their given estimates.

In the paper “Power-Aware Scheduling for Makespan and Flow”, Bunde addresses offline scheduling algorithms that incorporate speed scaling to address the bicriteria problem of minimizing energy consumption and a scheduling metric. He analyzes the makespan and total flow as the criteria and provides the computational complexity of the problems.

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In the paper “Algorithms for Testing Fault-Tolerance of Sequenced Jobs” Chrobak, Hurand and Sgall study the problem of testing whether a given set of sequenced jobs can tolerate transient faults. They present efficient algorithms based on dynamic programming for this problem in several fault models and perform an experimental study to show that this linear-time performance extends to other distributions.

In the paper “Optimal and Online Preemptive Scheduling on Uniformly Related Machines”, Ebenlendr and Sgall address the problem of preemptive scheduling on uniformly related machines and present a semi-online algorithm which, if the optimal makespan is given in advance, produces an optimal schedule. In addition, they study the performance of greedy heuristics for the same problem.

In the paper “Exact and approximate algorithms for high-multiplicity parallel machine scheduling”, Filippi and Romanin-Jacur investigate high-multiplicity parallel machine scheduling problems with identical, uniform, and unrelated machines, and two classic objectives: minimum sum of completion times and minimum makespan. For polynomially solvable cases, they provide exact algorithms, while for hard cases they provide approximate, asymptotically exact algorithms.

In the paper “Conjugate problems in time-dependent scheduling”, Gawiejnowicz, Kurc and Pankowska describe conjugate problems which constitute a new class of mutually related time-dependent scheduling problems. They prove basic properties of conjugate problems and show the relations that hold between such problems. They also propose an approach to the construction of greedy heuristics for the conjugate problems.

In the paper “Non-Approximability of Just-in-Time Scheduling”, Müller-Hannemann and Sonnikow consider the single machine just-in-time scheduling problem with earliness and tardiness costs and provide approximation results. Using the gap-technique, they show that the weighted earliness-tardiness scheduling problem and several variants are extremely hard to approximate. They also present positive results for two special cases. Finally, they obtain a pseudopolynomial time exact algorithm using an adaption of an earlier dynamic programming approach for the total weighted tardiness problem

Guest Editors