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Editorial: Special Issue on "Combinatorial Algorithms" (IWOCA 2016)

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This special issue contains nine articles which are based on extended abstracts presented at the 27th International Workshop on Combinatorial Algorithms (IWOCA), which was held at the University of Helsinki, Finland from 17-19 August, 2016. These extended abstracts were among the top papers of those that were presented at IWOCA 2016 in a very competitive peer-review process (after which only 35 papers out of 87 submissions were accepted).

Compared with the original conference submissions, the articles have been extended by full proofs and additional results, and have undergone a further rigorous reviewing process, following the TOCS standard.

The nine articles are

1. **Paweł Gawrychowski and Łukasz Zatorski:** Speeding up dynamic programming in the line-constrained k-median
2. **Martin Böhm and Pavel Veselý:** Online Chromatic Number is PSPACE-Complete
3. **Yuya Higashikawa, Siu-Wing Cheng, Tsunehiko Kameda, Naoki Katoh, and Shun Saburi:** Minimax Regret 1-Median Problem in Dynamic Path Networks
4. **Petr A. Golovach, Dieter Kratsch, Daniël Paulusma, and Anthony Stewart:** Finding Cactus Roots in Polynomial Time
5. **Peter Damaschke:** The Solution Space of Sorting with Recurring Comparison Faults
6. **Joan Boyar, Lene M. Favrholdt, Christian Kudahl, and Jesper W. Mikkelsen:** Weighted Online Problems with Advice

This article is part of the Topical Collection on *Special Issue on Combinatorial Algorithms*

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7. **Kaushik Sarkar, Charles J. Colbourn, Annalisa De Bonis, and Ugo Vaccaro:** Partial Covering Arrays: Algorithms and Asymptotics
8. **Adrian Dumitrescu, Ritankar Mandal, and Csaba D. Tóth:** Monotone Paths in Geometric Triangulations
9. **Xujin Chen, Zhuo Diao, Xiaodong Hu, and Zhongzheng Tang:** Covering Triangles in Edge-weighted Graphs

The topics of the articles constitute a broad span of the discipline of combinatorial algorithms. The range of topics illustrates well the general scope of the IWOCA conference series, and this special issue on combinatorial algorithms especially highlights many combinatorial aspects related to graph theory.

First, Paweł Gawrychowski and Łukasz Zatorski in their paper *Speeding up dynamic programming in the line-constrained k-median* develop new techniques for transport optimization, making use of Monge properties.

Martin Böhm and Pavel Veselý in their paper *Online Chromatic Number is PSPACE-Complete* give a nontrivial reduction that removes the need for a precoloring assumption that was used in earlier work on this online coloring problem.

The paper titled *Minimax Regret 1-Median Problem in Dynamic Path Networks* by Yuya Higashikawa, Siu-Wing Cheng, Tsunehiko Kameda, Naoki Katoh, and Shun Saburi considers dynamic flow problems with applications to building evacuation.

Petr A. Golovach, Dieter Kratsch, Daniël Paulusma, and Anthony Stewart in their paper *Finding Cactus Roots in Polynomial Time* develop polynomial recognition algorithms for graph squareness on new subclasses of graphs.

Combinatorial connection between feedback arc sets and sorting under faults are established by Peter Damaschke in his paper titled *The Solution Space of Sorting with Recurring Comparison Faults*.

Advice complexity is extented to weighted online problems by Joan Boyar, Lene M. Favrholdt, Christian Kudahl, and Jesper W. Mikkelsen in their paper *Weighted Online Problems with Advice*.

Kaushik Sarkar, Charles J. Colbourn, Annalisa De Bonis, and Ugo Vaccaro study new relaxations of covering arrays in their paper *Partial Covering Arrays: Algorithms and Asymptotics*.

Counting algorithms and upperbounds on monotone paths in geometric triangulations are developed by Adrian Dumitrescu, Ritankar Mandal, and Csaba D. Tóth in their paper *Monotone Paths in Geometric Triangulations*.

Finally, new and nontrivial algorithms and sufficient conditions for Tuza's 35-year-old conjecture on packing and covering triangles in graphs are obtained by Xujin Chen, Zhuo Diao, Xiaodong Hu, and Zhongzheng Tang in their paper *Covering Triangles in Edge-weighted Graphs*.

Our sincere thanks go to the authors for submitting their papers to this issue, and to the referees for their thorough reviews of the manuscripts. Furthermore, we are grateful to Alan Selman and his excellent editorial team for enabling a timely overall process.

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