

Theoretical Aspects of Computer Science

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The Symposium on Theoretical Aspects of Computer Science (STACS) is held alternately in France and in Germany. The conference of March 4–6, 2010, held in Nancy, at LORIA, University of Lorraine, France was the 27th in this series. This special issue contains six papers. Based on a two-week discussion, the selected papers were judged by the program committee to be among the best submissions to the conference. Authors were invited to provide complete journal versions of the STACS paper. These submissions underwent the TOCS standard refereeing process.

The contributions of this special issue illustrate the vitality of STACS community, with recent trends. There are two articles on algorithms: In “Dispersion in disks”, A. Dumitrescu and M. Jiang present approximations algorithms to select n points in n disks such that the minimum pairwise distance among the points is maximized. The article, “The complexity of the list homomorphism problem for graphs”, by L. Egri, A. Krokhin, B. Larose and P. Tesson provides a complete classification of the computational complexity of the list H-colouring problem for graphs.

Then, the article “On optimal heuristic randomized semidecision procedures, with applications to proof complexity and cryptography” by A. Hirsch, D. Itsykson, I. Monakhov and A. Smal is devoted to algorithmic complexity of propositional proof systems.

The article “Representing hyper-arithmetical sets by equations over sets of integers” by A. Jez and A. Okhotin characterizes the class of hyper-arithmetical sets by mean of systems of equations with sets of integers as unknowns.

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The two last papers are on complexity theory. In “Inseparability and Strong Hypotheses for Disjoint NP Pairs”, L. Fortnow, J. Lutz and E. Mayordomo study the existence of inseparable disjoint pairs of NP languages. Next, “Collapsing and Separating Completeness Notions under Average-Case and Worst-Case Hypotheses”, by J. Hitchcock, X. Gu, and A. Pavan is also about the complexity and the structure of NP sets.

We thank the authors for submitting their papers to this issue, and we thank the referees for many thorough reviews of the manuscripts. Finally we want to acknowledge the support of the organizations, which contributed to STACS 2010 success.

Guest Editors