

Preface to the Special Issue on Algorithmic Game Theory

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This special issue contains seven expanded papers from the 9th International Symposium on Algorithmic Game Theory (SAGT), which took place in Liverpool, UK, in September 2016. The purpose of SAGT is to bring together researchers from computer science, economics, and mathematics to present and discuss original research at the intersection of algorithms and game theory.

The following papers that were invited to this special issue were among the best papers at the conference:

- “Designing Cost-Sharing Methods for Bayesian Games” by Christodoulou, Leonardi, and Sgouritsa studies the Bayesian price of anarchy of cost-sharing methods for game-theoretic versions of the set cover and Steiner tree problems.
- “Logarithmic Query Complexity for Approximate Nash Computation in Large Games” by Goldberg, Marmolejo-Cossío, and Wu studies the number of payoff queries needed to find approximate Nash equilibria in games with many players.
- “The Impact of Worst-Case Deviations in Non-Atomic Network Routing Games” by Kleer and Schäfer defines and studies the “deviation ratio” of non-atomic network routing games. This ratio measures the worst case change in the equilibrium behaviour when latencies are boundedly perturbed.

This article is part of the Topical Collection on *Special Issue on Algorithmic Game Theory (SAGT 2016)*

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- “Price of Anarchy for Highly Congested Routing Games in Parallel Networks” by Colini-Baldeschi, Cominetti, and Scarsini studies the asymptotic behavior of the price of anarchy of non-atomic selfish routing games as the demand tends to infinity.
- “An Almost Ideal Coordination Mechanism for Unrelated Machine Scheduling” by Caragiannis and Fanelli gives a coordination mechanism with desirable properties for the problem of scheduling selfish agents on unrelated machines.
- “The Stable Roommates Problem with Short Lists” by Cseh, Irving, and Manlove studies a variant of the classical stable roommates problem where the preference lists are incomplete and of bounded length.
- “Analyzing Power in Weighted Voting Games With Super-Increasing Weights” by Filmus, Oren, Zick and Bachrach characterizes the Shapley value of weighted voting games in the case where weights are super-increasing.

We thank the authors and the reviewers for their excellent work, without which this special issue would not have been possible.