Editor's Introduction

This is an exciting time for SIGecom Exchanges. In the past, SIGecom Exchanges has mostly published full-length research articles. While we continue to accept such articles, we are now placing more of a focus on letters, in which authors can give a quick overview of recent research, review a recent conference or book, or lay out their opinions on where research is or should be heading. This new direction is reflected in this special issue on combinatorial auctions.

This issue starts with "An Overview of Combinatorial Auctions" by Cramton *et al.* The authors give a brief overview of the key issues in combinatorial auctions. These issues are discussed in more detail in the recent book "Combinatorial Auctions," edited by these authors.

The first three letters concern the solution of the winner determination problem and the setting of appropriate prices. In "Combinatorial Auctions with Tractable Winner Determination," Gottlob and Greco discuss their recent work that significantly extends a class of settings where the winner determination problem can be solved in polynomial time. In "Duality in Combinatorial Auctions," Bikhchandani and Ostroy discuss linear programming formulations and the relationship of the dual to pricing and ascending combinatorial auctions. In "Computing Core Payments in Combinatorial Auctions," Day and Raghavan argue against using VCG pricing, and as an alternative they propose methods for computing core payments.

The next set of letters discusses mechanism design issues, that is, how to incentivize bidders to reveal their valuations truthfully. In "Searching for the Possibility-Impossibility Border of Truthful Mechanism Design," Lavi discusses computational and inherent limitations to the design of truthful combinatorial auctions. Dobzinski then discusses a specific class of truthful mechanisms in "Better Mechanisms for Combinatorial Auctions via Maximal-in-Range Algorithms?" In "Mechanism Design, Machine Learning, and Pricing Problems," Balcan and Blum discuss the connection between machine learning and mechanism design—specifically, machine learning techniques can be used to determine prices for one bidder based on the others' bids. Moulin studies Groves mechanisms that distribute the surplus in a different way from the Vickrey auction in "Auctioning or Assigning an Object: Some Remarkable VCG Mechanisms." Finally, in "Ex-Post Equilibria in Combinatorial Auctions," Tennenholtz argues that we should consider other *ex-post* equilibria of combinatorial auctions, because even if telling the truth is a dominant-strategy equilibrium, another equilibrium may be more practical from a communication/computational standpoint.

The next two letters focus on the related phenomena of revenue (non)monotonicity and false-name bidding. In "Revenue Monotonicity in Combinatorial Auctions," Rastegari *et al.* give an impossibility result showing that mechanisms that meet certain criteria can never be revenue monotonic, and a corollary of this result is that these mechanisms cannot be false-name-proof. Yokoo then gives an overview of work on false-name bidding in "False-name Bids in Combinatorial Auctions."

The following two letters concern stochastic settings, in which some decisions must be made before demand has fully realized. In "Mechanism Design for Stochastic Optimization Problems," Ieong *et al.* discuss for which game-theoretic solution concepts the social-welfare maximizing outcome in stochastic environments can be implemented. Then, Golovin discusses the future of combinatorial auctions in general, and discusses approximation algorithms and mechanisms for a specific model of the stochastic problem in "More Expressive Market Models and the Future of Combinatorial

Auctions."

The final letters discuss variants and generalizations of combinatorial auctions. In "Mixed Multi-Unit Combinatorial Auctions for Supply Chain Management," Giovannucci *et al.* summarize their research on MMUCAs, in which some bidders can transform goods into other goods. Chen *et al.* discuss betting mechanisms for settings where the outcome space is combinatorial in nature in their letter "Combinatorial Betting." Finally, Schnizler and Neumann discuss two combinatorial exchange mechanisms for resource allocation in service-oriented environments such as grids in "Combinatorial Exchanges for Coordinating Grid Services."

The issue concludes with an Editor's Puzzle, which asks the reader to solve an instance of the winner determination problem. The most elegant solution will be published in the next issue.

I would like to thank the reviewers for this issue, as well as our Information Director Daniel Reeves who has been very helpful in putting this issue together.

Enjoy!

Vincent Conitzer
Editor-in-Chief