



# WINE 2015

The 11th Conference on Web and Internet Economics

## General Information & Scientific Program

CWI, Amsterdam, The Netherlands  
December 9–12, 2015

**CWI**

## Foreword

On behalf of the Organizing Committee we are delighted to welcome you to the 11th Conference on Web and Internet Economics (WINE 2015) held during December 9–12, 2015, at the Centrum Wiskunde & Informatica (CWI) in Amsterdam, The Netherlands.

WINE 2015 features a very competitive scientific program. The Program Committee faced the difficult task of selecting 38 papers to be presented during the conference out of 142 strong submissions. The scientific program also includes invited talks by four excellent speakers: Michal Feldman (Tel-Aviv University, Israel), Paul Goldberg (University of Oxford, UK), Ramesh Johari (Stanford University, USA), and Paul Milgrom (Stanford University, USA). Following the tradition from previous venues, WINE 2015 hosts a tutorial day on December 9, 2015. The three tutorials are given by Vincent Conitzer (Duke University, USA), Tobias Harks (University of Augsburg, Germany), and Rahul Savani (University of Liverpool, UK).

In addition, WINE 2015 features a poster session with 19 poster presentations where young researchers present their recent works in an informal atmosphere. In terms of social activities, we are having a conference reception on the first day, in the form of a walking dinner, in combination with the poster presentations. The WINE 2015 Banquet takes place on the second day, in a typical Amsterdam-style restaurant and is combined with a boat trip.

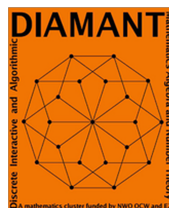
Many people were involved in the organization of WINE 2015. First of all, we want to thank the 37 members of the Program Committee for all their efforts and time that they have put into the committee work. Also, we thank Krzysztof Apt for organizing the tutorials, Nicole Immorlica for helping to advertise the conference, and Moshe Babaioff, Piotr Krysta, and Adrian Vetta for serving on the WINE 2015 Best Paper Award committee. We want to express our deep gratitude to Susanne van Dam for her excellent work on all local arrangements. Further, we thank Georgios Amanatidis, Georgios Birmpas, Pieter Kleer, and Irving van Heuven van Staereeling for helping out at the conference desk, Félix Carvalho Rodrigues for his assistance in preparing the program, and Chris Wesseling and Niels Nes for their IT support. Finally, we thank our sponsors for their generous support of WINE 2015.

Please find below some further information related to WINE 2015.

We very much hope that you will enjoy the conference and your stay in Amsterdam.

Vangelis Markakis and Guido Schäfer  
(WINE 2015 Program Co-Chairs)

## WINE 2015 Sponsors



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## Conference Venue

WINE 2015 takes place at the Center for Mathematics and Computer Science (CWI), Science Park 123, 1098 XG Amsterdam. CWI is situated in Amsterdam Science Park. A map of the area is given at the back cover of this booklet.

*All sessions are held in the **Turing room** (congress hall next to CWI).*

## Reaching CWI

CWI can be reached conveniently by public transport.

The nearest train station is Amsterdam Science Park (about 5–7 minutes walk to/from CWI). There are trains from/to Amsterdam Central Station. The departure times from Amsterdam Central Station are h:10, h:22, h:40, and h:52 (direction Zwolle or Amersfoort Vathorst); the departure times from Amsterdam Science Park are the same (direction Amsterdam or Hoofddorp). The train ride takes 8–10 minutes (2 stops).

The other nearby train stations are Amsterdam Amstel and Amsterdam Muiderpoort. From Amsterdam Amstel you can take bus 40 (towards Muiderpoort Station) or bus 240 (towards Science Park). From Amsterdam Muiderpoort you can either walk (about 15–20 minutes) or take bus 40 (towards Amstel Station). If you take the bus, get off at Science Park Amsterdam.

You may use [Google Maps](#) or <http://9292.nl/en> to plan your journey.

If you come by car, parking at CWI is free of charge. At the registration desk, please ask for an exit card, which allows you to leave the complex at the end of the day.

## Registration Desk

The registration desk is located near the conference room. If you need help for any specific issues during the conference, please approach the staff at the registration desk.

## WiFi Access

All participants can use the CWI wireless network. Please connect to the network **wcwzalen** (no password required). At CWI we also provide the *eduroam* network. If your institution is an eduroam partner and you have used this networking service before you should be able to connect.

## Coffee Breaks & Lunches

The coffee breaks are held in the hall next to the Turing room. Next to the standard coffee served during the breaks, there are two espresso machines available for your convenience! Warm lunches are served every day. The lunches take place in the room next to the Turing room.

## WINE 2015 Best Paper Award

The *WINE 2015 Best Paper Award* is awarded to Sepehr Assadi, Sanjeev Khanna, Yang Li and Rakesh Vohra for their paper *Fast Convergence in the Double Oral Auction*. The paper is presented during the first session on Friday morning (Session 4, 9:10am).

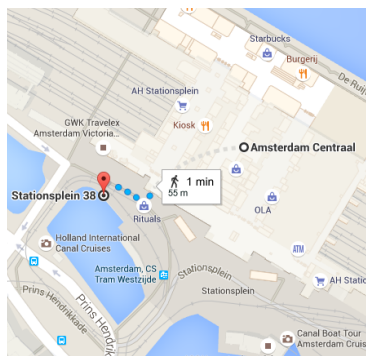
## WINE 2015 Business Meeting & Conference Reception

The business meeting takes place on Thursday evening (6pm) in the Turing room. After that, the conference reception is held in conjunction with the poster session (see below for more details). Drinks and food are provided.

## WINE Banquet & Boat Trip

The WINE 2015 Banquet takes place on Friday evening (8:00pm) at the restaurant “Hotel de Goudfazant” located across the IJ (north-east of Amsterdam Central Station). The address of the restaurant is Aambeeldstraat 10 H, 1021 KB Amsterdam.

**Please remember to bring your ticket for the banquet (stating your menu choices).**



We have organized a boat trip to the restaurant. The **boat departs at 7:00pm from Amsterdam Central Station** (pick-up point as indicated in the map). Please be there on time!

For the way back, we have arranged bus transfers to the center of Amsterdam and Amsterdam Amstel Station. The buses leave from the restaurant around 10:30pm.

**Note:** The restaurant is somewhat difficult to reach by public transport and we strongly advise you to make use of the boat/bus transfer service.

## Speakers

Speakers are kindly asked to contact their session chair before the start of the session. Please provide your presentation (powerpoint or pdf) on a USB stick or use your own laptop.

## Liability

The organizers cannot be held liable for any personal accident, damage or loss of personal property caused during the conference.

8:30–9:00	Registration
9:00–11:00	<b>Tutorial by Vincent Conitzer</b>
	<i>Some Game-Theoretic Aspects of Voting</i>
11:00–11:30	Coffee/Tea
11:30–12:30	<b>Tutorial by Rahul Savani</b>
	<i>Polymatrix Games: Algorithms and Applications</i>
12:30–14:00	Lunch
14:00–15:00	<b>Tutorial by Rahul Savani (continued)</b>
	<i>Polymatrix Games: Algorithms and Applications</i>
15:00–15:30	Coffee/Tea
15:30–17:30	<b>Tutorial by Tobias Harks</b>
	<i>Polymatroids in Congestion Games</i>

## Tutorial

### Vincent Conitzer, Duke University, USA

#### *Some Game-Theoretic Aspects of Voting*

**Abstract:** The Gibbard-Satterthwaite theorem and related results rule out the existence of appealing strategy-proof voting rules in sufficiently general settings. As a result, it is sometimes thought that approaching voting settings from a game theory or mechanism design viewpoint is futile. In this tutorial I hope to dispel this thought by discussing a variety of game-theoretic results in voting settings.

**Short bio:** Vincent Conitzer is the Kimberly J. Jenkins University Professor of New Technologies and Professor of Computer Science, Professor of Economics, and Professor of Philosophy at Duke University. His research focuses on computational aspects of microeconomics, in particular game theory, mechanism design, voting/social choice, and auctions. This work uses techniques from, and includes applications to, artificial intelligence and multiagent systems.

**Homepage:** <http://www.cs.duke.edu/~conitzer/>

## Tutorial

### Rahul Savani, University of Liverpool, UK

#### *Polymatrix Games: Algorithms and Applications*

**Abstract:** Polymatrix games are multi-player games that capture pairwise interactions between players. They are defined by an underlying interaction graph, where nodes represent players, and every edge corresponds to a two-player strategic-form game. This tutorial will introduce polymatrix games and their applications, such as to model Bayesian two-player games, to solve classification problems in machine learning, and within an iterative method to solve general multi-player games. Then the tutorial will cover basic algorithmic and computational complexity results for polymatrix games. In particular, the tutorial will cover in detail two algorithms for polymatrix games:

1. Lemke's algorithm, with is a complementary pivoting algorithm like Lemke-Howson algorithm for bimatrix games. It can be used to find an exact equilibrium of a polymatrix game.
2. A gradient-descent based algorithm that finds a constant approximate equilibrium of any polymatrix game. A similar technique also gives the current best algorithm for finding approximate equilibria in bimatrix games.

**Short bio:** Rahul Savani is a Senior Lecturer (Associate Professor) at the University of Liverpool. There, he is a member of the Economics and Computation research group within the Department of Computer Science. His research interests include equilibrium computation and automated trading. He is also keen on making algorithms for solving games available to researchers, for example, via Game Theory Explorer (<http://www.gametheoryexplorer.org/>).

**Homepage:** <http://www.csc.liv.ac.uk/~rahul>

## Tutorial

**Tobias Harks, University of Augsburg, Germany**

*Polymatroids in Congestion Games*

**Abstract:** Up to day congestion games have been used as reference models for describing decentralized systems involving the selfish allocation of congestible resources and for decades they have been a focal point of research in algorithmic game theory, operations research and theoretical computer science.

In this tutorial, I will convey known and new results regarding the existence, efficiency and computability of equilibria for different variants of congestion games. In particular, we will discover that the theory of congestion games has deep connections with matroid- and polymatroid theory (coming from combinatorial optimization).

**Short bio:** Tobias Harks is Professor of Optimization in the Department of Discrete Mathematics, Optimization and Operations Research at the University of Augsburg. His research interests include combinatorial optimization, design, analysis, and applications of algorithms, optimization of traffic and logistic networks, computational game theory and operations research.

**Homepage:** <http://researchers-sbe.unimaas.nl/tobiasharks/>

8:30–9:00	Coffee/Tea & Registration
9:00–9:10	Opening by Jos Baeten
9:10–10:10	<b>Invited Talk by Paul Milgrom (Chair: Guido Schäfer)</b>
	<i>Adverse Selection and Auction Design for Internet Display Advertising</i>
10:10–10:40	Coffee/Tea
10:40–12:00	<b>Session 1: Mechanism Design (Chair: Nicole Immorlica)</b>
	Oren Ben-Zwi, Monika Henzinger and Veronika Loitzenbauer <i>Ad Exchange: Envy-free Auctions with Mediators</i>
	Liad Blumrosen and Osnat Zohar <i>Multilateral Deferred-Acceptance Mechanisms</i>
	Richard Cole and Shravas Rao <i>Applications of <math>\alpha</math>-strongly regular distributions to Bayesian auctions</i>
	Yiannis Giannakopoulos and Maria Kyropoulou <i>The VCG Mechanism for Bayesian Scheduling</i>
12:00–13:30	Lunch
13:25–13:30	SAGT 2016 Announcement by Rahul Savani
13:30–14:30	<b>Invited Talk by Michal Feldman (Chair: Vangelis Markakis)</b>
	<i>Resolving Combinatorial Markets via Posted Prices</i>
14:30–15:00	Coffee/Tea
15:00–16:20	<b>Session 2: Social Choice (Chair: Max Klimm)</b>
	Bezael Peleg and Hans Peters <i>Choosing <math>k</math> from <math>m</math>: Feasible Elimination Procedures Reconsidered</i>
	Antje Bjelde, Felix Fischer and Max Klimm <i>Impartial Selection and the Power of Up to Two Choices</i>
	Britta Dorn, Dominikus Krüger and Patrick Scharpfenecker <i>Often harder than in the Constructive Case: Destructive Bribery in CP-nets</i>
	Shant Boodaghians and Adrian Vetta <i>Testing Consumer Rationality using Perfect Graphs and Oriented Discs</i>
16:20–16:50	Coffee/Tea
16:50–17:50	<b>Session 3: Matching Markets (Chair: Carmine Ventre)</b>
	Oliver Hinder <i>The Stable Matching Linear Program and an Approximate Rural Hospital Theorem with Couples</i>
	Nick Arnosti, Nicole Immorlica and Brendan Lucier <i>The (Non)-Existence of Stable Mechanisms in Incomplete Information Environments</i>
	Zeinab Abbassi, Nima Haghpanah and Vahab Mirrokni <i>Exchange Market Mechanisms without Money</i>
17:50–18:00	WINE 2015 Best Paper Award & Drinks
18:00–18:45	Business Meeting
19:00–20:00	Lightning Talks
20:00–21:30	Poster Session & Reception



8:30–9:10	Coffee/Tea & Registration
9:10–10:10	<b>Session 4: Equilibria in Markets (Chair: Orestis Telelis)</b> Shahar Dobzinski, Michal Feldman, Inbal Talgam-Cohen and Omri Weinstein <i>Welfare and Revenue Guarantees for Competitive Bundling Equilibrium</i> <b>WINE 2015 Best Paper:</b> Sepehr Assadi, Sanjeev Khanna, Yang Li and Rakesh Vohra <i>Fast Convergence in the Double Oral Auction</i> Elliot Anshelevich and Shreyas Sekar <i>Price Competition in Networked Markets: How do monopolies impact social welfare?</i>
10:10–10:40	Coffee/Tea
10:40–12:00	<b>Session 5: Network Routing Games (Chair: Alexander Skopalik)</b> Dimitris Fotakis, Dimitris Kalimeris and Thanasis Lianeas <i>Improving Selfish Routing for Risk-Averse Players</i> Tobias Harks, Max Klimm and Manuel Schneider <i>Bottleneck Routing with Elastic Demands</i> Soumya Basu, Thanasis Lianeas and Evdokia Nikolova <i>New Complexity Results and Algorithms for the Minimum Tollbooth Problem</i> Vittorio Bilò, Michele Flammini, Gianpiero Monaco and Luca Moscardelli <i>Computing Approximate Nash Equilibria in Network Congestion Games with Polynomially Decreasing Cost Functions</i>
12:00–13:30	Lunch
13:25–13:30	WINE 2016 Announcement by Adrian Vetta
13:30–14:30	<b>Session 6: Mechanism Design (Chair: Annamaria Kovacs)</b> Marek Adamczyk, Allan Borodin, Diodato Ferraoli, Bart De Keijzer and Stefano Leonardi <i>Sequential Posted Price Mechanisms with Correlated Valuations</i> Nicolas Bousquet, Yang Cai and Adrian Vetta <i>Welfare and Rationality Guarantees for the Simultaneous Multiple-Round Ascending Auction</i> Yun Kuen Cheung, Monika Henzinger, Martin Hoefer and Martin Starnberger <i>Combinatorial Auctions with Conflict-Based Externalities</i>
14:30–15:00	Coffee/Tea
15:00–16:00	<b>Session 7: Sequential Games (Chair: Elliot Anshelevich)</b> Vittorio Bilò and Cosimo Vinci <i>On Stackelberg Strategies in Affine Congestion Games</i> José Correa, Jasper de Jong, Bart de Keijzer and Marc Uetz <i>The Curse of Sequentiality in Routing Games</i> Branislav Bosansky, Simina Branzei, Kristoffer Arnsfelt Hansen, Peter Bro Miltersen and Troels Bjerre Sørensen <i>Computation of Stackelberg Equilibria of Finite Sequential Games</i>
16:00–16:30	Coffee/Tea

16:30–17:30	<b>Session 8: Mechanism Design (Chair: Vittorio Bilò)</b>
	Gerardo Berbeglia, Gautam Rayaprolu and Adrian Vetta <i>The Storable Good Monopoly Problem with Indivisible Demand</i>
	Annamaria Kovacs, Ulrich Meyer and Carmine Ventre <i>Mechanisms with Monitoring for Truthful RAM Allocation</i>
	Rachel Cummings, Michael Kearns, Aaron Roth and Zhiwei Steven Wu <i>Privacy and Truthful Equilibrium Selection for Aggregative Games</i>
19:00	Boat Pick-Up, Amsterdam Central Station
20:00–22:30	WINE 2015 Banquet, Restaurant “Hotel de Goudfazant”

8:30–9:10	Coffee/Tea & Registration
9:10–10:10	<b>Invited Talk by Ramesh Johari (Chair: Vangelis Markakis)</b> <i>The Engineer as Economist: Algorithms and Incentives in the Design of On-line Platform Markets</i>
10:10–10:40	Coffee/Tea
10:40–12:00	<b>Session 9: Network Dynamics (Chair: Vincent Conitzer)</b> Vincenzo Auletta, Ioannis Caragiannis, Diodato Ferraioli, Clemente Galdi and Giuseppe Persiano <i>Minority Becomes Majority in Social Networks</i> José Correa, Marcos Kiwi, Neil Olver and Alberto Vera <i>Adaptive Rumor Spreading</i> Matt Leduc and Ruslan Momot <i>Strategic Investment in Protection in Networked Systems</i> Joosung Lee <i>Multilateral Bargaining in Networks: On the Prevalence of Inefficiencies</i>
12:00–13:30	Lunch
13:30–14:30	<b>Invited Talk by Paul Goldberg (Chair: Guido Schäfer)</b> <i>Approximate Nash Equilibrium Computation</i>
14:30–15:00	Coffee/Tea
15:00–16:00	<b>Session 10: Complexity in Games (Chair: Troels Bjerre Lund)</b> Stefano Turchetta and Paul Goldberg <i>Query Complexity of Approximate Equilibria in Anonymous Games</i> Volodymyr Kuleshov and Okke Schrijvers <i>Inverse Game Theory: The Computational Complexity of Learning Utilities in Succinct Games</i> Elliot Anshelevich and Shreyas Sekar <i>Computing Stable Coalitions: Approximation Algorithms for Reward Sharing</i>
16:00–16:30	Coffee/Tea
16:30–17:30	<b>Session 11: Learning in Games (Chair: Adrian Vetta)</b> Avrim Blum, Yishay Mansour and Liu Yang <i>Online Allocation and Pricing with Economies of Scale</i> Li Han, David Kempe and Ruixin Qiang <i>Incentivizing Exploration with Heterogeneous Value of Money</i> Davide Crippa, Bar Ifrach, Costis Maglaras and Marco Scarsini <i>Monopoly Pricing in the Presence of Social Learning</i>
17:30	End of WINE 2015

**Paul Milgrom, Stanford University, USA***Adverse Selection and Auction Design for Internet Display Advertising*

**Abstract:** We model an online display advertising environment in which “performance” advertisers can measure the value of individual impressions, whereas “brand” advertisers cannot. If advertiser values for ad opportunities are positively correlated, second-price auctions for impressions can be very inefficient. Bayesian-optimal auctions are complex, introduce incentives for false-name bidding, and disproportionately allocate low-quality impressions to brand advertisers. We introduce “modified second bid” auctions as the unique auctions that overcome these disadvantages. When advertiser match values are drawn independently from heavy tailed distributions, a modified second bid auction captures at least 94.8% of the first-best expected value. In that setting and similar ones, the benefits of switching from an ordinary second-price auction to the modified second bid auction may be large, and the cost of defending against shill bidding and adverse selection may be low.



**Short Bio:** Paul Milgrom is the Shirley R. and Leonard W. Ely Professor in the School of Humanities and Sciences and professor of economics at Stanford University. He is a member of the US National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences, and winner of the 2008 Nemmers Prize and the 2013 BBVA Foundation Frontiers of Knowledge prize. According to Google Scholar, Paul's research works have more than 68,000 citations covering multiple of fields in economics. A leader in radio spectrum policy and auction theory and applications, Milgrom is currently advising the FCC on the design and implementation of its 2016 “incentive auction,” which will buy TV broadcast licenses and sell wireless broadband licenses.

**Homepage:** <http://www.milgrom.net>

**Michal Feldman, Tel-Aviv University, Israel***Resolving Combinatorial Markets via Posted Prices.*

**Abstract:** In algorithmic mechanism design, we would like desired economic properties to cause no (or modest) additional loss in social welfare beyond the loss already incurred due to computational constraints. In this talk we review two recent results showing black-box reductions from welfare approximation algorithms to mechanisms that preserve desired economic properties. In particular: (1) we give a poly-time dominant strategy incentive compatible mechanism for Bayesian submodular (and more generally, fractionally subadditive) combinatorial auctions that approximates the social welfare within a constant factor. (2) we give a poly-time mechanism for arbitrary (known) valuation functions that, given a black-box access to a

social welfare algorithm, provides a conflict free outcome that preserves at least half of its welfare. Both mechanisms are based on posted prices. (Based on joint work with Nick Gravin and Brendan Lucier.)

**Short Bio:** Michal Feldman is an Associate Professor at the Blavatnik School of Computer Science at Tel Aviv University and a visiting researcher at Microsoft research Herzliya. She received her Ph.D. from the University of California at Berkeley in 2005, and in 2007 she completed a postdoctoral term at the Hebrew University as a Lady Davis fellow. During 2007–2013 she was a faculty member in the School of Business Administration and the Center for the study of rationality at the Hebrew University. Prof. Feldman's research focuses on the intersection of computer science, game theory and microeconomics. She serves on the editorial board of JCSS, ACM TEAC and Networks, and recently served as the PC chair of the ACM Conference on Economics and Computation (EC). She is the recipient of the Alon Fellowship for outstanding young researchers, and various grants, including ERC (European Research Council), Marie Curie International Outgoing Fellowship, ISF, and Google. During 2011–2013, she was a visiting scholar at Harvard University and Microsoft Research New England. She is a member of the Global Young Academy and the Israeli Young Academy, and the vice chair of ACM Special Interest Group on Electronic Commerce (SIGecom).

**Homepage:** <http://www.cs.tau.ac.il/~mfeldman/>

**Ramesh Johari, Stanford University, USA**

*The Engineer as Economist: Algorithms and Incentives in the Design of Online Platform Markets*

**Abstract:** Since the advent of the first online marketplaces nearly two decades ago, commerce in nearly every sector of the industry is being transformed: transportation (Lyft, Uber), lodging (Airbnb), delivery (Instacart, Postmates), labor markets (Amazon Mechanical Turk, LinkedIn, Taskrabbit, Upwork), etc. In this talk, we will survey challenges and opportunities that arise in the design of these markets, with an emphasis on how operational and algorithmic challenges interlace with incentives to dictate market outcomes. (Based on joint work with Nick Arnosti, Sid Banerjee, Yash Kanoria, and Carlos Riquelme.)



**Short Bio:** Ramesh Johari is an Associate Professor at Stanford University, with a full-time appointment in the Department of Management Science and Engineering (MS&E), and courtesy appointments in the Departments of Computer Science (CS) and Electrical Engineering (EE). He co-directs the Social Algorithms Lab (SOAL). He is a member of the Operations Research group in MS&E, the Information Systems Laboratory in EE, the Institute for Computational and Mathematical Engineering, the steering committee of the Stanford Cyber Initiative, and the Stanford Smart Grid Group. He received an A.B. in Mathematics from Harvard (1998), a Certificate of Advanced Study in Mathematics from Cambridge (1999), and a Ph.D. in Electrical Engineering and Computer Science from MIT (2004). He is an associate editor in Management Science (in the Stochastic Models and Simulation area) and in Operations Research (in the Information, Games and Networks area). In 2012–2013, Ramesh was on leave at oDesk (now Upwork), first as a Consulting Scientist, then as Director of Data Products and Research; he continues to serve as a technical advisor to Upwork.

**Homepage:** <http://web.stanford.edu/~rjohari/>

**Paul Goldberg, University of Oxford, UK***Approximate Nash Equilibrium Computation*

**Abstract:** Nash equilibrium computation is complete for the complexity class PPAD, even for two-player normal-form games. Should we understand this to mean that the computational challenge is genuinely hard? In this talk, I explain PPAD, what PPAD-completeness means for equilibrium computation, and possible ways to escape the worst-case hardness. Following the PPAD-completeness results, attention turned to the complexity of computing approximate Nash equilibria. In an approximate equilibrium, the usual “no incentive to deviate” requirement is replaced with “bounded incentive to deviate”, where a parameter  $\epsilon$  denotes a limit on any player’s incentive to deviate. I review some of the progress that was made, and

reasons to hope for a polynomial-time approximation scheme. I also discuss recent work suggesting that a quasi-polynomial time algorithm is the best thing we can hope to achieve.

**Short Bio:** Prof. Paul Goldberg obtained his PhD at the University of Edinburgh in 1993 (supervised by Mark Jerrum) in the general area of algorithmic learning theory. He spent three years at Sandia National Labs (USA) working mainly on algorithmic problems arising from biology, and before coming to Oxford, held permanent academic positions at the universities of Warwick and Liverpool. At Liverpool, he was founding head of the Economics and Computation (EcCo) Research Group.

The general theme of Prof. Goldberg’s research is the analysis of algorithms, and mathematically proven performance guarantees. Since 2002, he has worked mainly in algorithmic game theory, which addresses algorithmic challenges arising in economic theory, and for example, the design of auctions having good welfare properties. His paper “The complexity of computing a Nash equilibrium” (co-authored with Papadimitriou and Daskalakis) received the 2008 Game Theory and Computer Science Prize. More recently he is exploring the connections with machine learning (for example, revealed preferences theory). He is a member of the Oxford Man Institute for Quantitative Finance, with an interest in their work on data analytics.

**Homepage:** <https://www.cs.ox.ac.uk/people/paul.goldberg/>

The poster session starts with a series of lightning talks given by the poster presenters in the Turing room (7:00pm). After that, the posters are presented (8:00pm). Drinks and food are served during this event.

**Posters:**

- Florian David Schwahn: *Product Pricing in Social Networks for Perishable Goods*
- Martin Aleksandrov: *Online Fair Division with Unequal Entitlements*
- Tatsuya Iwase: *Self-Fulfilling Signal on Endogenous State in Network Congestion Games*
- Josue Ortega: *The Tinder Stable Marriage Problem*
- Bojana Kodric: *Smoothness for Simultaneous Composition of Mechanisms with Admission*
- Tim Oosterwijk: *A Logarithmic Approximation for Polymatroid Congestion Games*
- Kevin McLaughlin: *Online Ad Auctions: A Laboratory Experiment*
- Giannicola Scarpa: *Belief Invariance: Nonsignalling Equilibria in Games with Conflicting Interest*
- Paolo Giuliodori: *Mechanism Design Approach for Energy Efficiency*
- Gleb Polevoy: *Predicting the Reciprocation Process*
- Rens Philipsen: *Online Combinatorial Auctions with Two-Sided Uncertainty*
- Georgios Birmpas: *Cost-sharing models in Participatory Sensing*
- Georgios Amanatidis: *Approximation Algorithms for Computing Maximin Share Allocations*
- Paolo Serafino: *Heterogeneous Facility Location without Money*
- Shreyas Sekar: *Blind, Greedy, and Random: Algorithms for Matching and Clustering using only Ordinal Information*
- Pieter Kleer: *Modelling Perceived Latencies: The Relation Between Tolls and Risk-Aversion*
- Mathijs De Weerd: *Minimising the Rank Aggregation Error*
- Félix C. Rodrigues: *Non-Cooperative Capacitated Facility Location Games*
- Nikolay Bazhenkov: *Double Best Response as a Network Stability Concept*



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- Guido Schäfer, CWI and VU University Amsterdam, The Netherlands

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- Susanne van Dam, CWI, The Netherlands

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- Yinyu Ye, Stanford University, USA

# AMSTERDAM SCIENCE PARK

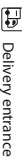


Entrance

111 House number



Main entrance building



Delivery entrance



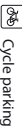
Railway station



Bus stop



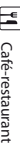
Car park



Cycle parking



Conference/meeting room



Café-restaurant



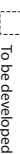
Sport accommodation



Supermarket



Information display



To be developed

Parking: You can follow the signs to the right car park at Amsterdam Science Park. You may park at the public (paid) car parks P1, P3 or P7. Each company or institute has its own rules with regard to visitors. Visitors are advised to contact the institute or company prior to their appointment for parking instructions.

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