Participating Conferences

ESA	14.9 - 16.9.2015
ALGOCLOUD	14.9 - 15.9.2015
IPEC	16.9 - 18.9.2015
ATMOS	17.9.2015
MASSIVE	17.9.2015
WAOA	17.9 - 18.9.2015
ALGOSENSORS	17.9 - 18.9.2015

ALGO

Patras, Greece
14 - 18
September

2015

Organized by:

ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ
UNIVERSITY OF PATRAS

CEID
COMPUTER ENGINEERING & INFORMATICS DEPARTMENT

In Collaboration with:

EATCS

CONTENTS

Dear ALGO2015 participant,

ALGO is an annual congress combining the premier algorithmic conference European Symposium on Algorithms (ESA), along with a number of specialized conferences and workshops all related to algorithms and their applications, making ALGO the major European event for researchers, students and practitioners in algorithms.

ALGO 2015 consists of the following scientific conferences:

- European Symposium on Algorithms (ESA)
- International Workshop on Algorithmic Aspects of Cloud Computing (ALGOCLOUD)
- International Symposium on Algorithms and Experiments for Wireless Sensor Networks (ALGOSENSORS)
- Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS)
- International Symposium on Parameterized and Exact Computation (IPEC)
- Workshop on Massive Data Algorithmics (MASSIVE)
- Workshop on Approximation and Online Algorithms (WAOA)

ALGO 2015 is held at the Conference and Cultural Center of the University of Patras, Greece. The congress is hosted by the University of Patras and its Department of Computer Engineering and Informatics, and it is organized in cooperation with the European Association for Theoretical Computer Science (EATCS).

The ALGO 2015 programme consists of 10 plenary and special event keynote talks, over 180 research contributions across 7 conferences, and a special event dedicated to the contributions of Prof. Paul Spirakis to Computer Science on the occasion of his 60th birthday.

The University of Patras is the third largest university in Greece with respect to the size of the student body, the staff, and the number of departments. Together with its educational and research work, the rich campus life, the University of Patras attracts many candidate students every year as their first and foremost choice for their Higher Education studies. It includes 24 Departments organized in 5 Schools in almost all scientific domains, and has a high reputation in Medicine and in all Engineering and Computer Science disciplines. The University of Patras has about 29,000 Undergraduate and 4,000 Postgraduate students, a total of 727 Faculty members, 146 Teaching and Technical staff, more than 2700 researchers, and 457 administrative Personnel. The University campus hosts in addition a number of research institutes as well as a scientific and technological park hosting various companies, all specializing in innovative scientific & technological domains including computer & information technology, communications, electrical engineering and electronics, applied mathematics, pharmacology, biotechnologies, chemical engineering, and sustainable development.

https://www.upatras.gr/en

Patras, dubbed as Greece's Gate to the West, is a commercial hub, while its busy port is a nodal point for trade and communication with Italy and the rest of Western Europe. The city has two public universities and one Technological Institute, hosting a large student population and rendering Patras a major scientific centre with a field of excellence in technological education. The Rio-Antirrio bridge connects Patras' easternmost suburb of Rio to the town of Antirrio, connecting the Peloponnese peninsula with mainland Greece.

https://en.wikipedia.org/wiki/Patras

Welcome to Patras. We wish you an exciting congress!

The ALGO 2015 Organizing Committee

HONORING PAUL SPIRAKIS

A special event is organized during ALGO 2015 honoring **Paul Spirakis** for his contributions to Computer Science, on the occasion of his 60th birthday. The special event is part of the overall ALGO 2015 programme and takes place on **Wednesday 16.09.2015 at 17:00**.

The programme for the special event is as follows:

	ALGO 2015 Special Event Honoring Paul Spirakis for his Contributions to Computer Science SC: Christos Zaroliagis
17:00-17:15	**Opening Addresses**
17:15-17:35	Christos Zaroliagis. *A Glimpse at Paul Spirakis*
17:35-18:05	**Keynote Talk 1: Shlomi Dolev** (Ben-Gurion University, IL) *Communication-less Secure-Multiparty-Computation*
18:05-18:35	**Keynote Talk 2: Burkhard Monien** (University of Paderborn, DE) *The Complexity of Equilibria for Risk-Modeling Valuations*
18:35-19:05	**Keynote Talk 3: Kurt Mehlhorn** (Max Planck Institute for Informatics, DE) *Computing Equilibrium Prices in Linear Arrow-Debreu Markets*
19:05-19:30	**Epilogue**
19:30	**Cocktail**

Paul Spirakis
University of Liverpool, UK
CTI & University of Patras,
GR

ON THE DISCRETE DYNAMICS OF PROBABILISTIC (FINITE) POPULATION PROTOCOLS
(Monday 14.09.2015)

Abstract: Population Protocols are a recent model of computation that captures the way in which complex behavior of systems can emerge from the underlying local interactions of agents. Agents are usually anonymous and the local interaction rules are scalable (independent of the size, n, of the population). Such protocols can model the antagonism between members of several "species" and relate to evolutionary games. In the recent past the speaker was involved in joint research studying the discrete dynamics of cases of such protocols for finite populations. Such dynamics are, usually, probabilistic in nature , either due to the protocol itself or due to the stochastic nature of scheduling local interactions. Examples are (a) the generalized Moran process (where the protocol is evolutionary because a fitness parameter is crucially involved) (b) the Discrete Lotka-Volterra Population Protocols (and associated Cyclic Games) and (c) the Majority protocols for random interactions.

Such protocols are usually discrete time transient Markov Chains. However the detailed states description of such chains is exponential in size and the state equations do not facilitate a rigorous approach. Instead, ideas related to filtering, stochastic domination and Potentials (leading to Martingales) help in understanding the dynamics of the protocols.

In the talk we discuss such rigorous approaches and their techniques. We examine the question of fast (in time polynomial in the population size) convergence (to an absorbing state). We also discuss the question of "most probable" eventual state of the protocols (and the computation of the probability of such states). Several aspects of such discrete dynamics are wide open and it seems that the algorithmic thought can contribute to the understanding of this emerging subfield of science.

Rasmus Pagh
IT University of
Copenhagen, DK

CORRELATED LOCALITY-SENSITIVE HASHING
(Tuesday 15.09.2015)

Abstract: When designing hashing schemes that use multiple hash functions it is standard practice to choose these functions independently. This often makes it possible to show guarantees on correctness or running time that hold with high probability. However, there are situations in which it pays off to intentionally introduce correlation among hash functions. In this talk we focus on locality-sensitive hashing (LSH), a key tool for high-dimensional similarity search.

A drawback of traditional LSH methods is that they come with the possibility of false negatives, i.e., data points that should have been returned but were "missed" by the search procedure. This has limited the applicability of the method, and many papers considering "exact similarity search", where there must be certainty about the output, have disregarded the possibility of randomized approaches. Following preliminary work of Arasu et al. (VLDB '06) we show that carefully correlating hash functions can eliminate false negatives, at least in Hamming space, while achieving performance bounds comparable to those of traditional LSH methods.

Dimitrios Thilikos
University of Athens, GR &
CNRS, LIRMM, FR

BIDIMENSIONALITY AND PARAMETERIZED ALGORITHMS
(Wednesday 16.09.2015)

Abstract: We provide an exposition of the main results of the theory of bidimensionality in parameterized algorithm design. This theory applies to graph problems that are bidimensional in the sense that i) their solution value is not increasing when we take minors or contractions of the input graph and ii) their solution value for the (triangulated) (k x k)-grid graph grows as a quadratic function of k. Under certain additional conditions, mainly of logical and combinatorial nature, such problems admit subexponential parameterized algorithms and linear kernels when their inputs are restricted to certain topologically defined graph classes. In this talk we give a formal description of these results in their latest update.

COMMUNICATION-LESS SECURE-MULTIPARTY-COMPUTATION

(Wednesday 16.09.2015)

Shlomi Dolev
Ben-Gurion University, IL

Abstract: Several recent results will be overviewed including: Turing machine implementation by secure-multiparty-computation, communication-less implementation of an (accumulating) automaton, secret shared database, and secret shared random access machine. The results enable provable information theoretical secure, private computations in public clouds.

THE COMPLEXITY OF EQUILIBRIA FOR RISK-MODELING VALUATIONS

(Wednesday 16.09.2015)

Burkhard Monien
University of Paderborn, DE

Abstract: We study the complexity of deciding the existence of mixed equilibria for minimization games where players use valuations other than expectation to evaluate their costs. We consider risk-averse players seeking to minimize the sum $V = E + R$ of expectation E and a risk valuation R of their costs, where R is non-negative and vanishes exactly when the cost incurred to a player is constant over all choices of strategies by the other players. In a V-equilibrium, no player can unilaterally reduce her cost.

Say that V has the Weak-Equilibrium-for-Expectation property if all strategies supported in a player's best-response mixed strategy incur the same conditional expectation of her cost. We introduce E-strict concavity and observe that every E-strictly concave valuation has the Weak-Equilibrium-for-Expectation property. We focus on a broad class of valuations shown to have the Weak-Equilibrium-for-Expectation property, which we exploit to prove a complexity result for the smallest case of two players.

Deciding the existence of a V-equilibrium is NP-hard when choosing R as (1) Var, or (2) SD, or choosing V as (3) a convex combination of E + Var and a certain concave v-valuation . We present a very general reduction, relying on some natural continuity and monotonicity properties of R.

COMPUTING EQUILIBRIUM PRICES IN LINEAR ARROW-DEBREU MARKETS

(Wednesday 16.09.2015)

Kurt Mehlhorn
Max Planck Institute for Informatics, DE

Abstract: We report on recent advances in computing equilibrium prices in linear Arrow-Debreu markets. We discuss new algorithms and an implementation effort.

HYPERGRAPHS IN TRAFFIC OPTIMIZATION

(Thursday 17.09.2015)

Ralf Borndoerfer
Zuse-Institute Berlin, DE

Abstract: Traffic optimization is intimately related to algorithmic graph theory, which provides elegant solutions to problems ranging from network design to vehicle rotation planning. Extending these approaches to a hypergraph setting is a natural next step that allows to deal, in a mathematically appealing way, with complex types of constraints beyond the node-edge level. The talk illustrates the potential of hypergraph models on two examples in line planning and railway vehicle rotation planning. Line planning gives rise to the Steiner path connectivity problem, a generalization of the Steiner tree problems to hypergraphs, while railway vehicle rotation planning leads to the consideration of hyperassignment problems. These models, their theory, and algorithmic solution will be discussed.

THE STRONG EXPONENTIAL TIME HYPOTHESIS AND HARDNESS FOR EASY PROBLEMS

(Thursday 17.09.2015)

Virginia Vassilevska Williams
Stanford University, USA

Abstract: The Strong Exponential time hypothesis (SETH) is one of the most popular conjectures. It concerns the time complexity of CNF-SAT, roughly stating that the brute-force algorithm is essentially optimal. Recent research has shown that by assuming that SETH holds, one can explain the lack of progress for many problems, both "hard" (e.g. NP-hard) and "easy" (poly-time solvable). That is, many problems have a natural algorithm,

discovered as early as the 1960s, with only tiny runtime improvements since its discovery; via tight reductions from k-SAT one can show that for many problems, a nontrivial improvement over this natural algorithm would break SETH. The set of such "SETH-hard" problems has grown to include easy problems such as estimating the diameter of a sparse graph, computing the longest common subsequence or the edit distance of two sequences, dynamically maintaining the strongly connected components of a graph, and many more. The goal of this talk is to provide an introduction to this scope of research.

RECENT NEWS FOR AN OLD STEINER TREE FORMULATION
(Friday 18.09.2015)

Jochen Koenemann
University of Waterloo, CA

Abstract: The Steiner tree problem is a fundamental network design problem where the goal is to compute a minimum-cost tree spanning a collection of terminals in a given input graph. In this talk I will report on some recent progress for several variants of the problem that all stems from new insights into an old directed formulation for optimal branchings due to Edmonds.

ONLINE PACKING BEYOND THE WORST CASE
(Friday 18.09.2015)

Thomas Kesselheim
Max Planck Institute for
Informatics, DE

Abstract: For a number of online optimization problems, standard worst-case competitive analysis is very pessimistic or even pointless. Sometimes, even a trivial algorithm might be considered optimal because an adversary would be able to trick any algorithm.
An interesting way to avoid these pathological effects is to slightly reduce the power of the adversary by introducing stochastic components. For example, the adversary might still define the instance but not the order in which it is presented to the algorithm. This order is drawn uniformly at random from all possible permutations.
In this talk, we consider online packing problems and show that this small transition beyond worst-case analysis can have a big impact. We focus on the online independent-set problem in graph classes motivated by wireless networks and on online packing LPs, which among other applications also play a big role in web advertising.

ALGO 2015 SOCIAL EVENT

The *Social Event* of ALGO 2015 will take place on Tuesday 15.9.2015. It includes a visit to the **Achaia Clauss Chateau/Winery** with wine tasting. The winery (240 Km^2) was founded in 1861 by the Bavarian Gustav Clauss. It is most famous for its fortified red wine, Mavrodaphne.

Contact details: *Achaia Clauss*
                        Petroto, 26223 Patra, Greece
                        Tel.: +30 261 052 7089
GPS Coordinates: 38°11'45.9"N , 21°46'12.8"E | 38.196070 , 21.770236

https://en.wikipedia.org/wiki/Achaia_Clauss

ALGO2015 DINNER

The *Social Dinner* of ALGO 2015 will take place at the **Rio Equestrian Club**, which is well known for its exquisite and unique cuisine.

Contact details: *Rio Equestrian Club* ("Ιππικός Όμιλος" in greek)

Platani, 26504 Rion, Achaia - Greece

Tel.: +30 2610 433636

GPS Coordinates: 38°17'43.8"N , 21°49'26.5"E | 38.295486 , 21.824017

http://www.ippikosriou.gr/events/
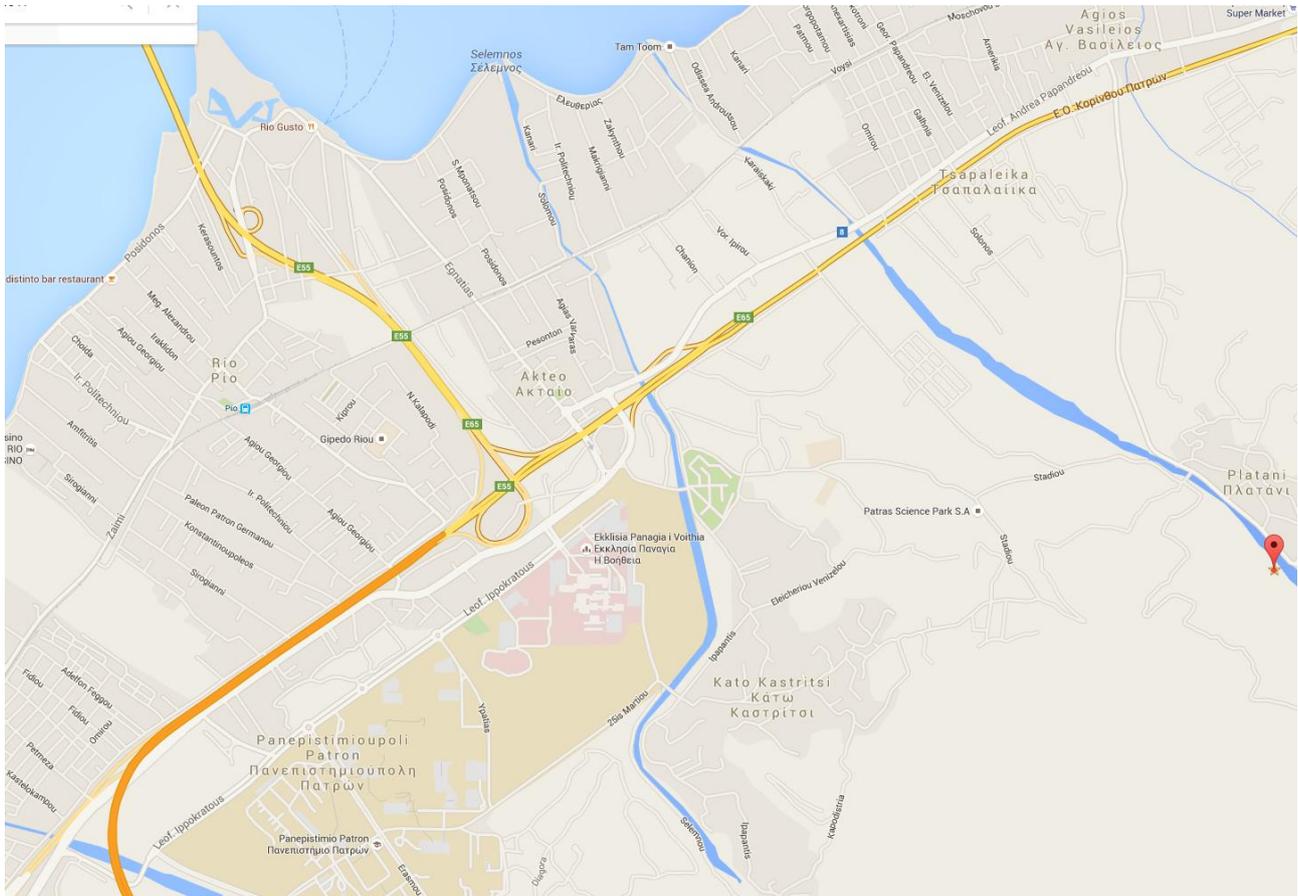
SCIENTIFIC PROGRAMME

OVERVIEW OF LECTURE ROOMS

All the scientific activities of ALGO 2015 will be delivered at the facilities of the **Conference & Cultural Centre** at the University of Patras. More details on how to reach it are available at Section "*Reaching the ALGO 2015 Venue*" of this leaflet. The reservation of lecture rooms for the scientific activities of ALGO is as follows:

ALGOCLOUD:	Lecture Room II-8
ALGOSENSORS:	Lecture Room I-10
ATMOS:	Lecture Room II-8
ESA1:	Lecture Room I-4
ESA2:	Lecture Room I-10
IPEC:	Lecture Room II-9
MASSIVE:	Lecture Room I-11
WAOA:	Lecture Room I-4

The following table summarizes the usage of rooms for the purposes of all the ALGO2015 activities:

Room Type	Lecture Room	Catering
Amphitheatre I-4 (ground floor)	**Plenary & Keynote Talks, Special Event ESA-1, WAOA**	
Foyer I-5 (ground floor)		**Coffee Breaks, Special Event Cocktail**
Room I-10 (ground floor)	**ESA-2, ALGOSENSORS**	
Room I-11 (ground floor)	**MASSIVE**	
Foyer II-3 (first floor)		**Lunches**
Room II-8 (first floor)	**ALGOCLOUD, ATMOS**	
Room II-9 (first floor)	**IPEC**	

	ESA 1	ESA 2	ALGOCLOUD
08:00	Registration		
08:55-09:00	Opening & Welcome		
09:00-09:45	Plenary Talk 1: Paul Spirakis (University of Liverpool, UK; CTI & University of Patras, GR) *On the Discrete Dynamics of Probabilistic (Finite) Population Protocols* *SC: Nikhil Bansal*		
09:45-10:00	BREAK		
	Session1A: Streaming and Dynamic Graphs. *SC: Cynthia Phillips:*	Session1B: Fixed Parameter Algorithms. *SC: Hans Bodlaender*	Session1C: Algorithmic Aspects of Large-Scale Data Stores I. *SC: Spyros Sioutas*
10:00-10:25	Marc Bury and Chris Schwiegelshohn. *Sublinear Estimation of Weighted Matchings in Dynamic Data Streams*	Pål Grønås Drange, Markus Sortland Dregi, Daniel Lokshtanov and Blair D. Sullivan. *On the Threshold of Intractability*	Shlomi Dolev and Yin Li. *Secret Shared Random Access Machine*
10:25-10:50	Christian Konrad. *Maximum Matching in Turnstile Streams*	Gregory Gutin, Mark Jones and Magnus Wahlström. *Structural Parameterizations of the Mixed Chinese Postman Problem*	Ikbel Belaid and Lionel Eyraud-Dubois. *Column Generation Integer Programming for Allocating Jobs with Periodic Demand Variations*
10:50-11:15	Elisabetta Bergamini and Henning Meyerhenke. *Fully-Dynamic Approximation of Betweenness Centrality*	Ariel Gabizon, Daniel Lokshtanov and Michał Pilipczuk. *Fast Algorithms for Parameterized Problems with Relaxed Disjointness Constraints*	Hillel Avni, Shlomi Dolev, Niv Gilboa and Ximing Li. *SSSDB: Database with Private Information Search*
11:15-11:30	BREAK		
	Session2A: Geometric Algorithms. *SC: Peyman Afshani*	Session2B: Algorithmic Game Theory. *SC: Christoph Durr*	Session2C: Algorithmic Aspects of Large-Scale Data Stores II. *SC: Evaggelia Pitoura*
11:30-11:55	Alon Baram, Efi Fogel, Dan Halperin, Michael Hemmer and Sebastian Morr. *Exact Minkowski Sums of Polygons With Holes*	George Christodoulou, Alkmini Sgouritsa and Bo Tang. *On the Efficiency of All-Pay Mechanisms*	Marios Kendea, Vassiliki Gkantouna, Angeliki Rapti, Spyros Sioutas, Giannis Tzimas and Dimitrios Tsolis. *Graph DBs vs Column-Oriented Stores: A Pure Performance Comparison*
11:55-12:20	Adam Bohn, Yuri Faenza, Samuel Fiorini, Vissarion Fisikopoulos, Marco Macchia and Kanstantsin Pashkovich. *Enumeration of 2-Level Polytopes*	Anthony Kim. *Welfare Maximization with Deferred Acceptance Auctions in Reallocation Problems*	Panagiotis Antonellis, Christos Makris and Georgios Pispirigos. *Distributed XML Filtering Using HADOOP Framework*

12:20-12:45	Kevin Buchin, Tim Ophelders and Bettina Speckmann. *Computing the Similarity Between Moving Curves*	Mohammadhossein Bateni, Sina Dehghani, Mohammadtaghi Hajiaghayi and Saeed Seddighin. *Revenue Maximization for Selling Multiple Correlated Items*	Shahin Kamali. *Efficient Bin Packing Algorithms for Resource Provisioning in the Cloud*
12:45-14:00	LUNCH		
	Session3A: Strings and Data structures. *SC: Riko Jacob*	**Session3B: Online Secretary and Prophets.** *SC: Nikhil Bansal*	**Session3C: Tutorial 1** *SC: Anastasios Gounaris*
14:00-14:25	Ian Munro and Yakov Nekrich. *Compressed Data Structures for Dynamic Sequences*	Hossein Esfandiari, Mohammadtaghi Hajiaghayi, Vahid Liaghat and Morteza Monemizadeh. *Prophet Secretary*	Peter Triantafillou. *Performance and Scalability of Indexed Subgraph Query Processing Methods*
14:25-14:50	Djamal Belazzougui, Patrick Hagge Cording, Simon J. Puglisi and Yasuo Tabei. *Access, Rank, and Select in Grammar-Compressed Strings*	Paul Duetting and Robert Kleinberg. *Polymatroid Prophet Inequalities*	
14:50-15:15	Johannes Fischer, Travis Gagie, Pawel Gawrychowski and Tomasz Kociumaka. *Approximating LZ77 via Small-Space Multiple-Pattern Matching* Raphael Clifford, Allyx Fontaine, Ely Porat, Benjamin Sach and Tatiana Starikovskaya. *Dictionary Matching in a Stream*	Ilia Gorelik, Amos Fiat, Haim Kaplan and Slava Novgorodov. *The Temp Secretary Problem*	
15:15-15:30	BREAK		
	Session4A: Fixed Parameter and Exact Algorithms. *SC: Michal Pilipczuk*	**Session4B: Combinatorics.** *SC: Monaldo Mastrolilli*	**Session4C: Tutorial 2** *SC: Spyros Sioutas*
15:30-15:55	Hans L. Bodlaender and Jesper Nederlof. *Subexponential Time Algorithms for Finding Small Tree and Path Decompositions*	Michael Dinitz, Michael Schapira and Asaf Valadarsky. *Explicit Expanding Expanders*	Vassilios Verykios. *Distributed Privacy Preserving Record-Linkage*
15:55-16:20	Éric Colin de Verdière. *Multicuts in Planar and Bounded-Genus Graphs with Bounded Number of Terminals*	Friedrich Eisenbrand, Shay Moran, Rom Pinchasi and Martin Skutella. *Node-balancing by Edge-Increments*	
16:20-16:45	Arnaud De Mesmay and Vincent Viallat Cohen Addad. *A Fixed Parameter Tractable Approximation Scheme for the Optimal Cut Graph of a Surface*	Torsten Mütze and Jerri Nummenpalo. *Efficient Computation of Middle Levels Gray Codes*	
16:45-16:55	BREAK		

	Session5A: Geometric Approximation Algorithms. *SC: Anastasios Sidiropoulos*	Session5B: Scheduling and Packing. *SC: Christoph Durr*
16:55-17:20	Sariel Har-Peled and Kent Quanrud. *Approximation Algorithms for Polynomial-Expansion and Low-Density Graphs*	Spyros Angelopoulos, Giorgio Lucarelli and Kim Thang Nguyen. *Primal-dual and Dual-Fitting Analysis of Online Scheduling Algorithms for Generalized Flow Time Problems*
17:20-17:45	Helmut Alt, Mark de Berg and Christian Knauer. *Approximating Minimum-Area Rectangular and Convex Containers for Packing Convex Polygons*	Davaatseren Baatar, Mohan Krishnamoorthy and Andreas Ernst. *A Triplet-Based Branch-and-Bound Algorithm for the Shift Mininisation Personnel Task Scheduling Problem*
17:45-18:10	Michael Etscheid and Heiko Röglin. *Smoothed Analysis of the Squared Euclidean Maximum-Cut Problem*	Yossi Azar and Oren Gilon. *Buffer Management for Packets with Processing Times*
18:10-18:35	Nabil Mustafa, Saurabh Ray and Norbert Bus. *Geometric Hitting Sets for Disks: Theory and Practice*	Leah Epstein and Elena Kleiman. *Selfish Vector Packing*
18:35-18:40	**Short BREAK**	
18:40-20:00	ESA Business Meeting	
20:00	**Welcome Reception**	

	ESA 1	ESA 2	ALGOCLOUD
08:30	Registration		
09:00-09:45	Plenary Talk 2: Rasmus Pagh (IT University of Copenhagen, DK) *Correlated Locality-Sensitive Hashing* *SC: Irene Finocchi*		
09:45-10:00	BREAK		
	Session6A: Spanners and Connectivity. *SC: Cynthia Phillips*	**Session6B: Sorting and Searching.** *SC: Riko Jacob*	**Session6C: Software Tools and Distributed Architectures for Cloud-based Data Management I.** *SC: Anastasios Gounaris*
10:00-10:25	Loukas Georgiadis, Giuseppe F. Italiano, Charis Papadopoulos and Nikos Parotsidis. *Approximating the Smallest Spanning Subgraph for 2-Edge-Connectivity in Directed Graphs*	Parinya Chalermsook, Mayank Goswami, Laszlo Kozma, Kurt Mehlhorn and Thatchaphol Saranurak. *Self-Adjusting Binary Search Trees: What Makes Them Tick?*	Georgia Koloniari and Evaggelia Pitoura. *Transaction Management for Cloud-Based Graph Databases*
10:25-10:50	Kyle Genova and David Williamson. *An Experimental Evaluation of the Best-of-Many Christofides' Algorithm for the Traveling Salesman Problem*	Peyman Afshani and Nodari Sitchinava. *Sorting and Permuting without Bank Conflicts on GPUs*	Nikolaos Nodarakis, Spyros Sioutas, Panagiotis Gerolymatos, Athanasios Tsakalidis and Giannis Tzimas. *Convex Polygon Planar Range Queries on the Cloud: Grid vs Angle-based Partitioning*
10:50-11:15	Davide Bilò, Fabrizio Grandoni, Luciano Gualà, Stefano Leucci and Guido Proietti. *Improved Purely Additive Fault-Tolerant Spanners*	Mathias Bæk Tejs Knudsen and Morten Stöckel. *Quicksort, Largest Bucket, and Min-Wise Hashing with Limited Independence*	Spyros Sioutas, Efrosini Sourla, Kostas Tsichlas and Christos Zaroliagis. *ART+: A Fault-tolerant Decentralized Tree Structure with Ultimate Sub-logarithmic Efficiency*
11:15-11:40	Chandra Chekuri, Thapanapong Rukkanchanunt and Chao Xu. *On Element-Connectivity Preserving Graph Simplification*	Spyros Sioutas, Efrosini Sourla, Kostas Tsichlas and Christos Zaroliagis. *D3-Tree: A Dynamic Deterministic Decentralized Structure*	George Seriatos, George Kousiouris, Andreas Menychtas, Dimosthenis Kyriazis and Dora Varvarigou. *Comparison of Database and Workload Types Performance in Cloud Environments*
11:40-11:55	BREAK		
	Session7A: Dynamic/Parallel Graph Algorithms. *SC: Pino Italiano*	**Session7B: Fixed Parameter Algorithms.** *SC: Hans Bodlaender*	**Session7C: Software Tools and Distributed Architectures for Cloud-based Data Management II.** *SC: Peter Triantafillou*

11:55-12:20	Jacob Holm, Eva Rotenberg and Christian Wulff-Nilsen. *Faster Fully-Dynamic Minimum Spanning Forest*	Pål Grønås Drange and Michał Pilipczuk. *A polynomial kernel for Trivially Perfect Editing*	Athanasios Naskos, Anastasios Gounaris and Spyros Sioutas. *Cloud Elasticity: A Survey*
12:20-12:45	Andrew Goldberg, Sagi Hed, Haim Kaplan, Pushmeet Kohli, Robert Tarjan and Renato Werneck. *Faster and More Dynamic Maximum Flow by Incremental Breadth-First Search*	Dániel Marx and Michał Pilipczuk. *Optimal Parameterized Algorithms for Planar Facility Location Problems using Voronoi Diagrams*	Christos Tselios and George Tsolis. *A Survey on Software Tools and Architectures for Deploying Multimedia-aware Cloud Applications*
12:45-13:10	Niklas Baumstark, Guy Blelloch and Julian Shun. *Efficient Implementation of a Synchronous Parallel Push-Relabel Algorithm*	Hadas Shachnai and Meirav Zehavi. *A Multivariate Framework for Weighted FPT Algorithms*	Andreas Kosmatopoulos, Kalliopi Giannakopoulou, Apostolos N.Papadopoulos, Kostas Tsichlas. *An Overview of Methods for Handling Evolving Graph Sequences*
13:10-14:30	**LUNCH**		
	Session8A: Graph Algorithms. *SC: Francesco Silvestri*	**Session8B: Optimization with Uncertainty.** *SC: Monaldo Mastrolilli*	
14:30-14:55	Daniel Graf. *How to Sort by Walking on a Tree*	Oliver Göbel, Thomas Kesselheim and Andreas Tönnis. *Online Appointment Scheduling in the Random Order Model*	
14:55-15:20	Ulrik Brandes, Michael Hamann, Ben Strasser and Dorothea Wagner. *Fast Quasi-Threshold Editing*	Nicole Megow, Julie Meißner and Martin Skutella. *Randomization Helps Computing a Minimum Spanning Tree under Uncertainty*	
15:20-15:45	Michele Borassi, David Coudert, Pierluigi Crescenzi and Andrea Marino. *On Computing the Hyperbolicity of Real-World Graphs*	Yuval Emek, Tobias Langner and Roger Wattenhofer. *The Price of Matching with Metric Preferences*	
15:45-16:00	**BREAK**		
	Session9A: Algorithms for Matching Problems. *SC: Jochen Koenemann*	**Session9B: Hardness of Approximation.** *SC: Nikhil Bansal*	
16:00-16:25	Ashish Chiplunkar, Sumedh Tirodkar and Sundar Vishwanathan. *On Randomized Algorithms for Matching in the Online Preemptive Model*	Sreyash Kenkre, Vinayaka Pandit, Manish Purohit and Rishi Saket. *On the Approximability of Digraph Ordering*	
16:25-16:50	Jara Uitto and Roger Wattenhofer. *Ignorant vs. Anonymous Recommendations*	Abbas Bazzi and Ashkan Norouzi-Fard. *Towards Tight Lower Bounds for Scheduling Problems*	

16:50-17:15	Marek Adamczyk, Fabrizio Grandoni and Joydeep Mukherjee. *Improved Approximation Algorithms for Stochastic Matching*	Adam Kurpisz, Monaldo Mastrolilli and Samuli Leppänen. *A Lasserre Lower Bound for the Min-Sum Single Machine Scheduling Problem*
17:15-17:30	BREAK	
	Session10A: Combinatorial Geometry. *SC: Anastasios Sidiropoulos*	**Session10B: Approximation Algorithms.** *SC: Moran Feldman*
17:30-17:55	Micha Sharir, Adam Sheffer and Noam Solomon. *Incidences with Curves in R^d*	George Rabanca, Amotz Bar-Noy, David Peleg and Ivo Vigan. *Improved Approximation Algorithms for Weighted 2-path Partitions*
17:55-18:20	Gill Barequet, Günter Rote and Mira Shalah. *Lambda > 4*	Anna Großwendt and Heiko Röglin. *Improved Analysis of Complete-Linkage Clustering*
18:20-18:45	Arijit Ghosh, Jean-Daniel Boissonnat and Ramsay Dyer. *A Probabilistic Approach to Reducing Algebraic Complexity of Delaunay Triangulations*	Hossein Esfandiari, Mohammadtaghi Hajiaghayi, Jochen Koenemann, Hamid Mahini, David Malec and Laura Sanita. *Approximate Deadline-Scheduling with Precedence Constraints*
19:00	Social Event	
20:30	Dinner	

	ESA 1	ESA 2	IPEC
08:30	Registration		
09:00-09:45	Plenary Talk 3: Dimitrios Thilikos (University of Athens, GR & CNRS, LIRMM, FR) *Bidimensionality and Parameterized Algorithms* *SC: Jan Arne Telle*		
09:45-10:00	BREAK		
	Session11A: Approximation Algorithms. *SC: Jochen Koenemann*	**Session11B: Planar Graphs.** *SC: Parinya Chalermsook*	**Session11C: Kernels I.** *SC: Michael Fellows*
10:00-10:25	Mohammadtaghi Hajiaghayi, Guy Kortsarz, Robert MacDavid, Manish Purohit and Kanthi Sarpatwar. *Approximation Algorithms for Connected Maximum Cut and Related Problems*	Michael Bekos, Till Bruckdorfer, Michael Kaufmann and Chrysanthi Raftopoulou. *1-Planar Graphs have Constant Book Thickness*	Eduard Eiben, Robert Ganian and Stefan Szeider. *Meta-Kernelization using Well-Structured Modulators*
10:25-10:50	Jaroslaw Byrka, Thomas Pensyl, Bartosz Rybicki, Joachim Spoerhase, Aravind Srinivasan and Khoa Trinh. *An Improved Approximation Algorithm for Knapsack Median using Sparsification*	Xin He and Dayu He. *Monotone Drawings of 3-Connected Plane Graphs*	Mamadou Kanté, Eun Jung Kim, O-Joung Kwon and Christophe Paul. *An FPT Algorithm and a Polynomial Kernel for Linear Rankwidth One Vertex Deletion*
10:50-11:15	Moran Feldman. *Maximizing Symmetric Submodular Functions*	Glencora Borradaile, Amir Nayyeri and Farzad Zafarani. *Towards Shortest Vertex-Disjoint Paths in Undirected Planar Graphs*	Danny Hermelin, Moshe Kaspi, Christian Komusiewicz and Barak Navon. *Parameterized Complexity of Critical Node Cuts*
11:15-11:30	BREAK		
	Session12A: Output Sensitive Algorithms. *SC: Irene Finocchi*	**Session12B: Routing Protocols.** *SC: Parinya Chalermsook*	**Session12C: Kernels II.** *SC: Dimitrios Thilikos*
11:30-11:55	Riko Jacob and Morten Stöckel. *Fast Output-Sensitive Matrix Multiplication*	Colin White. *Lower Bounds in the Preprocessing and Query Phases of Routing Algorithms*	Ondrej Suchy. *Extending the Kernel for Planar Steiner Tree to the Number of Steiner Vertices*
11:55-12:20	Rasmus Pagh, Ninh Pham, Francesco Silvestri and Morten Stöckel. *I/O-Efficient Similarity Join*	Jie Gao and Mayank Goswami. *Medial Axis Based Routing has Constant Load Balancing Factor*	Bart M. P. Jansen and Astrid Pieterse. *Sparsification Upper and Lower Bounds for Graphs Problems and Not-All-Equal SAT*

12:20-12:45	Fritz Bökler and Petra Mutzel. *Output-Sensitive Algorithms for Enumerating the Extreme Nondominated Points of Multiobjective Combinatorial Optimization Problems*	Nicolas Bonichon, Prosenjit Bose, Jean-Lou De Carufel, Ljubomir Perkovic and André van Renssen. *Upper and Lower Bounds for Online Routing on Delaunay Triangulations*	Stefan Kratsch and Manuel Sorge. *On Kernelization and Approximation for the Vector Connectivity Problem*
12:45-14:00	LUNCH		
	Session13A: Treewidth. *SC: Virginia V. Williams*	**Session13B: Geometry.** *SC: Francesco Silvestri*	**Session13C: FPT Algorithms I.** *SC: Stefan Szeider*
14:00-14:25	Bart M. P. Jansen and Stefan Kratsch. *A structural approach to kernels for ILPs: Treewidth and Total Unimodularity*	Iffat Chowdhury and Matt Gibson. *A Characterization of Consistent Digital Line Segments in Two Dimensions*	Petr Golovach, Clément Requileé and Dimitrios Thilikos. *Variants of Plane Diameter Completion*
14:25-14:50	Kenta Kitsunai, Yasuaki Kobayashi and Hisao Tamaki. *On the Pathwidth of Almost Semicomplete Digraphs*	Matt Gibson, Erik Krohn and Qing Wang. *A Characterization of Visibility Graphs for Pseudo-Polygons*	Archontia Giannopoulou, George Mertzios and Rolf Niedermeier. *Polynomial Fixed-Parameter Algorithms: A Case Study for Longest Path on Interval Graphs*
14:50-15:15	Yoichi Iwata and Yuichi Yoshida. *On the Equivalence among Problems of Bounded Width*	Dan Halperin, Michael Kerber and Doron Shaharabani. *The Offset Filtration of Convex Objects*	Eun Jung Kim, Christophe Paul, Ignasi Sau and Dimitrios Thilikos. *Parameterized Algorithms for Min-Max Multiway Cut and List Digraph Homomorphism*
15:15-15:30	BREAK		
	ESA 2015 Best Paper Awards *SC: Nikhil Bansal and Irene Finocchi*		
15:30-15:55	ESA 2015 Best Paper Award Christina Boucher, Christine Lo and Daniel Lokshtanov. *Consensus Patterns (Probably) has no EPTAS*		
15:55-16:20	ESA 2015 Best Student Paper Award 1 Meirav Zehavi. *Mixing Color Coding-Related Techniques*		
16:20-16:45	ESA 2015 Best Student Paper Award 2 Sascha Witt. *Trip-Based Public Transit Routing*		
16:45-17:00	BREAK		

	ALGO 2015 Special Event Honoring Paul Spirakis for his Contributions to Computer Science *SC: Christos Zaroliagis*
17:00-17:15	**Opening Addresses**
17:15-17:35	Christos Zaroliagis. ***A Glimpse at Paul Spirakis***
17:35-18:05	**Keynote Talk 1: Shlomi Dolev** (Ben-Gurion University, IL) *Communication-less Secure-Multiparty-Computation*
18:05-18:35	**Keynote Talk 2: Burkhard Monien** (University of Paderborn, DE) *The Complexity of Equilibria for Risk-Modeling Valuations*
18:35-19:05	**Keynote Talk 3: Kurt Mehlhorn** (Max Planck Institute for Informatics, DE) *Computing Equilibrium Prices in Linear Arrow-Debreu Markets*
19:05-19:30	**Epilogue**
19:30	**Cocktail**

	IPEC	WAOA	ALGOSENSORS	ATMOS	MASSIVE
08:30	Registration				
09:00-09:45	Plenary Talk 4: Ralf Borndoerfer (Zuse-Institute Berlin, DE) *Hypergraphs in Traffic Optimization* SC: Marie Schmidt				
09:45-10:00	BREAK				
	Session14A: FPT Algorithms II. *SC: Hans Bodlaender*	**Session14B: Approximation Algorithms for Network Design.** *SC: Martin Skutella*		**Session14D: Routing and Tour Planning.** *SC: Pino Italiano*	**Session14E: Dimensionality Reduction and Streaming.** *SC: Nodari Sitchinava*
10:00-10:25	Jannis Bulian and Anuj Dawar. *Fixed-Parameter Tractable Distances to Sparse Graph Classes*	Bodo Manthey and Marten Waanders. *Approximation Algorithms for k-Connected Graph Factors*		Simeon Andreev, Julian Dibbelt, Martin Nöllenburg, Thomas Pajor and Dorothea Wagner. *Towards Realistic Pedestrian Route Planning*	Ioannis Emiris and Ioannis Psarros. *Poor Man's Dimension Reduction and High-dimensional Approximate Nearest Neighbor*
10:25-10:50	Sudeshna Kolay, Daniel Lokshtanov, Fahad Panolan and Saket Saurabh. *Quick but Odd Growth of Cacti*	Fabrizio Grandoni, Salvatore Ingala and Sumedha Uniyal. *Improved Approximation Algorithms for Unsplittable Flow on a Path with Time Windows*		Jan Hrncir, Pavol Zilecky, Qing Song and Michal Jakob. *Speedups for Multi-Criteria Urban Bicycle Routing*	Kasper Green Larsen, Jelani Nelson. *The Johnson-Lindenstrauss Lemma is Optimal for Linear Dimensionality Reduction*
10:50-11:15	Hanna Sumita, Naonori Kakimura and Kazuhisa Makino. *Parameterized Complexity of Sparse Linear Complementarity Problems*	Katarzyna Paluch. *Maximum ATSP with Weights Zero and One via Half-Edges*		Sören Merting, Christian Schwan and Martin Strehler. *Routing of Electric Vehicles: Constrained Shortest Path Problems with Resource Recovering Nodes*	Kasper Green Larsen, Jelani Nelson and Huy L. Nguyen. *Time Lower Bounds for Nonadaptive Turnstile Streaming Algorithms*

Time	Session 15A / 15D...				
11:15-11:40	Pål Grønås Drange, Felix Reidl, Fernando Sánchez Villaamil and Somnath Sikdar. *Fast Biclustering by Dual Parameterization*	Eun Jung Kim, Sang-Il Oum, Christophe Paul, Ignasi Sau and Dimitrios Thilikos. *An FPT 2-Approximation for Tree-Cut Decomposition*		Niklas Paulsen, Florian Diedrich and Klaus Jansen. *Heuristic Approaches to Minimize Tour Duration for the TSP with Multiple Time Windows*	Benjamin Sach, Søren Vind and Markus Jalsenius. *Compressed Pattern Matching in the Annotated Streaming Mode*
11:40-11:55	**BREAK**				
	Session15A: Kernels III. *SC: Stefan Kratsch*	**Session15B: Online Algorithms.** *SC: Martin Skutella*		**Session15D: Routing in rail and road networks.** *SC: Dorothea Wagner*	**Session15E: Massive Terrain Data.** *SC: Peyman Afshani*
11:55-12:20	Eun Jung Kim and O-Joung Kwon. *A Polynomial Kernel for Block Graph Deletion*	Nikhil Bansal, Marek Elias, Lukasz Jez, Grigorios Koumoutsos and Kirk Pruhs. *Tight bounds for Double Coverage Against Weak Adversaries*		Tadao Takaoka. *Passenger Routing Algorithm for a Railway Network*	Lars Arge, Mathias Rav, Sarfraz Raza and Morten Revsbæk. *I/O-Efficient Event Based Depression Flood Risk*
12:20-12:45	Marthe Bonamy, Łukasz Kowalik, Michał Pilipczuk and Arkadiusz Socała. *Linear Kernels for Outbranching Problems in Sparse Digraphs*	Bartłomiej Bosek, Dariusz Leniowski, Piotr Sankowski and Anna Zych. *Shortest Augmenting Paths for Online Matchings on Trees*		Katerina Bohmova, Matúš Mihalák, Peggy Neubert, Tobias Pröger and Peter Widmayer. *Robust Routing in Urban Public Transportation: Evaluating Strategies that Learn From the Past*	Cici Alexander, Lars Arge, Peder Klith Bøcher, Morten Revsbæk, Brody Sandel, Jens-Christian Svenning, Constantinos Tsirogiannis and Jungwoo Yang. *Computing River Floods Using Massive Terrain Data*
12:45-13:10	R.B. Sandeep and Naveen Sivadasan. *Parameterized lower bound and improved kernel for Diamond-free Edge Deletion*	Shun Fukuda, Akiyoshi Shioura and Takeshi Tokuyama. *Nonlinear Buyback Problem with Discrete Concave Valuation Functions*		Sandro Montanari and Matúš Mihalák. *Bi-directional Search for Robust Routes in Time-dependent Bi-criteria Road Networks*	Mark De Berg, Constantinos Tsirogiannis and Bryan T. Wilkinson. *Fast Computation of Categorical Richness on Raster Data Sets and Related Problems*
13:10-14:30	**LUNCH**				
14:30-15:15	**Plenary Talk 5: Virginia Vassilevska Williams (Stanford University, USA)** *The Strong Exponential Time Hypothesis and Hardness for Easy Problems* *SC: Thore Husfeldt*				

15:15-15:30	BREAK				
	Session16A: Exponential-Time Algorithms. *SC: Thore Husfeldt*	**Session16B: Approximation Algorithms on Graphs.** *SC: Martin Skutella*	**Session16C: Exponential-Time Algorithms.** *SC: Mark de Berg*	**Session16D: Railway optimization problems.** *SC: Marie Schmidt*	**Session16E: Parallel and External Memory Algorithms.** *SC: Pino Italiano*
15:30-15:55	Takayuki Sakai, Kazuhisa Seto, Suguru Tamaki and Junichi Teruyama. *Improved Exact Algorithms for Mildly Sparse Instances of Max SAT*	Eleni C. Akrida, Leszek Gasieniec, George Mertzios and Paul Spirakis. *On Temporally Connected Graphs of Small Cost*	Ahmad Biniaz, Evangelos Kranakis, Anil Maheshwari and Michiel Smid. *Plane and Planarity Thresholds for Random Geometric Graphs*	Gabriel Gutiérrez-Jarpa, Gilbert Laporte, Vladimir Marianov and Luigi Moccia. *A Mixed Integer Linear Program for the Rapid Transit Network Design Problem with Static Modal Competition*	Foto Afrati, Nikos Stasinopoulos, Jeffrey Ullman and Angelos Vasilakopoulos. *Handling Skew in Multiway Joins in MapReduce*
15:55-16:20	Navid Talebanfard and Ilario Bonacina. *Strong ETH and Resolution via Games and the Multiplicity of Strategies*	Shay Mozes and Eyal Skop. *Efficient Vertex-Label Distance Oracles for Planar Graphs*	Joffroy Beauquier, Blanchard Peva, Janna Burman and Shay Kutten. *The Weakest Oracle for Symmetric Consensus in Population Protocols*	Frank Fischer. *Ordering Constraints in Time Expanded Networks for Train Timetabling Problems*	Michael A. Bender, Samuel McCauley, Andrew McGregor, Shikha Singh and Hoa T. Vu. *Run Generation Revisited: What Goes Up May or May Not Come Down*
16:20-16:45	Petr Golovach, Pinar Heggernes and Dieter Kratsch. *Enumerating Minimal Connected Dominating Sets in Graphs of Bounded Chordality*	Yishay Mansour, Boaz Patt-Shamir and Shai Vardi. *Constant-Time Local Computation Algorithms*	Eleni C. Akrida and Paul Spirakis. *On Verifying and Maintaining Connectivity of Interval Temporal Networks*	Markus Reuther and Ralf Borndörfer. *Regional Search for the Resource Constrained Assignment Problem*	Riko Jacob, Tobias Lieber and Nodari Sitchinava. *On the Complexity of List Ranking in the Parallel External Memory Model*
16:45-17:00	BREAK				
	Session17A: Exponential-Time and FPT Algorithms *SC: Daniel Lokshtanov*		**Session17C.** *SC: Leszek Gasieniec*	**Session17D: ATMOS Best Paper Award.** *SC: Christos Zaroliagis*	

17:00-17:25	Jisu Jeong, Sigve Hortemo Sæther and Jan Arne Telle. *MaximumMatching Width: New Characterizations and a Fast Algorithm for Dominating Set*	Samir Elouasbi and Andrzej Pelc. *Deterministic Rendezvous with Detection using Beeps*	René Van Bevern, Christian Komusiewicz and Manuel Sorge. *Approximation algorithms for mixed, windy, and capacitated arc routing problems*
17:25-17:50	Chiel ten Brinke, Frank van Houten and Hans Bodlaender. *Practical Algorithms for Linear Boolean-width*	Serafino Cicerone, Gabriele Di Stefano and Alfredo Navarra. *Gathering of Robots on Meeting-Points*	ATMOS Business Meeting
17:50-18:15	Fahad Panolan, Geevarghese Philip and Saket Saurabh. *b-Chromatic Number: beyond NP-hardness*	Shantanu Das, Flaminia L. Luccio and Euripides Markou. *Mobile Agents Rendezvous in Spite of a Malicious Agent*	
18:15-18:20	**Short BREAK**		
18:20-19:30	IPEC Business Meeting		

	IPEC	WAOA	ALGOSENSORS
08:30	Registration		
09:00-09:45	**Plenary Talk 6:** Jochen Koenemann (University of Waterloo, CA) *Recent News for an Old Steiner Tree Formulation* *SC: Martin Skutella*		
09:45-10:00	BREAK		
	Session18A: Parameterized Complexity and Logic *SC: Iyad Kanj*	**Session18B: Approximation Algorithms for Covering and Packing.** *SC: Martin Skutella*	**Session18C.** *SC: Jean-Lou Carufel*
10:00-10:25	Lars Jaffke and Hans L. Bodlaender. *Definability Equals Recognizability for k-outerplanar Graphs*	Dimitris Chatzidimitriou, Jean-Florent Raymond, Ignasi Sau and Dimitrios Thilikos. *An O(log OPT)-approximation for Covering/Packing Minor Models of ϑ_r*	Gui Citovsky, Jie Gao, Joseph Mitchell and Jiemin Zeng. *Exact and Approximation Algorithms for Data Mule Scheduling in a Sensor Network*
10:25-10:50	Tom van der Zanden. *Parameterized Complexity of Graph Constraint Logic*	Corinna Gottschalk and Britta Peis. *Submodular Function Maximization on the Bounded Integer Lattice*	Evangelos Bampas, Jurek Czyzowicz, David Ilcinkas and Ralf Klasing. *Beachcombing on Strips and Islands*
10:50-11:15	Holger Dell, Eunjung Kim, Michael Lampis, Valia Mitsou and Tobias Mömke. *Complexity and Approximability for Parameterized CSPs*	Sándor Fekete, Kan Huang, Joseph Mitchell, Ojas Parekh and Cynthia Phillips. *Geometric Hitting Set for Segments of Few Orientations*	Evangelos Kranakis, Danny Krizanc, Flaminia Luccio and Brett Smith. *Maintaining Intruder Detection Capability in a Rectangular Domain with Sensors*
11:15-11:40	Hubie Chen. *Parameter Compilation*	Marin Bougeret, Stephane Bessy, Daniel Gonçalves and Christophe Paul. *OnIndependent Set on B1-EPG Graphs*	Robert Benkoczi, Zachary Friggstad, Daya Gaur and Mark Thom. *Minimizing Total Sensor Movement for Barrier Coverage by Non-Uniform Sensors on a Line*
11:40-11:55	BREAK		
	Session19A: FPT Algorithms for Scheduling. *SC: Frances Rosamond*	**Session19B: Online Algorithms and Scheduling.** *SC: Martin Skutella*	**Session19C.** *SC: Cristina Pinotti*
11:55-12:20	Florian Barbero, Gregory Gutin, Mark Jones and Bin Sheng. *Parameterized and Approximation Algorithms for the Load Coloring Problem*	Jan Reineke and Alejandro Salinger. *On the Smoothness of Paging Algorithms*	Gokarna Sharma, Costas Busch and Supratik Mukhopadhyay. *Mutual Visibility with Optimal Colors*
12:20-12:45	Danny Hermelin, Judith-Madeleine Kubitza, Dvir Shabtay, Nimrod Talmon and Gerhard Woeginger. *Scheduling Two Competing Agents When One Agent has Significantly Fewer Jobs*	Roozbeh Ebrahimi, Samuel McCauley and Benjamin Moseley. *Scheduling Parallel Jobs Online with Convex and Concave Parallelizability*	Stanley Fung. *Maximizing Throughput in Energy-Harvesting Sensor Nodes*

12:45-13:10	Jason Crampton, Gregory Gutin, Andrei Gagarin and Mark Jones. *On the Workflow Satisfiability Problem with Class-Independent Constraints*	Veerle Timmermans and Tjark Vredeveld. *Scheduling with State-Dependent Machine Speed*	Oscar Garcia-Morchon, Ronald Rietman, Sahil Sharma, Ludo Tolhuizen and Jose Luis Torre Arce. *A Comprehensive and Lightweight Security Architecture to Secure the IoT throughout the Lifecycle of a Device Based on HIMMO*
13:10-14:30	LUNCH		
14:30-15:15	Plenary Talk 7: Thomas Kesselheim (Max Planck Institute for Informatics, DE) *Online Packing Beyond the Worst Case* *SC: Roger Wattenhofer*		
15:15-15:30	BREAK		
	Session20A: FPT Algorithms III. *SC: Gregory Gutin*		**Session20C.** *SC: Flaminia Luccio*
15:30-15:55	Max Bannach, Christoph Stockhusen and Till Tantau. *Fast Parallel Fixed-Parameter Algorithms via Color Coding*		Magnus M. Halldorsson and Tigran Tonoyan. *Limitations of Current Wireless Scheduling Algorithms*
15:55-16:20	Edouard Bonnet and Florian Sikora. *The Graph Motif Problem Parameterized by the Structure of the Input Graph*		Amitabha Bagchi, Francesco Betti Sorbelli, Cristina Maria Pinotti and Vinay Ribeiro. *Connectivity of a Dense Mesh of Randomly Oriented Directional Antennas under a Realistic Fading Model*
16:20-16:45	Diptapriyo Majumdar, Venkatesh Raman and Saket Saurabh. *Kernels for Structural Parameterizations of Vertex Cover - Case of Small Degree Modulators*		Rajiv Gandhi, Magnus M. Halldorsson, Christian Konrad, Guy Kortsarz and Hoon Oh. *Radio Aggregation Scheduling*
16:45-16:50	ALGO 2015 - Epilogue		

TRAVELLING TO PATRAS

By Sea:

There are direct overnight trips via ferries departing from Italy (ports of Ancona, Bari, Brindisi or Trieste). For schedule and prices look at the websites of Anek Lines, Minoan Lines, Superfast Ferries.

By Plane:

- From Araxos airport which is located 50 Km West of Patras and it is served by several airline companies (e.g.,Ryanair, LTU, TUIfly, AirBerlin, SkyExpress, etc), especially in the period from May to October. From Araxos you can reach Patras either by bus, or by taxi (the cost is approximately 40-50 Euros).

- From Athens International Airport "Eleftherios Venizelos", which is located 250 Km East of Patras. There are regular flights connecting Athens to most European cities. Reaching Patras from the Athens International Airport "Eleftherios Venizelos" may be done as follows:

  - **By Car:**
    Several car rental agencies operate on the airport. The new "Attiki Odos" high-speed toll motorway connects the airport with Athens and the main greek highways. Leave the airport following initially the signs to ATHINA and then to ELEFSINA to enter "Attiki Odos". From that point on just stay on the highway following the signs to ELEFSINA, subsequenty to KORINTHOS, and finally to PATRA. After Korinthos, the highway splits into two and you must follow the right way (there are signs to PATRA). On this second half of the trip you must be a bit more careful, as the highway gets narrower due to construction works. The total distance between Athens airport and Patras is about 250km. To reach Patras, take the exit "PATRA-CENTRE / PORT", and then follow the signs to "Port".

  - **By Train:**
    The "Proastiakos" (suburban) railway, operated by "Trainose", connects Athens airport to the railway network of the rest of Greece operated by the "OSE" company. You can take the train from the airport and then change for the BUS connection at KIATO to reach Patras. Trainose bus services operate between Kiato and Patras (and vice versa) due to ongoing infrastructure works on the railway line between those two stations. The current timetable is as follows:

ATHENS AIRPORT	Arrival at KIATO	Departure from KIATO	PATRAS		PATRAS	Arrival at KIATO	Departure from KIATO	ATHENS AIRPORT
5:44	7:19	7:30	9:00		5:30	7:15	7:25	9:01
6:44	8:19	8:30	10:00		6:15	8:15	8:25	10:01
7:44	9:19	9:30	11:00		7:30	9:15	9:25	11:01
8:44	10:19	10:30	12:10		8:30	10:15	10:25	12:01
10:44	12:19	12:30	14:00		9:45	12:10	12:25	14:01
11:44	13:19	13:30	15:10		11:30	13:15	13:25	15:01
12:44	14:19	14:30	16:00		12:30	14:15	14:25	16:01
13:44	15:19	15:30	17:00		13:30	15:15	15:25	17:01
14:44	16:19	16:30	18:10		14:15	16:15	16:25	18:01
15:44	17:19	17:30	19:00		15:30	17:15	17:25	19:01
16:44	18:19	18:30	20:30		16:30	18:15	18:25	20:01
17:44	19:19	19:30	21:00		17:15	19:15	19:25	21:01
18:44	20:19	20:30	22:00		18:30	20:15	20:25	22:01

  - **By Bus:**
    The **KTEL** intercity bus company has regular buses to Patras. You must first get to the **KIFISOS Bus Station**. You can get there from the airport, either by taxi or by taking the **X93** express bus (24-hour service) that departs just outside the airport terminal at the Arrival level. The bus stop at the airport is located between Exits 4 and 5 at the Arrivals level. You can buy a ticket on the bus. The travel time

to the KIFISOS Bus Station is about 60 minutes, and the bus runs approximately every 30 minutes. Below are the bus departure times for the X93 line, from the Athens International Airport.

Departure times from the Athens Airport	Intermediate Bus Stops
00:35, 01:10, 01:50, 02:30	AIRPORT - ARRIVALS LEVEL
	AIRPORT COMMERSIAL PARK
03:10, 03:50, 04:30, 05:15	ADMINISRATION BUILDING
06:05, 06:30, 06:55, 07:20, 07:45, 08:10, 08:35, 08:55	ATTIKES DIADROMES
	SEA
09:20, 09:45, 10:10, 10:35, 11:00, 11:25, 11:50	KIFISIAS
12:15, 12:35, 13:00, 13:25, 13:50, 14:15, 14:40	KOMVOS NEAS FILADELFIAS
15:05, 15:25, 15:50, 16:15, 16:45, 17:10, 17:40	LIOSION BUS STATION
	ROSINIOL
18:10, 18:40, 19:05, 19:30, 19:55, 20:20, 20:45	KOLOKINTHUS
21:10, 21:40, 22:10, 22:45, 23:20, 23:55	KIFISOS BUS STATION

From KIFISOS Bus Station there is a bus to Patra almost every 30 minutes. The first bus is at 05:50 and the last at 22:00. The travel time is about 3h10m (or, 2h4m for the "express" line). You must buy a ticket before boarding. There is a big ticket hall at the east side of the station. Head for the booth with the signs "Achaia" and/or "Patra". There is no need to reserve tickets in advance, you will usually find a ticket for a bus leaving in the next hour. Ask at the ticket booth for directions on how to find the proper bus.

REACHING THE ALGO 2015 VENUE

ALGO 2015 will take place at the *Conference & Cultural Centre* of Patras University, with the following access details:
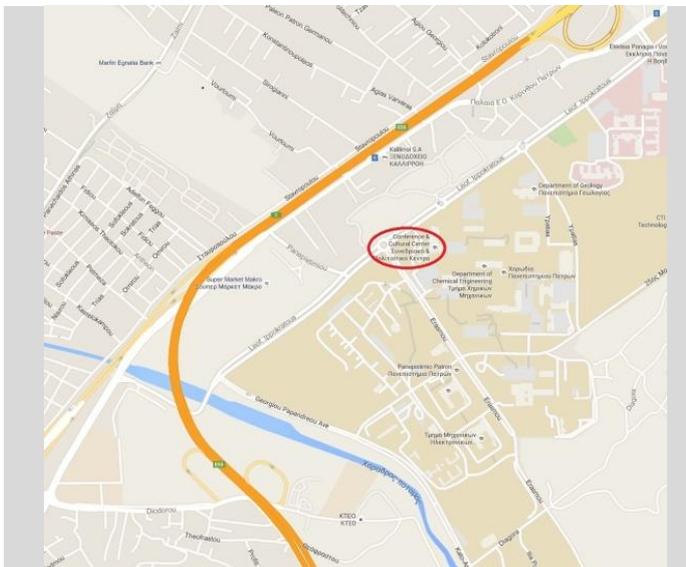
Conference & Cultural Centre
Panepistimioupoli Patron 265 04 Rion

38°17'25.1"N 21°47'10.2"E
38.290319, 21.786172

+30 2610 993999, +30 2610 969885

confer@upatras.gr, geonikolop@upatras.gr


http://www.confer.upatras.gr/indexen.php
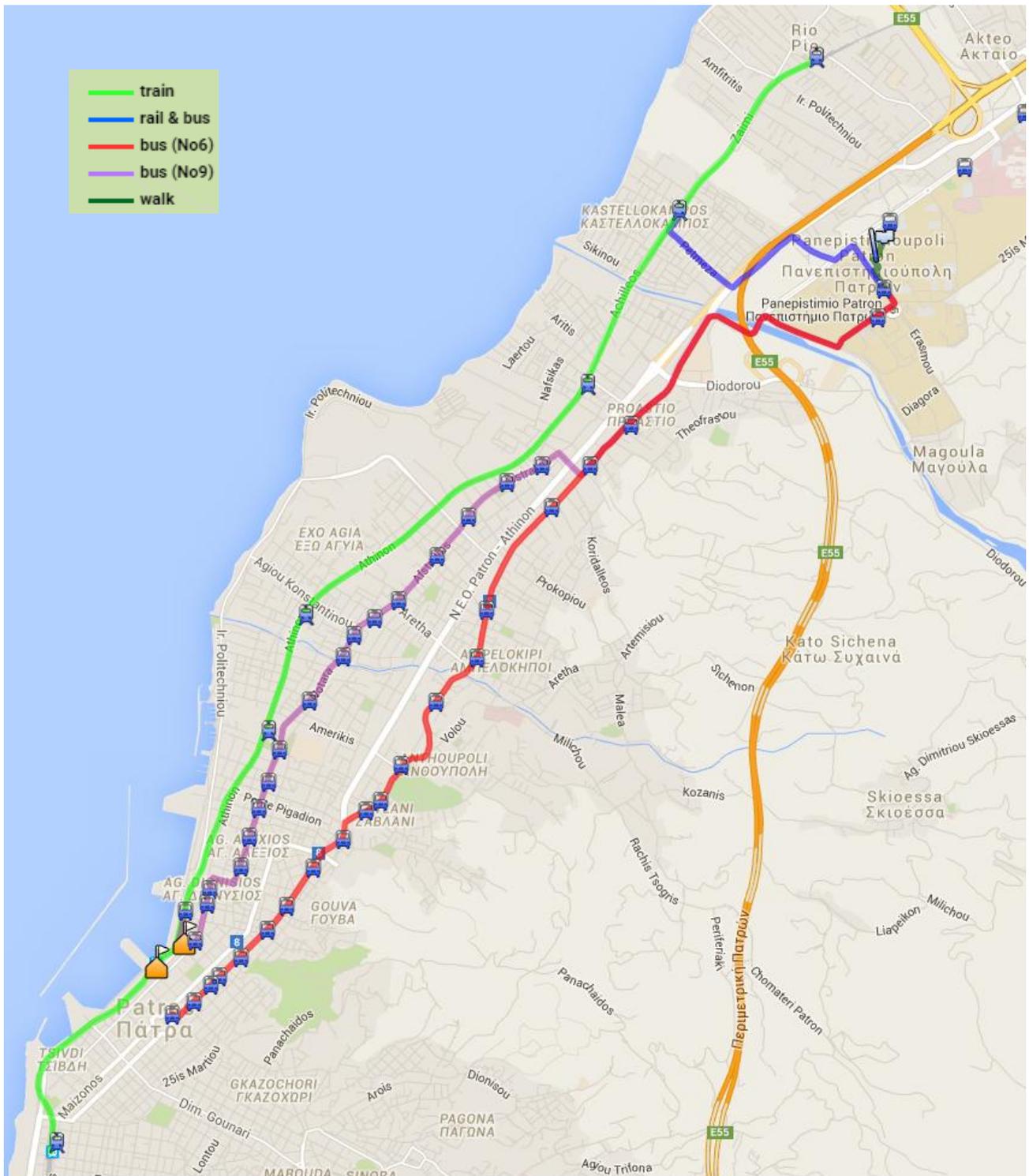
You can reach the ALGO 2015 venue from the city centre of Patras as follows:

- **By Bus:**

From the city centre, take bus No 6 (starting point at Ermou street), or bus No 9 (starting point at Othonos and Amalias street), heading at University (ΠΑΝΕΠΙΣΤΗΜΙΟ) or Hospital (ΝΟΣΟΚΟΜΕΙΟ) - in case of doubt, confirm with the driver. Bus No 6 runs every 15 minutes, while bus No 9 every 30 minutes.

The conference venue is close to the **second bus stop** within the campus. You must buy a ticket before getting on the bus, either from the special booths of the Local Bus company in the city centre, or from some kiosk.
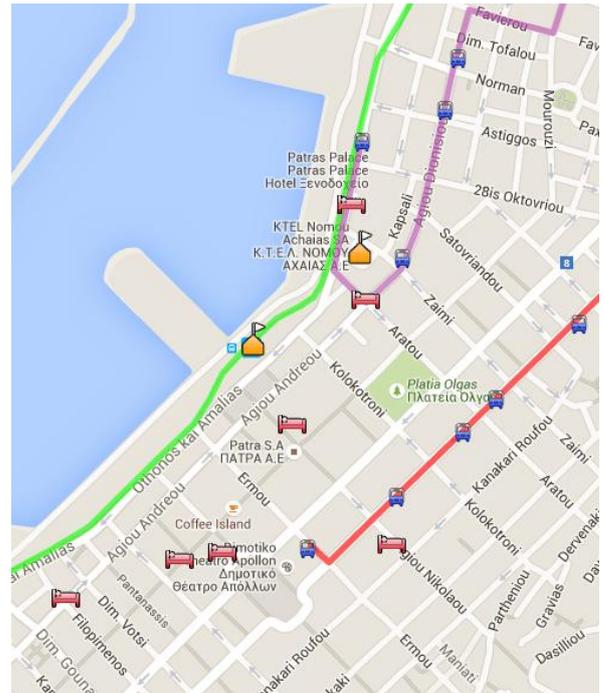
- **By Suburban Railway:**

The Patras Suburban Railway runs every hour, 7 days per week, connecting Patra's main train station to the Universiry Campus. Trains depart from Patra's main station at xx:34, with the first train departing at 06:34 and the last one at 23:23. To reach the University Campus, you get off at *Kastelokampos* and transfer to a connecting local bus that brings you to the Campus. The conference venue is close to the first bus stop within the Campus. You can buy tickets on the train (the ticket is also valid for the connecting bus). The full route's timetable is available via the TRAINOSE official site (follow the qrcode to the right).

- **From Hotels near the Conference Venue**

From **Airotel Achaia Beach** Hotel: Take the bus from the suburban railway stop *Kastelokampos* (about 350m from the hotel). Buses depart at xx:48.

From **Castello** Hotel: By walking (about 600m from the hotel).

From **Porto Rio** Hotel: Take the bus from the suburban railway stop *Kastelokampos* (about 800m from the hotel). Buses depart at xx:48.

From **Tzaki** Hotel: Take the train from the suburban railway stop *Bozaitika* (about 550m from the hotel), departing at xx:44, get off at *Kastelokampos* and transfer to a connecting local bus that brings you to the Campus. Alternatively, take the bus from the bus stop "No6 & No9 University-Hospital" (about 800m from the hotel).
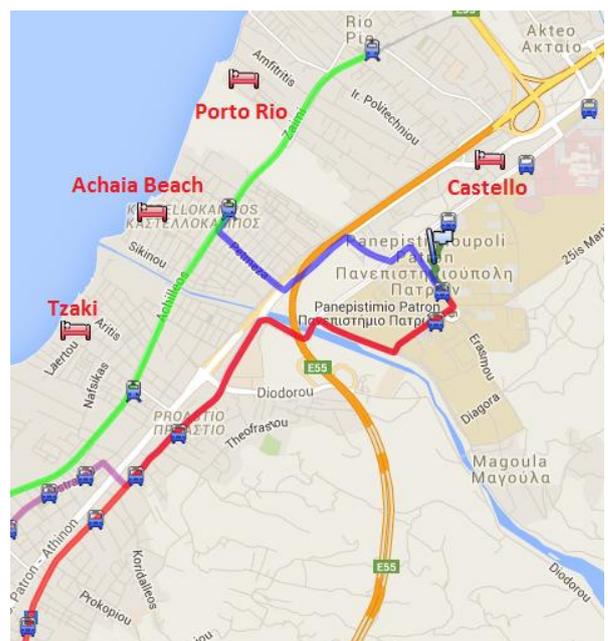
PHONE NUMBERS

Intercity Buses (KTEL) :	+30 2610 623 886-8
TRAINOSE:	+30 2610 274180
Emergency:	112
Police:	100
Ambulance:	166
Fire Brigade:	199
Taxi:	+30 2610 326000 ; +30 6977018300
Organizing Committee Emergency Contact :	+30 6976302464 ; +30 6947292750 ; +30 6944629550

HEALTH INSURANCE AND HEALTH EMERGENCIES

The Organizers will accept no liability for personal injuries sustained by or for loss or damage to property belonging to ALGO 2015 participants, either during or as a result of the Congress or during all events. Participants are strongly recommended to seek insurance coverage for health and accident, lost luggage and trip cancellation.

WIFI AT THE CONFERENCE SITE

There is an open-access WiFi network (no password is needed) available with the following configuration:

ESSID:	upnet

ALGO 2015 ONLINE PROCEEDINGS

Each registered participant can access the **electronic proceedings** of ESA provided by Springer, from September 7 to October 5 2015, either via the ESA site (http://algo2015.upatras.gr/esa/), or through the URL:

http://link.springer.com/book/10.1007%2F978-3-662-48350-3

ONLINE SCHEDULE

The on-line version of the conference schedule is available at the following URL (one may also follow the corresponding QR code):

http://algo2015.upatras.gr/detailed-program.html

ALGO 2015 CO-ORGANIZING INSTITUTTIONS

ALGO 2015 ORGANIZING COMMITTEE

- Kalliopi (Lina) Giannakopoulou
- Ioannis Katsidimas
- Spyros Kontogiannis
- George Michalopoulos
- Andreas Paraskevopoulos
- Christos Zaroliagis (chair)

Contact: algo2015@ceid.upatras.gr

ALGO 2015 PARTNERS

Platinum

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