



**Co-located Workshops** 

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## **Technical Program**

#### Sunday, September 23

20:00 - 22:00 Welcoming Reception (Sponsored by the Cyprus Telecommunications Authority - CYTA)

[A registration desk will operate from 18:00 to 22:00]

#### Monday, September 24

- 8:00 8:50 Registration
- 8:55 Welcome Address
- 9:00 David Peleg: Joint DISC-DYNAMO Invited Talk "Time-Efficient Broadcasting in Radio Networks" (supported by Cost Action 295 DYNAMO)
- 10:00 Coffee break (Supported by Microsoft)
- 10:30 12:35 Session 1: Graph algorithms
- 10:30 A. Czygrinow, M. Hanckowiak: "Distributed approximations for packing in unit-disk graphs"
- 10:55 Amos Korman and David Peleg: "Compact Separator Decompositions in Dynamic Trees and Applications to Labeling Schemes"
- 11:20 Bilel Derbel, Cyril Gavoille and David Peleg: "Deterministic Distributed Construction of Linear Stretch Spanners in Polylogarithmic Time."
- 11:45 Beat Gfeller, Nicola Santoro, Peter Widmayer : "A Distributed Algorithm for All Best Swap Edges of a Minimum Diameter Spanning Tree"
- 12:10 Mordechai Shalom, Prudence W.H. Wong, Shmuel Zaks: "Optimal on-line colorings for minimizing the number of ADMs in optical networks"
- 12:40 14:00 Lunch
- 14:00 15:40 Session 2: Distributed data
- 14:00 Amitanand Aiyer, Lorenzo Alvisi, and Rida Bazzi: "Bounded Wait-Free Implementation of Optimally resilient Byzantine Storage without (Unproven) Cryptographic assumptions"
- 14:25 Gregory Chockler, Rachid Guerraoui, Idit Keidar: "Amnesic Distributed Storage"
- 14:50 Shuang Liang, Xiaodong Zhang, Song Jiang, Ke Chen: "Cost-Aware Caching Algorithms for Distributed Storage Servers"
- 15:15 Thomas Locher, Remo Meier, Stefan Schmid, Roger Wattenhofer: "Push-to-Pull Peer-to-Peer Live Streaming"
- 15:40 16:00 Coffee break (Supported by Microsoft)

16:00 - 18:05	Session 3: Consensus and failure detectors
16:00	Dana Angluin, James Aspnes, David Eisenstat: "Fast Robust Approximate Majority"
16:25	Seth Gilbert, Rachid Guerraoui, Dariusz Kowalski: "On the Message Complexity of Indulgent Consensus"
16:50	Carole Delporte-Gallet, Hugues Fauconnier, Felix Freiling, Lucia Draque Penso, Andreas Tielmann: "From Crash-Stop to Permanent Omission: Automatic Transformation and Weakest Failure Detectors"
17:15	Wei Chen, Jialin Zhang, Yu Chen, Xuezheng Liu: "Weakening Failure Detectors for k-Set Agreement via the Partition"
17:40	Piotr Zielinski: "Automatic classification of eventual failure detectors"
18:30	Business meeting
20:00	Presentation of Dijkstra Prize

# Tuesday, September 25

9:00	Michel Raynal: Invited Talk "A Subjective Visit to Selected Topics in Distributed Computing"
10:00	Coffee break
10:30 - 12:35	Session 4: Communication algorithms and mobile robots
10:30	Leszek Gasieniec, Erez Kantor, Dariusz R. Kowalski, David Peleg, Chang Su: "Energy and Time Efficient Broadcasting in Known Topology Radio Networks"
10:55	Shlomi Dolev, Seth Gilbert, Rachid Guerraoui, Calvin Newport: "Gossiping in a Multi-Channel Radio Network"
11:20	Roberto Baldoni, Kleoni Ioannidou, Alessia Milani: "Mobility versus the Cost of Geocasting in Mobile Ad-Hoc Networks"
11:45	Jeremie Chalopin, Shantanu Das, Nicola Santoro: "Rendezvous of Mobile Agents in Unknown Graphs with Faulty Links"
12:10	Taisuke izumi, Yoshiaki Katayama, Nobuhiro Inuzuka, Koichi Wada: "Gathering Autonomous Mobile Robots with Dynamic Compasses: An Optimal Result"
12:40 - 14:00	Lunch
14:00 - 15:03	Brief Announcements Session
14:00	Cyril Gavoille, Ralf Klasing, Adrian Kosowski, Alfredo Navarra: "On the Complexity of Distributed Greedy Coloring"
14:07	Tal Mizrahi and Yoram Moses: "Long Live Continuous Consensus"
14:14	Virendra J. Marathe, Michael F. Spear, Michael L. Scott:

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"Transaction Safe Nonblocking Data Structures"

14:21	Colette Johnen and Lisa Higham: "Fault-tolerant Implementations of Atomic Registers by Weaker Registers in Networks Models"
14:28	Arpita Patra, Ashish Choudhary, Kannan Srinathan, Chandrasekharan Pandu Rangan: "Perfectly Reliable and Secure Communication in Directed Networks Tolerating Mixed Adversary"
14:35	Alysson Neves Bessani, Miguel Correia, Henrique Moniz, Nuno Ferreira Neves, Paulo Verissimo: "When 3f+1 is not Enough: Tradeoffs for Decentralized Asynchronous Byzantine Consensus"
14:42	Rodrigo Schmidt, Fernando Pedone: "A Formal Analysis of the Deferred Update Technique"
14:49	Michael Okun: "On Impersonation vs. Asynchrony"
14:56	Damon Mosk-Aoyama, Tim Roughgarden, Devavrat Shah: "Fully Distributed Algorithms for Convex Optimization Problems"
15:30	Half day tour and banquet (Partially supported by the Cyprus Tourism Organisation)

# Wednesday, September 26

9:00	Burkhard Monien: Invited Talk "Routing and Scheduling with Incomplete Information"
10:00	Coffee break
10:30 - 12:35	Session 5: Networks
10:30	Shay Kutten and Toshimitsu Masuzawa: "Output stability versus time till output"
10:55	Janna Burman and Shay Kutten: "Time Optimal Asynchronous Self-Stabilizing Spanning Tree"
11:20	Joffroy Beauquier, Julien Clement, Stephane Messika, Laurent Rosaz, Brigitte Rozoy: "Self-Stabilizing Counting in Mobile Sensor Networks"
11:45	Edward Bortnikov, Israel Cidon, Idit Keidar: "Scalable Load-Distance Balancing"
12:10	Simon Fischer, Lars Olbrich, Berthold Vöcking: "Approximating Wardrop Equilibria with Finitely Many Agents"
12:40 - 14:00	Lunch
14:00 - 15:40	Session 6 : Asynchronous processes
14:00	Faith Ellen, Panagiota Fatourou, Eric Ruppert: "The Space Complexity of Unbounded Timestamps"
14:25	Gadi Taubenfeld: "Efficient Transformations of Obstruction-free Algorithms into Non-blocking Algorithms"

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- 14:50 Matthew Lang and Paolo A.G. Sivilotti: "A Distributed Maximal Scheduler for Strong Fairness"
- 15:15 Vinit A. Ogale and Vijay K. Garg: "Detecting Temporal Logic Predicates on Distributed Computations"
- 15:40 16:00 *Coffee break*
- 16:00 17:40 Session 7: Fault tolerance
- 16:00 Baruch Awerbuch and Christian Scheideler: "A Denial-of-Service Resistant DHT"
- 16:25 Danny Dolev and Ezra Hoch: "On Self-stabilizing Synchronous Actions Despite Byzantine Attacks"
- 16:50 Michael G. Merideth and Michael K. Reiter: "Probabilistic Opaque Quorum Systems"
- 17:15 Dariusz R. Kowalski, Michal Strojnowski: "On the communication surplus incurred by faulty processors"

## Dijkstra Prize 2007

The Edsger W. Dijkstra Prize in Distributed Computing goes to the paper:

#### Consensus in the presence of partial synchrony by Cynthia Dwork, Nancy Lynch, and Larry Stockmeyer,

which appeared in the Journal of the ACM, Vol. 35, No. 2, April, 1988, pages 288--323. A preliminary version appeared in PODC 1984.

This paper introduces a number of practically motivated partial synchrony models that lie between the completely synchronous and the completely asynchronous models, and in which consensus is solvable. It gave practitioners the right tool for building fault tolerant systems, and contributed to the understanding that safety can be maintained at all times, despite the impossibility of consensus and progress is facilitated during periods of stability. These are the pillars on which every fault tolerant system has been built for two decades. This includes academic projects such as Petal, Frangipani, and Boxwood, as well as real life data centers, such as the Google file system.

In distributed systems, balancing the pragmatics of building software that works against the need for rigor is particularly difficult because of impossibility results such as the FLP theorem. The publication by Dwork, Lynch, and Stockmeyer was in many respects the first to suggest a path through this thicket, and has been enormously influential. It presents consensus algorithms for a number of partial synchrony models with different timing requirements and failure assumptions: crash, authenticated Byzantine, and Byzantine failures. It also proves tight lower bounds on the resilience of such algorithms.

The eventual synchrony approach introduced in this paper is used to model algorithms that provide safety at all times, even in completely asynchronous runs, and guarantee liveness once the system stabilizes. This has since been established as the leading approach for circumventing the FLP impossibility result and solving asynchronous consensus, atomic broadcast, and state-machine replication.

In particular, the distributed systems engineering community has been increasingly drawn towards systems architectures that reflect the basic split between safety and liveness cited above. Dwork, Lynch, and Stockmeyer thus planted the seed for a profound rethinking of the ways that we should build, and reason about, this class of systems. Following this direction are many foundational solutions. First, these include state machine replication methods such as Lamport's seminal Paxos algorithm and many group communication methods. Another important branch of research that directly follows this work is given by Chandra and Toueg's unreliable failure detector abstraction, which is realized in the eventual synchrony model of this paper. As Chandra and Toueg write:``we argue that partial synchrony assumptions can be encapsulated in the unreliability of failure detectors. For example, in the models of partial synchrony considered in Dwork et al. it is easy to implement a failure detector that satisfies the properties of <>W." Finally, the insight by Dwork, Lynch, and Stockmeyer also led to various timed-based models of partial synchrony, such as Cristian and Fetzer's Timed-Asynchronous model and others.

The award committee would like to acknowledge the sincere efforts by the nominators of this work, as well as all other (worthy!) nominations which came short of winning.

The committee wishes to pay a special tribute via this award to Larry Stockmeyer, who passed away on July 31, 2004. Larry's impact on the field through this paper and many others will always be remembered.

The Committee of the 2007 Edsger W. Dijkstra Prize in Distributed Computing

- Hagit Attiya (PODC 1997)
- Dahlia Malkhi (DISC 2002)
- Keith Marzullo (PODC 2002)
- Marios Mavronicolas (WDAG 1997)
- Andrzej Pelc (DISC 2007)
- Roger Wattenhofer (PODC 2007), Chair

## Workshops

#### **DYNAMO 2007**

The **COST Action 295 DYNAMO** Workshop will be held at the Apollonia Beach Hotel (DISC07 Conference Venue) in Lemesos, on 23-24 September, 2007 and is co-located with the 21st International Symposium on Distributed Computing (DISC 2007). The sessions will be held in the Main Conference Hall "Olymbos".

**Registration:** The registration fee is CyP 20.00 and it includes two coffee breaks and a lunch.

## Program

## Sunday, September 23

8:45 - 8:50	Opening
8:50 – 9:30	Magnus Halldorsson, University of Iceland Title TBA
9:30 – 10:10	Miroslaw Korzeniowski, Wroclaw Univ. and T.U. Wroclaw, Poland David Peleg: "Dating service: a tool to cope with heterogenity in dynamic networks"
10:00 - 10:30	Coffee break
10:30 - 11:10	Nicolas Santoro, Carleton University, Canada "Computations by asynchronous mobile robots and sensors"
11:10 – 11:50	Zvi Lotker, Ben Gurion University, Israel "Randomized Algorithms for Dynamic Networks"
11:50 – 12:30	Anne-Marie Kermarrec, INRIA Rennes, France Title TBA
12:30 – 14:30	Lunch
14:30 - 15:30	Management Committee (on Training School 2008)
15:30 – 16:00	Coffee break
16:00 - 17:00	Management Committee (on miscellaneous)

#### Monday, September 24

- 9:00 10:00 Joint DISC-DYNAMO Invited Talk David Peleg, Weizman Institute, Israel "Time-Efficient Broadcasting in Radio Networks"
- 10:00 12:00 Working Group Meetings

#### **IMAGINE 2007**

IMAGINE 2007 is a workshop totally managed by junior researchers (Ph.D. students or people who have defended their thesis for no more than 2 years) relative to the area of dynamic wireless networks, evaluated by junior researchers. It will be held at the Apollonia Beach Hotel (DISC07 Conference Venue) in Lemesos, on September 26 - 27, 2007 and is co-located with the 21st International Symposium on Distributed Computing (DISC 2007). The sessions will be held in the meeting room "Alexander".

**Registration:** The registration fee is CyP 25.00 and it includes three coffee breaks and a lunch.

#### **Imagine Committees**

#### General Chairs:

David Ilcinkas, Université du Québec en Outaouais, Canada

#### Program

Wednesday, September 26

16:00 - 16:30 Welcome

Nathalie Mitton, INRIA Futurs, France Nicolas Nisse, LRI, Paris Sud, France

#### Organizing Chair:

Chryssis Georgiou, University of Cyprus

#### Program Committee:

Ittai Abraham, The Hebrew University of Jerusalem, Israël Shantanu Das, University of Ottawa, Canada Frederic Dorn, University of Bergen, Norway Jean Loup Guillaume, Université Catholique de Louvain - INMA, Belgium François Ingelrest, EPFL, Switzerland Amos Korman, Technion, Israël Fabian Kuhn, Microsoft Research Silicon Valley, USA Jia-Liang Lu, France Telecom Pékin, China Nicolas Nisse, LRI, Paris Sud, France(chair) Aline Viana, INRIA Futurs, France

16:30 – 17:30 Emmanuelle Lebhar, CNRS, LIAFA, France "Networks navigability or why you know this art-therapist from Tanzania"

#### Thursday, September 27

09:30 – 10:30	Augustin Chaintreau, Thomson Paris Research Lab, France "Measuring and Understanding Opportunistic Mobile Networks"
10:30 – 11:00	Coffee break
11:00 – 12:00	Doina Bein, University of Texas at Dallas, USA "Hard problems for wireless networks"
12:00 – 14:00	Lunch (Thalassaki restaurant)
14:00 – 15:00	Hannes Frey, University of Southern Denmark, Denmark "Localized Routing Algorithms for Multihop Ad Hoc and Sensor Networks"
15:00 – 15:30	Coffee break
15:30 – 16:30	Thomas Moscibroda, Microsoft Research, USA "Algorithmic Wireless Networking: Graph-Based Models and Beyond"
16:30	Closing

## **General Information**

#### **Registration in Lemesos**

General registration will begin on Sunday 23rd of September 2007 at 18:00 till 22:00 and will continue throughout the Conference beginning each morning at 08:00. The registration desk and Conference secretariat desk is located in the entrance of the Apollonia Beach Hotel (Conference Venue).

#### Lunch and Coffee breaks

Three lunches (for DISC07 participants) one lunch for DYNAMO and one lunch for IMAGINE participants plus coffee/tea during breaks (as indicated in the program), are included in the registration fee. The buffet lunches will be served in the Dionysos restaurant. One drink is included with your lunch. Please present your lunch voucher. Please note that for IMAGINE participants the lunch will take place at the Thalassaki restaurant (weather permitted). Coffee/tea breaks will be served in the registration area (lobby).

## No badge no entry!

Your personal name badge serves as your passport to the sessions. Admission to the sessions will be restricted to badge bearers only. Please make sure your badge is visible at all times.

#### Final Program and Proceedings Book

Registered participants (not accompanying persons) will find a copy of the Conference Analytical Program and Proceedings book in their Conference bag.

## **Certificate of Attendance**

Registered participants will find a Certificate of Attendance in their Conference bag.

#### No smoking

For the comfort and health of all participants, the use of tobacco products is strictly prohibited in any area of the Conference. Thank you for your compliance.

#### Cellular phone and pagers policy

As a courtesy to all participants and speakers, cellular phones, pagers, and other electronic devices must be operated in silent/vibrate mode within sessions. Devices that beep, ring, etc. are strictly prohibited. No cellular phone conversations are permitted within the meeting rooms.

#### **Electricity and Electrical Plugs**

The electricity supply in Cyprus is 220/230 volts, AC 50Hz. The plugs used in Cyprus are standard square pin, 3 point, 15amp plug.

#### Internet Café

Visit the Internet stations next to the Main Conference Hall (Patio meeting room) to access the internet free.

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#### Wifi Connection

The Local Organising Committee has arranged temporary hotspots and delegates can access **FREE** the internet from the Conference Hall and close areas of the Hotel. Delegates require wireless enabled devices such as laptops, PDAs and cellular devices.

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#### **Business Centre**

Personal typing, printing, copying and other office requirements can be handled at the Hotel Business Centre. Please ask the hotel reception for information.

#### Currency & VAT

All prices are quoted and payable in Cyprus Pounds and are including VAT and taxes. The present rate of VAT is 15%. Cyprus Pounds is the official on-side currency of the Conference.

1,00 CYP = 1,71 EUR 1,00 EUR = 0,58 CYP

## Clothing

Informal for all occasions; please bring sunglasses and walking shoes. In the evening, light woollies or long sleeved cotton is recommended.

#### Check in & check out

Official check in time in Apollonia Beach Hotel is 13:00 and check out time is 12:00. Hotel phone number: (+357) 25323351

## Social Events and Tours

#### **Welcome Reception**

Sunday, September 23, 2007 20:00 - 22:00 Free for registered delegates and registered accompanying persons

The opening social event of the Congress is the Welcome Reception and it will take place in a relaxed atmosphere where Conference participants will have the opportunity to meet old friends and make new ones. The welcome reception will be held between 20.00-22.00 in Apollonia Beach Hotel (Pool bar deck Area).

#### Half Day Tour with Cyprus Night

Kourion, Anogyra and dinner at Oleastro (Olive Park) Tuesday, September 25, 2007 15:30 - 00:00 Free for registered delegates and registered accompanying persons Cost for non registered participants: CyP 35.00

Successor to two city-kingdoms, Lemesos (Limassol) is proud of its archaeological sites and mediaeval castles and its merry festivals of Carnival, Wine and Dancing. Here, we visit an important ancient city-kingdom, Kourion most spectacular and one of the archaeological sites on the island. We visit the magnificent Graeco-Roman Theater, which originally built in the 2<sup>nd</sup> century BC and is now fully restored and used for musical and theatrical performances. We then visit the House of Eustolios, originally a private Roman villa, which became a public recreation centre during the Early Christian period. It consists of a complex of baths and a number of rooms with beautiful 5th century AC mosaic floors.

Continue to Anogyra village to visit the Oleastro, which consists of and Olive Oil Park and an olive oil museum featuring olive oil extraction methods of the past (millstone, olive press) and various items related to the storage and uses of the olive oil as well as its history, an olive store specializing in olive products, a visitors' centre, a state-of-the-art ecological olive mill, bottling, and storing facilities. We will have the opportunity to compare the extraction methods of the past to the modern process of the ecological olive mill. At the restaurant of the park we will enjoy a dinner consisting of a number of traditional dishes and desert. The Cyprus Night is THE social event of the Conference! Cypriots really enjoy sharing a delicious traditional Mezé meal with friends to be followed with traditional music and dancing, so our Cyprus Night promises warm Cyprus hospitality and much more! Mezé, meaning 'little bites' is a real feast to enjoy at a leisurely pace! It consists of a number of savoury dips, crusty village bread and an array of seasonal dishes. The perfect accompanying drink is local wine and the toast made with your glass raised high is 'Stini Yamass' - 'Your good health'.

## Full Day Lefkosia and Lefkara Excursion

Wednesday, September 26 2007 10:00 - 18:00 Free for registered accompanying persons Cost for others: CyP 40.00

Drive to Lefkosia, the Capital of the island since the 11<sup>th</sup> century AD. Here, we visit the Archaeological Museum housing a priceless and fascinating collection of Cypriot antiquities and treasures from the Neolithic age to the early Byzantine period. The heart of the city is enclosed by wall, built by the Venetians in the 16<sup>th</sup> century. A part of this wall as well as the Liberty Monument will be seen on our way to the Cathedral of St. John, which was built in 1662 and it is fully decorated with wall paintings. The lunch will be offered at Laiki Yitonia, a restored 19th century guarter, with charming winding alleys, traditional houses, shops, restaurants and galleries. On our return journey, we will visit the picturesque village of Lefkara, well known for its handmade laces and embroideries. Lunch and one drink is included.

#### Important Note:

Rates for Full day Excursion to Lefkosia and Lefkara based minimum are on а participation Of 12 participants. The Organisers reserves the right to cancel the Excursion if the number of participants should be too small. Full refund is then made. Please note that registration to the various tours and events will be confirmed upon payment on a "first-come-first-served" basis.

Tour and excursion are inclusive of all entrance fees, taxes, pick up / drop off in Apollonia Beach Hotel only by fully insured air-conditioned coaches, escorted by professional licensed English speaking guides. **Sponsors and Supporters** 

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#### Insurance & Liability

The Organizing and Local Committee of the Conference, the Collaborating Societies, CLIN Company Ltd and Apollonia Beach Hotel shall not be held liable for any injury, damage, or cancellation, delay, accident loss, hostilities, political unrest or force majeure which may occur to any of the potential delegates for whatever cause arising out of act or default of the organizers. Also the Organizing and Local Committee of the Conference, the Collaborating Societies, CLIN Company Ltd and Apollonia Beach Hotel cannot be held responsible for extra costs or expense due to unforeseen delays, strikes, civil riots, accidents and inoperable weather conditions. Finally, the Organizing and Local Committee of the Conference, the Collaborating Societies, CLIN Company Ltd and Apollonia Beach Hotel will however, do everything possible to protect delegates' interests. Delegates are strongly encouraged to make their own arrangements with respect to personal insurance.