

DISC 2011 Program

Monday, September 19th

Location: School of Engineering - Via Eudossiana 18

9:00-13:00	AIMoDEP workshop	Room: Aula Magna
9:00-17:00	Teranet workshop	Room: B2
14:00-17:30	TADDS workshop	Room: Aula Magna
17:45-18:45	60th birthday celebration of Nicola Santoro	Room: Aula Magna
18:45-21:30	welcome reception	Court

Tuesday, September 20th – DISC DAY 1

Location: School of Engineering - Via Eudossiana 18

Session 1		
8.30 - 10.00 am	Session 1: Invited Lecture and Best Student Paper <i>Session Chair: David Peleg</i>	Room: Aula del Chiostro
8:30 – 8:35	Opening Remarks	
8:35 – 9:35	Invited Lecture: Andrzej Pelc Deterministic Rendezvous in Networks: Survey of Models and Results	
9:35 – 10:00	Yehuda Afek, Michael Hakimi and Adam Morrison Fast and Scalable Rendezvousing	

10:00 – 10:20 Break

Session 1b		
10:20-12:00	Session 1b: Distributed Graph Algorithms <i>Session Chair: Yuval Emek</i>	Room: Aula del Chiostro
10:20 – 10:45	Yehuda Afek, Noga Alon, Ziv Bar-Joseph, Alejandro Cornejo, Bernhard Haeupler and Fabian Kuhn Beeping a Maximal Independent Set	
10:45 – 11:10	Johannes Schneider and Roger Wattenhofer Trading Bit, Message and Time Complexity of Distributed Algorithms	
11:10 – 11:35	Leonid Barenboim and Michael Elkin Combinatorial Algorithms for Distributed Graph Coloring	
11:35 – 12:00	Taisuke Izumi, Maria Gradinariu Potop-Butucaru and Mathieu Valero Physical Expander in Virtual Tree Overlay	

12:00 – 13:30 Lunch

Session 1c		
13:30 – 14:45	Session 1c: Shared Memory <i>Session Chair: Faith Ellen</i>	Room: Aula del Chiostro
13:30 – 13:55	Dan Alistarh and James Aspnes. Sub-Logarithmic Test-and-Set Against a Weak Adversary	
13:55 – 14:20	Gadi Taubenfeld Tight Space Bounds for ℓ -exclusion	

14:20 – 14:45	Dmitri Perelman, Anton Byshevsky, Oleg Litmanovich and Idit Keidar SMV: Selective Multi-Versioning STM	
Session 1d		
14:45 – 15:20	Session 1d: Brief Announcements I <i>Session Chair: Faith Ellen</i>	Room: Aula del Chiostro
	Leslie Lamport Leaderless Byzantine Paxos	
	Keith Marzullo, Hein Meling and Alessandro Mei When You Don't Trust Clients: Byzantine Proposer Fast Paxos	
	Carole Delporte-Gallet, Hugues Fauconnier, Eli Gafni and Petr Kuznetsov On the Meaning of Solving a Task with a Failure Dectector	
	Evgenia Christoforou, Antonio Fernandez Anta, Chryssis Georgiou and Miguel A. Mosteiro Algorithmic Mechanisms for Internet-based Computing under Unreliable Communication	

15:20 – 15:40 Break

Session 1e		
15:40-16:55	Session 1e: Fault-Tolerance and Security <i>Session Chair: Maria Potop-Butucaru</i>	Room: Aula del Chiostro
15:40-16:05	Swan Dubois, Toshimitsu Masuzawa and Sebastien Tixeuil Maximum Metric Spanning Tree made Byzantine Tolerant	
16:05-16:30	Chryssis Georgiou and Dariusz Kowalski Performing Dynamically Injected Tasks	

	on Processes Prone to Crashes and Restarts	
15:30-16:55	Elette Boyle, Shafi Goldwasser and Yael Tauman Kalai Leakage-Resilient Coin Tossing	

Session 1f		
16:55-17:30	Session 1f: Brief Announcements II <i>Session Chair: Maria Potop-Butucaru</i>	Room: Aula del Chiostro
	Shay Kutten, Ron Lavi and Amitabh Trehan Composition Games for Distributed Systems: the EU Grant games	
	Edyta Szymanska, Krzysztof Krzywdziński, Andrzej Czygrinow, Michal Hanckowiak and Wojciech Wawrzyniak Distributed Approximation Algorithm for the Semi-Matching Problem	
	Martin Farach-Colton, Antonio Fernandez Anta, Alessia Milani, Miguel A. Mosteiro and Shmuel Zaks Opportunistic Information Dissemination in Mobile Ad-hoc Networks: Adaptiveness vs. Obliviousness and Randomization vs. Determinism	
	Siddhartha Sen, Sunghwan Ihm, Kay Ousterhout and Michael Freedman Bridging the Theory-Practice Gap in Multi-Commodity Flow Routing	
17:45-18:15	Dijkstra Prize	
18:15-20:00	Business Meeting	

Wednesday, September 21th – DISC DAY 2

Location: School of Engineering - Via Eudossiana 18

Session 2a		
8.30 - 10.00 am	Session 2a: Invited Lecture; Paxos Plus <i>Session Chair: Roberto Baldoni</i>	Room: Aula del Chiostro
8:30 – 8:35	Opening Remarks	
8:35 – 9:35	Invited Lecture: Dahlia Malkhi Going Beyond Paxos	
9:35 – 10:00	Leslie Lamport Byzantizing Paxos by Refinement	

10:00 – 10:20 Break

Session 2b		
10:20-12:00	Session 2b: Wireless <i>Session Chair: David Ilcinkas</i>	Room: Aula del Chiostro
10:20 – 10:45	Antonio Fernandez Anta, Miguel A. Mosteiro and Jorge R. Muñoz Unbounded Contention Resolution in Multiple-Access Channels	
10:45 – 11:10	Leonid Barenboim, Shlomi Dolev and Rafail Ostrovsky Deterministic and Energy-Optimal Wireless Synchronization	
11:10 – 11:35	Shlomi Dolev, Seth Gilbert, Majid Khabbazian and Calvin Newport Leveraging Channel Diversity to Gain Efficiency and Robustness for Wireless Broadcast	

11:35 – 12:00	Mohsen Ghaffari, Nancy Lynch and Srikanth Sastry Leader Election Using Loneliness Detection	
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12:00 – 13:30 Lunch

Session 2c		
13:30 – 14:45	Session 2c: Network algorithms I <i>Session Chair: Anne-Marie Kermarrec</i>	Room: Aula del Chiostro
13:30 – 13:55	Srikanta Tirthapura and David Woodruff Optimal Random Sampling from Distributed Streams Revisited	
13:55 – 14:20	Andrea Clementi and Riccardo Silvestri Parsimonious Flooding in Geometric Random-Walks	
14:20 – 14:45	Yvonne Anne Pignolet, Stefan Schmid and Gilles Tredan. Misleading Stars: What Cannot Be Measured in the Internet?	

Session 2d		
14:45 – 15:10	Session 2d: Brief Announcements III <i>Session Chair: Anne-Marie Kermarrec</i>	Room: Aula del Chiostro
	Meg Walraed-Sullivan, Radhika Niranjan Mysore, Keith Marzullo and Amin Vahdat A Randomized Algorithm for Label Assignment in Dynamic Networks	
	Mikel Larrea and Michel Raynal Delta Omega: Specifying an Eventual Leader Service for Dynamic Systems	

	Taisuke Izumi, Zohir Bouzid, Sebastien Tixeuil and Koichi Wada The BG-simulation for Byzantine Mobile Robots	
15:30-19.30	Excursion: Etruscan Necropolis "La Banditaccia"	
19:30-22:30	DISC 2011 Banquet, Cerveteri	

Thursday, September 22th – DISC DAY 3

Location: School of Engineering - Via Eudossiana 18

Important note: Transform WTTM Workshop is located in Dipartimento di Informatica e Sistemistica - Via Ariosto 25

Session 3a		
8.30 - 10.00 am	Session 3a: Invited Lecture & Best Paper; Aspects of Locality <i>Session Chair: Maurice Herlihy</i>	Room: Aula del Chiostro
8:30 – 8:35	Opening Remarks	
8:35 – 9:35	Invited Lecture: Peter Widmayer. Polygon Reconstruction with Little Information: An Example for the Power of Simple Micro-robots	
9:35 – 10:00	Pierre Fraigniaud, Sergio Rajsbaum and Corentin Travers Locality and Checkability in Wait-free Computing	

10:00 – 10:20 Break

Session 3b		
10:20-12:00	Session 3b: Consensus <i>Session Chair: Luisa Gargano</i>	Room: Aula del Chiostro
10:20 – 10:45	Allison Lewko The Contest Between Simplicity and Efficiency in Asynchronous Byzantine Agreement	
10:45 – 11:10	James Aspnes Randomized Consensus in Expected $O(n^2)$ Total Work using Single-Writer Registers	
11:10 – 11:35	Hagit Attiya, Fatemeh Borran, Martin Hutle, Zarko Milosevic and Andre Schiper Structured Derivation of Semi-Synchronous Algorithms	
11:35 – 12:00	Piyush Bansal, Prasant Gopal, Anuj Gupta, Kannan Srinathan and Pranav Kumar Vasishta Byzantine Agreement using Partial Authentication	

12:00 – 13:30 Lunch

Session 3c		
13:30 – 14:45	Session 3c: Network Algorithms II <i>Session Chair: Luisa Gargano</i>	Room: Aula del Chiostro
13:30 – 13:55	Ittai Abraham and Cyril Gavoille. On Approximate Distance Labels and Routing Schemes with Affine Stretch	
13:55 – 14:20	Fabian Kuhn and Rotem Oshman The Complexity of Data Aggregation in Directed Networks	
14:20 – 14:45	J�r�mie Chalopin, Shantanu Das, Arnaud Labourel and Euripides Markou Black Hole Search with Finite Automata Scattered in a Synchronous Torus	
14:45 – 15:10	Andrew Collins, Jurek Czyzowicz, Leszek Gasieniec, Adrian Kosowski and Russell Martin Synchronous Rendezvous for Location-aware Agents	

15:10-15:30 Break

Session 2d		
15:30-16:50	Session 3d: Concurrency <i>Session Chair: Adrian Kosowski</i>	Room: Aula del Chiostro
15:30-15:55	Li Lu and Michael L. Scott Toward a Formal Semantic Framework for Deterministic Parallel Programming	
15:55-16:20	Dmitri Perelman, Dmitry Basin, Idit Keidar, Ofer Kiselov and Rui Fan	

	CAFÉ: Scalable Task Pools with Adjustable Fairness and Contention	
16:20-16:45	Yehuda Afek, Yakov Babichenko, Uriel Feige, Eli Gafni, Nati Linial and Benny Sudakov Oblivious Collaboration	
16:45-16:50	DISC symposium closing	
17:00-19:10	Tutorial: Knowledge Strikes Again - Yoram Moses	Room: Aula del Chiostro
17:00 – 18:00	Session 1	
18:00-18:10	Break	
18:10-19:10	Session 2	

Friday, September 23th

Location: Dipartimento di Informatica e Sistemistica – Via Ariosto 25

09:00-11.40	Tutorial: From Reliable to Secure Distributed Programming - Christian Cachin	Room: A7
09:00-10:30	Session 1	Room: A7
10:30-10:40	Break	Room: A7
10:40-11:40	Session 2	Room: A7
9:00-17:00	Transform WTTM workshop	Room: B2
9:00-17:00	DISC's SON workshop	Room Aula Magna

Workshop

TADDS

The 3rd Workshop on Theoretical Aspects of Dynamic Distributed Systems

When: September 19th

Organizers: Alexander Shvartsman and Roberto Baldoni

Contacts:

Alexander Shvartsman (University of Connecticut)

e-mail: **aas@cse.uconn.edu**

Roberto Baldoni (University of Rome 'La Sapienza')

e-mail: **baldoni@dis.uniroma1.it**

TADDS has its focus on the dynamic aspects of distributed systems, encompassing systems in existence today and looking into the future development and deployment of dynamic distributed systems, with sound theoretical foundations in mind. Distributed systems are rapidly evolving, and the advent of new classes of applications and technologies, such as VANET, Airborne Networks, social networks, Smart Environments, P2P, broad area supercomputing, and distributed cloud services, is radically changing the way we think about them. Dynamic distributed systems have structures that are self-defined at any instant by entities that might autonomously decide to participate in the same distributed application. These systems are characterized by dynamic arrival and departure of participating entities and normally it may not be possible to assume anything about the universe of participants, their identities, capabilities, or reliability. Understanding the fundamentals of how to master this dynamic dimension is of primary importance to design of robust, dependable, and predictable distributed systems.

TADDS - Monday, September 19th

Location: Dipartimento di Informatica e Sistemistica - Via Ariosto 25

8:30 – 14:00	Registration	room: Aula Magna
14:00 – 14:10	Alexander Shvartsman, Roberto Baldoni Opening	
14:10 – 14:55	Invited Talk: Idit Keidar "Dynamic computations in ever-changing networks"	
14:55 – 16:10	Session 1: Reliable Computing for Dynamic Distributed Systems <i>Session Chair: Alexander Shvartsman</i>	
	Hyunyoung Lee, Andreas Klappenecker, Jennifer L. Welch "Quorum-Based Dynamic Regular Registers in Systems with Churn"	
	Silvia Bonomi, Amir Soltani Nezhad "Multi-writer Regular Registers in Dynamic Distributed Systems with Byzantine Failures"	
	Luciana Arantes, Fabiola Greve, Pierre Sens "What Model and What Conditions to Implement Unreliable Failure Detectors in Dynamic Networks?"	
16:10 – 16:30	Coffee Break	
16:30 – 17:20	Session 2: Peer-to-Peer Network Services <i>Session Chair: Roberto Baldoni</i>	
	Xavier Vilaáa, Joao Leitao, Luis Rodrigues "N-party BAR Transfer: Motivation, Definition, and Challenges"	
	Yan Shvartzshnaider, Maximilian Ott, David Levy "Towards a Kademia DHT-based N-tuple Store"	
17:20 – 17:30	Concluding Remarks	

TERANET

The 2nd International Workshop - Toward Evolutive Routing Algorithms for scale-free/internet-like NETWORKS

When: September 19th

Organizers: David Ilcinkas and Dimitri Papadimitriou

Contacts:

David Ilcinkas (*University Bordeaux 1, Bordeaux, France*)

e-mail: **david.ilcinkas@labri.fr**

Dimitri Papadimitriou (*Alcatel-Lucent Bell, Antwerpen, Belgium*)

e-mail: **dimitri.papadimitriou@alcatel-lucent.com**

Josep LLuís Marzo (*University of Girona, Girona, Spain*)

e-mail: **joseluis.marzo@udg.edu**

external website: <https://www-sop.inria.fr/mascotte/EULER/wiki/pmwiki.php/Events/TERANET2011>

The Internet routing system is facing performance challenges in terms of scalability (growth rate of the Border Gateway Protocol (BGP) routing tables) and in terms of dynamics of the routing information exchanges (convergence, and stability/robustness) that result into major cost concerns for network designers but also protocol designers. There is a growing consensus among the scientific and technical community that the current practice of "patching" the forwarding and BGP routing protocol of the Internet will not be able to sustain its continuous growth at an acceptable cost and speed. On the other hand, the Internet size and scope make the deployment of new routing scheme(s) extremely challenging. Recent advances in distributed routing algorithmics take benefit of the statistical properties of the Internet topology and better characterization of its dynamics. The research domain dedicated to new routing paradigms aims to design distributed routing schemes that are specialized for the Internet while taking into account its dynamics and its continuous evolution. From this perspective, the goals of the TERA-NET full-day workshop are i) to stimulate research in the interdisciplinary area that lies at the intersection of Graph Theory, Distributed Routing Algorithmic and Network Dynamics Modeling, and ii) to provide a forum for active discussions among speakers and participants.

TERANET - Monday, September 19th

Location: Dipartimento di Informatica e Sistemistica - Via Ariosto 25

09:00 - 09:15	Introduction by Workshop Chairs	Room: B2
09h15 - 12h45	Session 1: Network dynamics modeling	
	"Complex Networks Dynamics Modeling-Entropy of network ensembles" G.Bianconi, Department of Physics, Northeastern University, Boston (MA), USA.	
	"Optimization-driven evolution of networks" S.Dorogovtsev, University of Aveiro, Aveiro, Portugal and Ioffe Institute, St. Petersburg, Russia	
	"The Hidden Hyperbolic Structure of the Internet" M.Boguna, Department of Fundamental Physics, University of Barcelona, Barcelona, Spain	
13:00 - 14:00	Lunch Break	
14h15 - 17h45	Session 2: Distributed routing schemes & algorithmics	
	"Greedy Forwarding in the Internet using its Metric Structure" F.Papadopoulos, Department of Electrical Engineering and Information Technology, Cyprus University of Technology, Lemesos, Cyprus (formerly Postdoctoral Research at University of California-San Diego (UCSD), USA)	
	"Decentralized Routing in Small Worlds" N.Schabanel, Laboratoire d'Informatique Algorithmique: Fondements et Applications (LIAFA), Univ. Paris Diderot - Paris VII and Centre National de la Recherche Scientifique (CNRS), Paris, France	
	"A survey on distance oracles" L.Roditty, Computer Science Department, Bar-Ilan University, Ramat-Gan, Israel	
17:45 - 18:00	Concluding Talk	

AIMoDEP

1st International Workshop on Algorithms and Models for Distributed Event Processing

When: September 19th

Organizers: Leonardo Querzoni and Luigi Laura

Contacts:

Leonardo Querzoni (University of Rome 'La Sapienza')

e-mail: **querzoni@dis.uniroma1.it**

Luigi Laura (University of Rome 'La Sapienza')

e-mail: **laura@dis.uniroma1.it**

external website: <http://www.dis.uniroma1.it/~almoddep>

Event based systems are considered as a basic building block for the design of large-scale architectures able to withstand the complexities of today's heterogeneous and dynamic applications. Event based systems are successfully employed in several application fields like distributed remote monitoring, business intelligence, air traffic control or collaborative security. The AIMoDEP workshop aims at fostering discussion on theoretical aspects of distributed event processing among participants from different research areas like algorithm theory, event processing, distributed systems and databases. The workshop will be held in conjunction with DISC 2011 and will last for 1 day.

The program will include the presentation of original works submitted to the workshop and two keynote talks.

AIMoDEP - Monday, September 19th

Location: Dipartimento di Informatica e Sistemistica - Via Ariosto 25

09:10-09:25	Introduction by the chairs	room: Aula Magna
09:25-10:10	Keynote: "Algorithms for Continuous Distributed Monitoring: A survey". Graham Cormode, AT&T Labs	
10:10-11:00	Session I	
	"A Model for Continuous Query Latencies in Data Streams". Roberto Baldoni, Giuseppe Antonio Di Luna, Donatella Firmani and Giorgia Lodi (University of Rome "La Sapienza")	
	"A Model for Continuous Query Latencies in Data Streams". Roberto Baldoni, Giuseppe Antonio Di Luna, Donatella Firmani and Giorgia Lodi (University of Rome "La Sapienza")	
11:00-11:25	Coffee Break	
11:25-12:10	Keynote: "Building Secure Event Processing Applications". Peter Pietzuch, Imperial College London	
12:10-12:55	Session II	
	"Multicast with Aggregated Deliveries". Gregory Aaron Wilkin and Patrick Eugster (Purdue University)	
	"Avoiding mobility-related message flooding in content-based publish/subscribe". Zigor Salvador, Alberto Lafuente and Mikel Larrea (University of the Basque Country, UPV/EHU)	
13:55-13:00	Concluding remarks by the chairs	
11:00-11:25	Lunch	

Transform WTTM 2011/Euro-TM Workshop

TransForm Workshop on the Theory of Transactional Memory

When: September 22th (only afternoon) and 23th

Organizers: Petr Kuznetsov and Srivatsan Ravi

Contacts:

Petr Kuznetsov (TU Berlin/Deutsche Telekom Laboratories)

e-mail: **petr.kuznetsov@tu-berlin.de**

Srivatsan Ravi (T-Labs/TU Berlin)

e-mail: **srivatsan@srivatsan.in**

external website: <http://transform.t-labs.tu-berlin.de/tw11/>

Transactional Memory (TM) is a new programming paradigm which is considered by most researchers as the future of parallel programming. Not surprisingly, a lot of work is being devoted to the implementation of TM systems, in hardware or solely in software. What might be surprising is the little effort devoted so far to devising a sound theoretical framework to reason about the TM abstraction. The [TransForm](#) project (Marie Curie Initial Training Network) and EuroTM (COST Action IC1001) are hosting the 3rd edition of the Workshop on the Theory of Transactional Memory (WTTM 2011). WTTM intends to foster exchanges, discussions, and disseminations among researchers who work on speculative solutions for concurrent programming. The objective is to discuss new theoretical challenges and recent achievements in the area of transactional computing

WTTM - Thursday, September 22nd		
<i>Location: Dipartimento di Informatica e Sistemistica - Via Ariosto 25</i>		
17:20-17:30	Introduction	Room: B2
17:30-19:10	Semantics and synchronization techniques	
	Michael Scott "Semantics for Transactional Languages"	

	Maurice Herlihy "On the Nature of Progress"	
	Panagiota Fatourou "Highly-Efficient Synchronization Techniques"	
	Idit Keidar "On Locality and NUMA Effects in STM and Other Libraries"	

WTTM - Friday, September 23rd		
<i>Location: Dipartimento di Informatica e Sistemistica - Via Ariosto 25</i>		
9:00-11:00	Models and transaction-friendly abstractions	room: B2
	Nir Shavit and Alex Matveev "Towards a Fully Pessimistic STM Model"	
	Faith Ellen "A Wait-free, Transaction Friendly Universal Construction"	
	Sandeep Hans "Exploring the relations between STM and DB consistency conditions"	
	Tyler Crain, Vincent Gramoli and Michel Raynal "A Transaction-Friendly Binary Search Tree"	
	Discussion	
11:00 - 11:30	Coffee Break	
	Alessia Milani "On disjoint access parallelism"	
	Masoud Saeida Ardekani, Pierre Sutra and Marc Shapiro	

	"The Impossibility of Ensuring Snapshot Isolation in Genuine Replicated STMs"	
	Sathya Peri and K.Vidyasankar "Efficient Non-blocking Conflict Notion for Nested Transactions"	
13:00-14:00	Lunch	
14:00-16:00	Scheduling, monitors, and speculation	room: B2
	Danny Hendler "Scheduling-based Transactional Memory Contention Management"	
	Annette Bienussa and Thomas Fuhrmann "Lifting the Barriers – Integration of Monitors into a Distributed Transactional Memory System"	
	Paolo Romano, Roberto Palmieri, Francesco Quaglia and Luis Rodrigues "Boosting STM Replication via Speculation"	
	Discussion	
	Coffee Break	
16:30-18:45	Practical TM specifications and verification	
	Torvald Riegel "Draft Specification of Transactional Language Constructs for C++"	room: B2
	Maged Michael "How to Support Non-Blocking Transactions in Practical TM Specifications?"	
	Victor Luchangco "Formal machine-checked verification of a real transactional memory algorithm"	
	Discussion and conclusion	

DISC's SON

DISC's Social Network Workshop

When: September 23th

Organizers: Alessandro Panconesi

Contacts:

Alessandro Panconesi (University of Rome 'La Sapienza')

e-mail: **ale@di.uniroma1.it**

Computational social science is an emerging discipline at the intersection of computer science, statistics, and the social sciences with the potential of introducing a momentous paradigm shift in sociology and social psychology. In some sense, social networks are distributed systems and it is therefore not surprising that there is a significant overlap between distributed computing and the study of social networks. In this workshop several well-known researchers in this exciting field will present their work and points of view. We expect the discussion to foster a better understanding of what is currently known and to point to promising new avenues of research and intriguing open problems.

DISC's SON - Friday, September 23th

Location: Dipartimento di Informatica e Sistemistica - Via Ariosto 25

09:00 - 09:15	Welcome	room: Aula Magna
09:15 - 10:00	Sharad Goel The Structure of Online Diffusion Networks	
10:00 - 10:30	Paolo Boldi Social networks and distance distributions	
10:30 - 11:00	Anne-Marie Kermarrec WhatsUp : a P2P instant news items recommender	
11:00 - 11:30	Coffee Break	
11:30 - 12:15	Milan Vojnovic Bargaining Dynamics in Social Exchange Networks	
12:15 - 13:00	Thomas Karagiannis Using social graphs to optimize large-scale distributed services	
13:00 - 14:00	Lunch	
14:15 - 15:00	Vahab Mirrokni Overlapping Clustering: Conductance minimization and Distributed Computation	
15:00 - 15:30	Flavio Chierichetti Reconstructing Patterns of Information Diffusion from Incomplete Observations	
15:30 - 16:00	Pierre Fraigniaud Computing with Large Populations	
16:00 - 16:30	Coffee Break	