

5th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks **Program**

Day	Time	Plenary
Tue	08:30 AM-09:00 AM	<i>Welcome and Introduction</i>
	09:00 AM-10:00 AM	<i>Keynote Speech</i>
	10:00 AM-10:30 AM	<i>Coffee break</i>
	10:30 AM-12:00 PM	<i>Ad Hoc Networks 1</i>
	12:00 PM-01:30 PM	<i>Lunch break</i>
	01:30 PM-03:00 PM	<i>Wireless Sensor Networks 1</i>
	03:00 PM-03:30 PM	<i>Coffee Break</i>
	03:30 PM-04:45 PM	<i>Medium Access Control</i>
	Wed	09:00 AM-10:15 AM
10:15 AM-10:45 AM		<i>Coffee break</i>
10:45 AM-12:15 PM		<i>Resource Sharing</i>
12:15 PM-01:30 PM		<i>Lunch break</i>
01:30 PM-03:00 PM		<i>Routing</i>
03:00 PM-03:30 PM		<i>Coffee break</i>
03:30 PM-04:45 PM		<i>Security</i>
Thu	09:00 AM-10:15 AM	<i>Ad Hoc Networks 2</i>
	10:15 AM-10:45 AM	<i>Coffee break</i>
	10:45 AM-12:15 PM	<i>MIMO, Diversity and Power Control</i>
	12:15 PM-01:30 PM	<i>Lunch break</i>
	01:30 PM-03:00 PM	<i>Wireless Sensor Networks 2</i>
	03:00 PM-03:30 PM	<i>Coffee brea</i>
	03:30 PM-04:45 PM	<i>Wireless Network Control Issues</i>

Tuesday, Apr 17

8:30 AM - 9:00 AM

Welcome and Introduction

9:00 AM - 10:00 AM

Keynote Speech

Professor **R. Srikant**, University of Illinois at Urbana-Champaign

Abstract: We will review recent developments in the design of distributed resource allocation algorithms for wireless networks. We will start with an optimization-based formulation of the resource allocation problem and present a solution which suggests a network architecture consisting of congestion control at the end-users and a back-pressure algorithm for joint MAC, power control and routing. We will then present some new results as well as open problems in designing decentralized protocols that approximate the optimal solution, and also discuss the communication overhead involved in implementing the protocols.

10:00 AM - 10:30 AM

Coffee break

10:30 AM - 12:00 PM

Ad Hoc Networks 1

Session Chair: Ch. Charalambous, University of Cyprus, Cyprus

Link Lifetime as a Function of Node Mobility in MANETs with Restricted Mobility: Modeling and Applications

Xianren Wu (University of California at Santa Cruz, USA); Hamid Sadjadpour (University of California, Santa Cruz, USA); J.j. Garcia-Luna-Aceves (University of California at Santa Cruz, USA)

Coding Achieves the Optimal Delay-Throughput Trade-off in Mobile Ad-Hoc Networks

Lei Ying (University of Illinois at Urbana Champaign, USA); Sichao Yang (University of Illinois at Urbana-Champaign, USA); R. Srikant (University of Illinois at Urbana-Champaign, USA); Geir Dullerud (UIUC, USA)

Carpooling in Mobile Ad Hoc Networks: the Case of Multiple-Target Route Discovery

Mukesh Singhal (University of Kentucky, USA); Rendong Bai (University of Kentucky, USA)

Study of two-hop message spreading in DTNs

Athanasios Vaios (National & Kapodistrian University of Athens, Greece); Antonis Panagakis (University of Athens, Greece); Ioannis Stavarakakis (National and Kapodistrian University of Athens, Greece)

12:00 PM - 1:30 PM

Lunch break

1:30 PM - 3:00 PM

Wireless Sensor Networks 1

Session Chair: I. Koutsopoulos, University of Thessaly, Greece

Robust Analysis for Wireless Sensor Networks based on Distance Uncertainty

Wei Ye (University of southern california, USA); Fernando Ordonez (University of Southern California, USA)

On the Deployment of Heterogeneous Sensor Networks for Detection of Mobile Targets

Loukas Lazos (University of Washington, USA); Radha Poovendran (University of Washington, USA); Jim Ritcey (University of Washington, USA)

Maximizing Network Utilization with Max-Min Fairness in Wireless Sensor Networks

Avinash Sridharan (University of Southern California, USA); Bhaskar Krishnamachari (University of Southern California, USA)

Non-Manipulable Aggregator Node Election Protocols for Wireless Sensor Networks

Michael Sirivianos (UCI, USA); Dirk Westhoff (NEC Europe Ltd., Germany); Frederik Armknecht (NEC Network Laboratories, Germany); Joao Girao (NEC Europe Ltd., Germany)

3:00 PM - 3:30 PM

Coffee Break

3:30 PM - 4:45 PM

Medium Access Control

Session Chair: M. Johansson, Royal Institute of Technology, Sweden

PSMAC: Polling Service-based Medium Access Control for Wireless Networks

Yihan Li (Polytechnic University, USA); Shiwen Mao (Auburn University, USA); Shivendra Panwar (Polytechnic University, USA)

Optimization of the FHCF algorithm for QoS in IEEE 802.11e networks

Usman Ashraf (University Paul Sabatier, France); Zoubir Mammeri (Paul Sabatier University, France)

Cooperation and Directionality: A Co-opdirectional MAC for Wireless Ad Hoc Networks

Zhifeng Tao (Mitsubishi Electric Research Laboratories, USA); Thanasis Korakis (Polytechnic University, USA); Yevgeniy Slutskiy (Columbia University, USA); Shivendra Panwar (Polytechnic University, USA); Leandros Tassiulas (University of Thessaly, Greece)

Wednesday, Apr 18

9:00 AM - 10:15 AM

Scheduling

Session Chair: A. Ephremides, University of Maryland, USA

Energy-Efficient Scheduling with Individual Delay Constraints over a Fading Channel

Wanshi Chen (Qualcomm, USA); Urbashi Mitra (University of Southern California, USA); Michael Neely (University of Southern California, USA)

On Distributed Algorithms for Proportional Fairness in Ad-hoc Wireless Networks

Nikhil Singh (University of Illinois at Urbana Champaign, USA); Ramavarapu Sreenivas (University of Illinois at Urbana-Champaign, USA)

Locally-Optimized Scheduling and Power Control Algorithms for Multi-hop Networks under SINR Interference Models

Joochan Kim (Purdue University, USA); Xiaojun Lin (Purdue University, USA); Ness Shroff (Purdue University, USA)

10:15 AM - 10:45 AM

Coffee break

10:45 AM - 12:15 PM

Resource Sharing

Session Chair: S. Ayyorgun, Los Alamos National Laboratory, USA

Delay Constrained Minimum Power Broadcasting in Wireless Networks

Ozgur Ercetin (Sabanci University, Turkey); Kerem Bulbul (Sabanci University, Turkey); Tonguc Unluyurt (Sabanci University, Turkey)

Balancing Throughput and Fairness for TCP Flows in Multihop Ad-Hoc Networks

Yuedong Xu (The Chinese University of Hong Kong, Hong Kong); Yue Wang (Chinese University of Hong Kong, Hong Kong)

Optimal resource sharing for integration of unicast and multicast data on TDM channels

Vladimir Vukadinovic (Royal Institute of Technology, Sweden); Gunnar Karlsson (KTH, Royal Institute of Technology, Sweden)

Dynamic Association for Load Balancing and Interference Avoidance in Multi-cell Networks

Kyuho Son (Korea Advanced Institute of Science and Technology (KAIST), Korea); Song Chong (Korea Advanced Institute of Science and Technology (KAIST), Korea); Gustavo de Veciana (The University of Texas at Austin, USA)

12:15 PM - 1:30 PM

Lunch break

1:30 PM - 3:00 PM

Routing

Session Chair: S. Panwar, Polytechnic University, USA

Jointly Optimal Power Control and Routing for a Single Cell, Dense, Ad hoc Wireless Network

Venkatesh Ramaiyan (Indian Institute of Science, India); Anurag Kumar (Indian Institute of Science, India); Eitan Altman (INRIA, France)

Joint Scheduling and Routing for Ad-hoc Networks Under Channel State Uncertainty

Anna Pantelidou (University of Maryland, USA); Anthony Ephremides (University of Maryland, College Park, USA); Andre Tits (University of Maryland, College Park, USA)

Fast and Efficient Joint Routing and Link Scheduling for Wireless Mesh Networks through Genetic Algorithms

Leonardo Badia (IMT Lucca Institute for Advanced Studies, Italy); Alessio Botta (IMT Lucca Institute for Advanced Studies, Italy); Luciano Lenzini (University of Pisa, Italy)

Reinforcement Learning for Routing in Ad Hoc Networks

Petteri Nurmi (Helsinki Institute for Information Technology HIIT, Finland)

3:00 PM - 3:30 PM

Coffee break

3:30 PM - 4:45 PM

Security

Session Chair: S. Toumpis, University of Cyprus, Cyprus

TinyRNG: A Cryptographic Random Number Generator for Wireless Sensors Network Nodes

Claude Castelluccia (INRIA, France); Aurelien Francillon (INRIA, France)

On Using Mobility to Propagate Malware

Sandeep Sarat (Johns Hopkins University, USA); Andreas Terzis (Johns Hopkins University, USA)

A Game-Theoretic Analysis of Denial of Service Attacks in Wireless Random Access

Yalin Sagduyu (University of Maryland at College Park, USA); Anthony Ephremides (University of Maryland at College Park, USA)

Thursday, Apr 19

9:00 AM - 10:15 AM

Ad Hoc Networks 2

Session Chair: T. Javidi, University of California, San Diego, USA

Coalition Games with Cooperative Transmission: A Cure for the Curse of Boundary Nodes in Selfish Packet-Forwarding Wireless Networks

Zhu Han (Boise State University, USA); H. Vincent Poor (Princeton University, USA)

Convergent Ad Hoc Positioning with Simulated Annealing

Daniel Darabos (Budapest University of Technology, Hungary)

Fundamental Tradeoffs and Constrained Coalitional Games in Autonomic Wireless Networks

Tao Jiang (University of Maryland, College Park, USA); John S. Baras (University of Maryland College Park, USA)

10:15 AM - 10:45 AM

Coffee break

10:45 AM - 12:15 PM

MIMO, Diversity and Power Control

Session Chair: T. Alpcan, Deutsche Telekom Laboratories, Germany

Asynchronous Cooperative MIMO Communication and Capacity Analysis

Hsin-Yi Shen (Rensselaer Polytechnic Institute, USA); Shivkumar Kalyanaraman (Rensselaer Polytechnic Institute, USA)

On the Responsiveness-Diversity-Multiplexing Tradeoff

Petros Elia (University of Southern California, USA); Somsak Kittipiyakul (University of California, San Diego, USA); Tara Javidi (University of California, San Diego, USA)

Optimality and Feasibility of Equal Power Allocation of IDMA Systems

Mark S.K. Lau (Konan University, Japan); Wuyi Yue (Konan University, Japan)

Optimizing Access Point Transmit Power and Channel Selection

Minimizing Contention Probability in Wireless LANs

Iana Siomina (Linköping University, Sweden); Di Yuan (Linköping University, Sweden)

12:15 PM - 1:30 PM

Lunch break

1:30 PM - 3:00 PM

Wireless Sensor Networks 2

Session Chair: B. Krishnamachari, University of Southern California, USA

Sensor Node Activation Policies using Partial or No Information

Taposh Banerjee (Indian Institute of Technology, Delhi, India); Arzad Kherani (Indian Institute of Technology, Delhi, India)

Random Walks on Sensor Networks

Luísa Lima (Universidade do Porto, Portugal); Joao Barros (Universidade do Porto, Portugal)

Rechargeable Sensor Activation under Temporally Correlated Events

Neeraj Jaggi (Rensselaer Polytechnic Institute, USA); Koushik Kar (Rensselaer Polytechnic Institute, USA); Ananth Krishnamurthy (Rensselaer Polytechnic Institute, USA)

On Stability and Sampling schemes for Wireless Sensor Networks

Muhammad Munir (Institut Eurecom, France); Arzad Kherani (Indian Institute of Technology, Delhi, India); Fethi Filali (Institut Eurécom, France)

3:00 PM - 3:30 PM

Coffee break

3:30 PM - 4:45 PM

Wireless Network Control Issues

Session Chair: S. Chong, Korea Advanced Institute of Science and Technology, Korea

Neural networks for adaptive vertical handover decision

Sana Horrich (France Telecom R&D Division, France); Sana Ben Jamaa (France Télécom Division R&D, France); Philippe Godlewski (ENST-Telecom Paris, France)

A Robust Flow Control Framework for Heterogenous Network Access

Tansu Alpcan (Deutsche Telekom Laboratories, Germany); Jatinder Singh (Stanford University, USA); Tamer Basar (University of Illinois at Urbana-Champaign, USA)

Control of Feedback Systems Subject to the Finite Rate Constraints via the Shannon Lower Bound

Charalambos Charalambous (University of Cyprus, Cyprus); Alireza Farhadi (University of Ottawa, Canada)