



WiO₆pt

4th Intl. Symposium on Modeling and Optimization
in Mobile, Ad Hoc, and Wireless Networks

April 3-7, Boston, Massachusetts

TECHNICAL PROGRAM



Tuesday, April 4

8:30 – 9:00 Welcome and Introduction

9:00 – 10:00 Plenary Talk: Rajiv Laroia, Founder and CTO, Flarion Technologies

10:00 – 10:30 Coffee Break

Session 1: IEEE 802.11 Networks

Time: 10:30-12:00

Session Chair: Sem Borst

A Joint Traffic Shaping and Routing Approach to Improve the Performance of 802.11 Mesh Networks
Christine Pepin, Ulas Kozat, Sean Ramprashad (DoCoMo Labs, US)

Online Association Policies in IEEE 802.11 WLANs
Gaurav Kasbekar, Joy Kuri, Pavan Nuggehalli (ITT Bangalore, IN)

Resource Control for the EDCA and HCCA Mechanisms in IEEE 802.11e Networks
Vasilios Siris (Institute of Computer Science, FORTH / University of Crete, GR),
Costas Courcoubetis (Athens University of Economics and Business, GR)

Modeling 802.11e for data traffic parameter design
Peter Clifford, Ken Duffy, John Foy, Douglas Leith (Hamilton Institute, IE),
David Malone (NUI Maynooth, IE)

12:00 – 13:30 Lunch

Session 2: Ad Hoc Networks

Time: 13:30-15:00

Session Chair: Randy Berry

Analytical Modeling of Ad Hoc Networks that Utilize Space-Time Coding
Marcelo Carvalho, J. J. Garcia-Luna-Aceves (UC Santa Cruz, US)

Color-based Broadcasting for Ad Hoc Networks
Alireza Keshavarz-Haddad, Vinay Ribeiro, Rudolf Riedi (Rice University, US)

A Structural Property of Solutions to Path Optimization Problems in Random Access Networks
Arzad Kherani (IIT New Delhi, IN),
Dinesh Kumar, Eitan Altman (INRIA, FR)

Connected D-Hop Dominating Set in Mobile Ad Hoc Networks
Trac Nguyen, Dung Huynh (UT Dallas, US)

15:00 – 15:30 Coffee Break

Session 3: Cross-Layer Design

Time: 15:30-17:00

Session Chair: Edmund Yeh

Achievable Performance Improvements Provided by Cooperative Diversity

Stephan Bohacek (University of Delaware, US)

Link Modeling with Joint Fading and Distance Uncertainty

Martin Haenggi (University of Notre Dame, US)

Revisiting the Joint Transport and MAC Optimization for Wireless Ad Hoc Networks

Jeonghoon Mo, Jaewook Kwak (Information and Communications University, KR),
Jean Walrand (UC Berkeley, US)

Connection-Level QoS Provisioning in Multiple Transmission Technology-based OFDM System

Youngkyu Choi, Sunghyun Choi, Sung-Pil Hong (Seoul National University, KR)

19:00 – 21:00 Banquet

Wednesday, April 5

Session 4: Protocols 1

Time: 9:00-10:00

Session Chair: Mike Neely

Admission Control on Fluid CDMA Networks

Jean-Marc Kelif (France Telecom R&D, FR)

Combined QoS Scheduling and Call Admission Control Algorithm in Cellular Networks

Hyang-Won Lee, Song Chong (Korea Advanced Institute of Science and Technology (KAIST), KR)

Power-Managed Block Level File Decryption in Wireless Network Computing

Savvas Gitzenis (Sun Microsystems Inc., US),
Nicholas Bambos (Stanford University, US)

10:00 – 10:30 Coffee Break

Session 5: Medium Access Control

Time: 10:30-12:00

Session Chair: Asuman Ozdaglar

GMAC: A Game-theoretic MAC Protocol for Mobile Ad hoc Networks

Fan Wang, Marwan Krunz, Ossama Younis (University of Arizona, US)

Reverse Engineering MAC

Ao Tang (California Institute of Technology, US),
Jang-Won Lee (Yonsei University, KR),
Jianwei Huang, Mung Chiang, Robert Calderbank (Princeton University, US)

Opportunistic Splitting Algorithms for Wireless Networks with Fairness Constraints

Xiangping Qin, Randall Berry (Northwestern University, US)

On the Macroscopic Effects of Local Interactions in Multi-hop Wireless Networks

Venkatesh Saligrama, David Starobinski (Boston University, US)

12:00 – 13:30 Lunch

Session 6: Network Control

Time: 13:30-15:00

Session Chair: Mung Chiang

Throughput Optimal Distributed Control of Stochastic Wireless Networks

Yufang Xi, Edmund Yeh (Yale University, US)

Intelligent Packet Dropping for Optimal Energy-Delay Tradeoffs in Wireless Downlinks

Michael Neely (University of Southern California, US)

Lightweight Cross-layer Control Algorithms for Fairness and Energy Efficiency in CDMA Ad Hoc Networks

Anastasios Giannoulis (Rice University, US),
Konstantinos Tsoukatos, Leandros Tassioulas (University of Thessaly, GR)

Power Control and Network Design in Mobile Sensor Networks

Xin Huang, Asuman Ozdaglar (MIT, US)

15:00 – 15:30 Coffee Break

Session 7: Scaling Properties of Wireless Networks

Time: 15:30-17:00

Session Chair: Guevara Noubir

Capacity Optimizing Hop Distance in a Mobile Ad Hoc Network with Power Control

Dinesh Kumar (INRIA, FR),
Ramaiyan Venkatesh, Anurag Kumar (Indian Institute of Science, IN),
Eitan Altman (INRIA, FR)

Ad Hoc Networks with Topology-Transparent Scheduling Schemes: Scaling Laws and Capacity/Delay Tradeoffs

Daniele Miorandi (CREATE-NET, IT),
Hwee Pink Tan (Technical University of Eindhoven, NL),
Michele Zorzi (University of Padova, IT)

Capacity Region, Minimum Energy and Delay for a Mobile Ad-Hoc Network

Rahul Uргаonkar, Michael Neely (University of Southern California, US)

On the Capacity of Random Wireless Networks under Fixed Multi-path Fading

Yoav Nebat, Sumit Bhardwaj (UC San Diego, US)

Thursday, April 6

Session 8: Protocols 2

Time: 9:00-10:00

Session Chair: Bhaskar Krishnamachari

Cooperative and Reliable Packet-Forwarding On Top of AODV

Tal Anker, Danny Dolev, Bracha Hod (The Hebrew University of Jerusalem, IL)

A General Probabilistic Model for Improving Key Assignment in Wireless Networks

Patrick Tague, Radha Poovendran (University of Washington, US)

Analyzing the Impact of Neighbor Sensing on the Performance of the OLSR protocol

Michael Voorhaen, Chris Blondia (University of Antwerp, BE)

10:00 – 10:30 Coffee Break

Session 9: Scheduling Algorithms

Time: 10:30-12:00

Session Chair: Phil Whiting

Optimal Power Control for Minimum-energy Downlink Broadcast Transmission in Wireless Data Networks

Adarsh Sridhar, Anthony Ephremides (University of Maryland at College Park, US)

Flow-Level Stability of Channel-Aware Scheduling Algorithms

Sem Borst (CWI, NL),
Matthieu Jonckheere (France Telecom R&D, FR)

Efficient Scheduling of Multi-User Multi-Antenna Systems

Krishna Prasanna Jagannathan (MIT, US),
Sem Borst (CWI, NL),
Phil Whiting (Bell Labs, Lucent Technologies, US),
Eytan Modiano (MIT, US)

Fairness and Throughput Guarantees with Maximal Scheduling in Multi-hop Wireless Networks

Saswati Sarkar (INRIA, FR),
Prasanna Chaporkar (University of Pennsylvania, US),
Koushik Kar (Rensselaer Polytechnic Institute, US)

12:00 – 13:30 Lunch

Session 10: Sensor Networks 1

Time: 13:30-15:00

Session Chair: Saswati Sarkar

Evolving Random Geometric Graph Models for Mobile Wireless Networks

Nikhil Karamchandani (UC San Diego, US),
D. Manjunath (IIT Bombay, IN),
D. Yogeshwaran, Srikanth Iyer (IISC, IN)

Coverage in Heterogeneous Sensor Networks

Loukas Lazos, Radha Poovendran (University of Washington, US)

Coverage by Directional Sensors

Jing Ai, Alhussein Abouzeid (Rensselaer Polytechnic Institute, US)

Analysis of Finite Unreliable Sensor Grids

Hossein Pishro-Nik (University of Massachusetts, Amherst, US)

15:00 – 15:30 Coffee Break

Session 11: Sensor Networks 2

Time: 15:30-17:00

Session Chair: David Starobinski

Distributed Symmetric Function Computation in Noisy Wireless Sensor Networks with Binary Data

[Lei Ying](#), [R. Srikant](#), [Geir Dullerud](#) (UIUC, US)

Robust Threshold based Sensor Activation Policies under Spatial Correlation

[Neeraj Jaggi](#) (Rensselaer Polytechnic Institute, US)

Scheduling Sensor Activity for Point Information Coverage in Wireless Sensor Networks

[Bang Wang](#), [Chua Kee Chiang](#), [Vikram Srinivasan](#), [Wei Wang](#) (National University of Singapore, SG)

Optimizing Data Replication for Expanding Ring-based Queries in Wireless Sensor Networks

[Bhaskar Krishnamachari](#), [Joon Ahn](#) (University of Southern California, US)