IEEE INFOCOM2006
April 23-29, 2006, Barcelona, Catalunya, SPAIN

Tuesday 04/25/06	Track I Tarragona Room	Track II Barcelona Room	Track III Menorca Room	Track IV Mallorca Room	Track V Tibidabo Room	Track VI Lleida Room	Track VII Montjuic Room	Poster & Demos Girona Room
Morning 9:00-11:00	Opening Session and Keynote Speech Keynote Speaker: Len Kleinrock "The Internet History, Development and Forecast" Catalunya Room							
Morning 11:30-13:00	Panel I: INFOCOM 25th Year Anniversary "Networking Retrospectives and Predictions" Catalunya Room							
Afternoon 14:30-16:00	Session 1 Ad hoc mobile networks I	Session 2 Power control I	Session 3 Routing I	Session 4 Viruses and worms	Session 5 Congestion control I	Session 6 Optical networks I	Session 7 Pricing & billing	Poster "Wireless, Sensor and Mesh Networks"
Afternoon 16:30-18:00	Session 8 Sensor networks I	Session 9 Smart antennas and MAC	Session 10 BGP and inter-domain issues	Session 11 DDoS and Packet Filtering	Session 12 Replication	Session 13 Scheduling & buffer management I	Session 14 Service overlays	

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Wednesday 04/26/06	Track I Tarragona Room	Track II Barcelona Room	Track III Menorca Room	Track IV Mallorca Room	Track V Tibidabo Room	Track VI Lleida Room	Track VII Montjuic Room	Poster & Demos Girona Room	
Morning 9:00-09:30	Invited Speaker: Charles Perkins "IPv6, Mobility, and Ad Hoc Networking in the IETF" Lleida Room								
Morning 9:30-11:00	Session 15 Ad hoc mobile networks II	Session 16 Power control II	Session 17 Broadband access	Session 18 Trust, privacy and security	Session 19 Synchronization and consistency	Session 20 Optical networks II	Session 21 Broadcast	Poster Network Monitoring Measurement and Analysis, P2P and Overlay Networks	Demostrations 1
Morning 11:30-13:00	Session 22 Mobility models & systems	Session 23 Wireless capacity planning	Session 24 Overlay routing	Session 25 Network simulations and testbeds	Session 26 Congestion control II	Panel II Lleida Room			
Afternoon 14:30-16:00	Session 27 Sensor networks II	Session 28 Wireless access issues	Session 29 Wireless routing	Session 30 Intrusion detection	Session 31 Peer-to-Peer Networks and QoS	Session 32 Scheduling & buffer management II	Session 33 Multicast	Poster Protocol and algorithm Design and Analysis, Network Management	
Afternoon 16:30-18:00	Session 34 802.11 Issues I	Session 35 Wireless location	Session 36 Routing II	Session 37 Attacks and defenses in emerging networks	Session 38 Topology characterization and inference	Session 39 Switches & switching	Session 40 Multimedia protocols		

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Thursday 04/27/06	Track I Tarragona Room	Track II Barcelona Room	Track III Menorca Room	Track IV Mallorca Room	Track V Tibidabo Room	Track VI Lleida Room	Poster & Demos Girona Room	
Morning 9:00-09:30	Invited speaker: Imrich Chlamtac "Convergence of Man and Machine Processes in the Emerging Internet" Lleida Room							
Morning 9:30-11:00	Session 41 Wireless resource management	Session 42 MAC Protocols	Session 43 Capacity planning	Session 44 Secure wireless	Session 45 Bandwidth sharing and resource reservation	Session 46 Scheduling & buffer management III	Poster Security and Multicast	Demostrations 2
Morning 11:30-13:00	Session 47 Fault tolerance in sensor networks	Session 48 Power control III	Session 49 Content switching and routing	Session 50 Network measurement and inference	Session 51 Application protocols and QoS	Panel III		
Afternoon 14:30-16:00	Session 52 Wireless network design and measurement	Session 53 Wireless power	Session 54 Mobility and routing/forwarding	Session 55 Security in wireless and sensor networks	Session 56 Application system design and performance	Session 57 Voice networking	Poster New Network and Protocol Architecture	
Afternoon 16:30-18:00	Session 58 802.11 Issues II	Session 59 Wireless mesh networks	Session 60 Overlay placement	Session 61 Network monitoring techniques	Session 62 Peer-to-peer network performance	Session 63 Optical networks III		

Tuesday, April 25, 2006   14:30 - 16:00

Session 01: Ad hoc mobile networks I

Session Chair:
Luigi Fratta (Politecnico di Milano, IT)

Path Selection in Mobile Ad-hoc Networks and Distribution of Path Duration

Yijie Han (University of Maryland, College Park, US); Richard La (University of Maryland, US); Hongqiang Zhang (University of Maryland, College Park, US)

Efficient Flooding Scheme Based on 1-hop Knowledge in Mobile Ad Hoc Networks

Liu Hai (City University of Hong Kong, HK); Xiaohua Jia (City Univ. of Hong Kong, HK); Xinxin Liu (City University of Hong Kong, HK); Frances Yao (City University of Hong Kong, HK)

The Complexity of Connectivity in Wireless Networks

Thomas Moscibroda (ETH Zurich, CH); Roger Wattenhofer (ETH Zurich, CH)

A Framework for Distributed Spatio-Temporal Communications in Mobile Ad hoc Networks

Gentian Jakllari (University of California,Riverside, US); Srikanth Krishnamurthy (University of California, Riverside, US); Michalis Faloutsos (University of California Riverside, US); Prashant Krishnamurthy (University of Pittsburgh, US); Ozgur Ercetin (Sabanci University, TR)

Tuesday, April 25, 2006   14:30 - 16:00

Session 02: Power control I

Session Chair:
Matthew Andrews (Bell Labs, Lucent Technologies, US)

On the Performance of Joint Rate/Power Control with Adaptive Modulation in Wireless CDMA Networks

Alaa Muqattash (University of Arizona, US); Tao Shu (University of Arizona, US); Marwan Krunz (University of Arizona, US)

Minimum-Energy Broadcast Using Practical Directional Antennas in All-Wireless Networks

Sabyasachi Roy (Purdue University, US); Y. Charlie Hu (Purdue University, US); Dimitrios Peroulis (Purdue University, US); Xiang-Yang Li (Illinois Institute of Technology, US)

A Network Coding Approach to Energy Efficient Broadcasting: from Theory to Practice

Christina Fragouli (EPFL, CH); Joerg Widmar (DoCoMo Euro-Labs, DE); Jean-Yves Le Boudec (EPFL, CH)

Optimal Traffic-Oblivious Energy-Aware Routing For Multihop Wireless Networks

Yuxi Li (University of Alberta, CA); Janelle Harms (University of Alberta, CA); Robert Holte (University of Alberta, CA)

Tuesday, April 25, 2006   14:30 - 16:00

Session 03: Routing I

Session Chair:
Sue Moon (KAIST, KR)

Using Repeated Games to Design Incentive-Based Routing Systems

Michael Afergan (MIT CSAIL/Akamai, US)

A Stochastic Random-Races Algorithm for Routing in MPLS Traffic Engineering

John Oommen (Carleton University, CA); Sudip Misra (Carleton University, CA); Ole-Christoffer Granmo (Agder University College, NO)

Maximum Throughput Routing of Traffic in the Hose Model

M. Kodialam (Bell Labs, Lucent Technologies, US); T. V. Lakshman (Bell Labs, Lucent Technologies, US); Sudipta Sengupta (MIT, US)

Approximation Algorithms for Survivable Multi-commodity Flow Problems with Applications to Network Design

Ajay Todimala (University of Nebraska, US); Byrav Ramamurthy (University of Nebraska-Lincoln, US)

Tuesday, April 25, 2006   14:30 - 16:00

Session 04: Viruses and worms

Session Chair:
Christos Papadopoulos (University of Southern California, US)

A Quasi-species Approach for Modeling the Dynamics of Polymorphic Worms

Bradley Stephenson (Rensselaer Polytechnic Institute, US); Biplab Sikdar (Rensselaer Polytechnic Institute, US)

Efficient quarantining of scanning worms: optimal detection and coordination

Ayalvadi Ganesh (Microsoft Research, UK); Dinan Gunawardena (Microsoft Research, UK); Peter Key (Microsoft Research, UK); Laurent Massouli (Microsoft Research, UK); Jacob Scott (UC Berkeley, US)

Design and Evaluation of a Fast and Robust Worm Detection Algorithm

Tian Bu (Bell labs, Lucent, US); Aiyou Chen (Bell Labs, US); Scott Vander Wiel (Bell Labs, Lucent Technologies, US; Los Alamos National Laboratory, US); Thomas Woo (Lucent Bell Labs, US)

Epidemiological Modeling of Peer-to-Peer Viruses and Pollution

Richard Thommes (McGill University, CA); Mark Coates (McGill University, CA)

Tuesday, April 25, 2006   14:30 - 16:00

Session 05: Congestion control I

Session Chair:
Lars Eggert (NEC Europe Ltd. Network Laboratories, DE)

Dual-resource TCP/AQM for processing-constrained networks Minsu Shin (Korea Advanced Institute of Science and Technology (KAIST), KR); Song Chong (Korea Advanced Institute of Science and Technology (KAIST), KR); Injong Rhee (North Carolina State University, US)
TCP as an Implementation of Age-Based Scheduling: Fairness and Performance Arzad Kherani (INRIA, FR); Rudesindo Nunez-Queija (CWI, NL)
Parallel TCP Sockets: Simple Model, Throughput and Validation Eitan Altman (INRIA, FR); Dhiman Barman (INRIA, FR); Bruno Tuffin (IRISA, FR); Milan Vojnovic (Microsoft Research, UK)
Oscillations with TCP-like Flow Control in Networks of Queues Matthew Andrews (Bell Labs, Lucent Technologies, US); Aleksandrs Slivkins (Cornell University, US)

Tuesday, April 25, 2006   14:30 - 16:00

Session 06: Optical networks I

Session Chair:
Xavier Masip-Bruin (Universitat Politècnica de Catalunya, ES)

Multistage Constructions of Linear Compressors, Non-overtaking Delay Lines, and Flexible Delay Lines Cheng-Shang Chang (National Tsing Hua University, TW); Yi-Ting Chen (National Tsing Hua University, R.O.C, TW); Jay Cheng (National Tsing Hua University, TW); Duan-Shin Lee (National Tsing Hua University, TW)
On the Capacity of Optical Networks: A Framework for Comparing Different Transport Architectures Guy Weichenberg (Massachusetts Institute of Technology, US); Vincent Chan (Massachusetts Institute of Technology, US); Muriel Medard (MIT, US)
Power-Law Tradeoffs Between Optical and Electronic Switching Huan Liu (Stanford University, US); Benjamin Chen (Stanford University, US); Fouad Tobagi (Stanford University, US)
Packet Pacing in Short Buffer Optical Packet Switched Networks Vijay Sivaraman (University of New South Wales, AU); Hossam Elgindy (University of New South Wales, AU); David Moreland (CSIRO, AU); Diethelm Ostry (CSIRO, AU)

Tuesday, April 25, 2006   14:30 - 16:00

Session 07: Pricing & billing

Session Chair:
Jörn Altmann (International University in Germany, DE)

Network Utility Maximization and Price-Based Distributed Algorithms for Rate-Reliability Tradeoff Jang-Won Lee (Yonsei University, KR); Mung Chiang (Princeton University, US); A. Robert Calderbank (Princeton University, US)
Loss-cognizant Pricing in feed-forward Networks with Greedy Users Ashraf Al Daoud (Boston University, US); Murat Alanyali (Boston University, US)
An Optimal Dynamic Pricing Framework for Autonomous Mobile Ad Hoc Networks Zhu Ji (University of Maryland, College Park, US); Wei Yu (University of Maryland, US); K.J. Ray Liu (University of Maryland, US)
Price Competition in Communication Networks Daron Acemoglu (Massachusetts Institute of Technology, US); Asuman Ozdaglar (Massashusetts Institute of Technology, US)

Tuesday, April 25, 2006   16:30 - 18:00

Session 08: Sensor networks I

Session Chair:
Jeremy Elson (Microsoft, US)

Achieving Repeatability of Asynchronous Events in Wireless Sensor Networks with EnviroLog Liqian Luo (University of Virginia, US); Tian He (University of Virginia, US); Gang Zhou (University of Virginia, US); Lin Gu (University of Virginia, US); John Stankovic (University of Virginia, US); Tarek Abdelzaher (University of Virginia, US)
Landmark-Based Information Storage and Retrieval in Sensor Networks Qing Fang (Stanford University, US); Jie Gao (Stony Brook University, US); Leonidas Guibas (Stanford University, US)
Achieving Long-Term Surveillance in VigilNet Tian He (University of Virginia, US); Pascal Vicaire (University of Virginia, US); Ting Yan (University of Virginia, US); Qing Cao (University of Illinois Urbana-Champaign, US); Gang Zhou (University of Virginia, US); Lin Gu (University of Virginia, US);
Optimal Distributed Detection in Clustered Wireless Sensor Networks: The Weighted Median Qingjiang Tian (Purdue University, US); Edward Coyle (Purdue University, US)

Tuesday, April 25, 2006   16:30 - 18:00
Session 09: Smart antennas and MAC
Session Chair:
Marwan Krunz (University of Arizona, US)

Simple Directional Antennas: Improving Performance in Wireless Multihop Networks

Kok-Kiong Yap (National University of Singapore, SG); Wai-Leong Yeow (National University of Singapore, SG); Mehul Motani (National University of Singapore, SG); Chen-Khong Tham (National University of Singapore, SG)

Physical Carrier Sensing and Spatial Reuse in Multirate and Multihop Wireless Ad Hoc Networks

Hongqiang Zhai (University of Florida, US); Yuguang Fang (University of Florida, US)

Modeling Wireless Ad Hoc Networks with Directional Antennas

Marcelo Carvalho (University of California Santa Cruz, US); J.J. Garcia-Luna-Aceves (University of California at Santa Cruz, US; Palo Alto Research Center, US)

Collaboration Improves the Connectivity of Wireless Networks

Sanquan Song (Massachusetts Institute of Technology, US); Dennis Goeckel (University of Massachusetts, US); Don Towsley (University of Massachusetts at Amherst, US)

Tuesday, April 25, 2006   16:30 - 18:00
Session 10: BGP and inter-domain issues
Session Chair:
Daniel Massey (Colorado State University, US)

How to Construct a Correct and Scalable iBGP Configuration

Mythili Vutukuru (Massachusetts Institute of Technology, US); Paul Valiant (Massachusetts Institute of Technology, US); Swastik Kopparty (Massachusetts Institute of Technology, US); Hari Balakrishnan (Massachusetts Institute of Technology, US)

iREX: Inter-domain Resource Exchange Architecture

Ariffin Datuk Yahaya (University of California, Irvine, US); Tatsuya Suda (University of California, Irvine, US)

Avoiding Oscillations due to Intelligent Route Control Systems

Ruomei Gao (Georgia Institute of Technology, US); Constantinos Dovrolis (Georgia Tech, US); Ellen Zegura (Georgia Institute of Technology, US)

Towards a Unified Theory of Policy-Based Routing

Chi-kin Chau (University of Cambridge, UK); Richard Gibbens (Computing Laboratory, University of Cambridge, UK); Tim Griffin (University of Cambridge, UK)

Tuesday, April 25, 2006   16:30 - 18:00
Session 11: DDoS and Packet Filtering
Session Chair:
Peter Reiher (University of California at Los Angeles, US)

Identification of Repeated Denial of Service Attacks

Alefiya Hussain (University of Southern California/Information Sciences Institute, US); John Heidemann (University of Southern California/Information Sciences Institute, US); Christos Papadopoulos (University of Southern California/Information Sciences Institute, US)

DDoS-Resilient Scheduling to Counter Application Layer Attacks under Imperfect Detection

Supranamaya Ranjan (Narus, Inc., US); Ram Swaminathan (HP Labs, US); Mustafa Uysal (HP Labs, US); Edward W. Knightly (Rice University, US)

Constructing Inter-Domain Packet Filters to Control IP Spoofing Based on BGP Updates

Zhenhai Duan (Florida State University, US); Xin Yuan (Florida State University, US); Jaideep Chandrashekar (University of Minnesota, US)

Adaptive Statistical Optimization Techniques for Firewall Packet Filtering

Hazem Hamed (DePaul University, US); Adel El-Atawy (DePaul University, US); Ehab Al-Shaer (DePaul University, US)

Tuesday, April 25, 2006   16:30 - 18:00
Session 12: Replication
Session Chair:
Pablo Rodriguez (Microsoft Research Cambridge, UK)

Analysis of Long-Running Replicated Systems

Narayanan Sriram (University of California, San Diego, US); Joseph Pasquale (University of California, San Diego, US)

Mistreatment in Distributed Caching Groups: Causes and Implications

Nikolaos Laoutaris (Boston University, US); Georgios Smaragdakis (Boston University, US); Azer Bestavros (Boston University, US); Ioannis Stavrakakis (University of Athens, GR)

Proportional Replication in Peer-to-Peer Networks

Saurabh Tewari (University of California at Los Angeles, US); Leonard Kleinrock (University of California, Los Angeles, US)

Optimizing Caching Policy for Loss Recovery in Reliable Multicast

Feng Xie (Nanyang Technological University, SG); Gang Feng (Nanyang Technological University, SG); Xun Yang (Nanyang Technological University, SG)

Tuesday, April 25, 2006   16:30 - 18:00
Session 13: Scheduling & buffer manageme
Session Chair:
Zdzislaw Papir (AGH University of Science and Technology, PL)

Scheduling in Non-Blocking Three-Stage Switching Fabrics

Nikolaos Chrysos (FORTH-ICS and University of Crete, GR); Manolis Katevenis (FORTH-ICS and University of Crete, GR)

Strong Performance Guarantees for Asynchronous Crossbar Schedulers

Jonathan Turner (Washington University in St. Louis, US)

DS-PPS: A Practical Framework to Guarantee Differentiated QoS in Terabit Routers with Parallel Packet Switch

Lei Shi (Tsinghua University, CN); Bin Liu (Tsinghua University, CN); Wenjie Li (Tsinghua University, Beijing, P.R. China, CN); Beibei Wu (University of Tsinghua, CN); Yunhao Liu (Hong Kong University, HK)

A Scalable Priority Queue Architecture for High Speed Network Processing

Xiaotong Zhuang (Georgia Institute of Technology, US); Santosh Pande (Georgia Institute of Technology, US)

Tuesday, April 25, 2006   16:30 - 18:00
Session 14: Service overlays
Session Chair:
Michel Diaz (LAAS-CNRS, FR)

Repeated-Game Modeling of Multicast Overlays

Michael Afergan (MIT CSAIL/Akamai, US); Rahul Sami (MIT CSAIL/Akamai, US)

Dynamic Topology Configuration in Service Overlay Networks: A Study of Reconfiguration Policies

Jinliang Fan (Georgia Institute of Technology, US); Mostafa Ammar (Georgia Institute of Technology, US)

Considering Priority in Overlay Multicast Protocols Under Heterogeneous Environments

Michael Bishop (Purdue University, US); Sanjay Rao (Purdue University, US); K. Sripanidkulchai (National electronics and computer Technology Center, TH)

Scalable Clustering of Internet Paths by Shared Congestion

Min Kim (Washington State University, US); Taekhyun Kim (The University of Texas at Austin, US); Yong-June Shin (University of South Carolina, US); Simon Lam (University of Texas at Austin, US); Edward Powers (University of Texas at Austin, US)

Wednesday, April 26, 2006   09:00 - 11:00
Session 15: Ad hoc mobile networks II
Session Chair:
Fernando Boavida (Coimbra University, PT)

Cross-Layer Congestion Control Routing and Scheduling Design in Ad Hoc Wireless Networks

Lijun Chen (California Institute of Technology, US); Steven Low (California Institute of Technology, US); Mung Chiang (Princeton University, US); John Doyle (California Institute of Technology, US)

Optimal Hopping in Ad Hoc Wireless Networks

Abbas El Gamal (Stanford University, US); James Mammen (Stanford University, US)

Delay and Capacity Trade-offs in Mobile Ad Hoc Networks: A Global Perspective

Gaurav Sharma (Purdue University, US); Ravi Mazumdar (University of Waterloo,CA); Ness Shroff (Purdue University, US)

Generalized Proportional Fair Scheduling in Third Generation Wireless Data Networks

Tian Bu (Bell labs, Lucent, US); Li Li (Bell Labs, Lucent Technologies, US); Ramachandran Ramjee (Bell Labs, Lucent Technologies, US)

Wednesday, April 26, 2006   09:00 - 11:00
Session 16: Power control II
Session Chair:
Lavy Libman (National ICT Australia, AU)

On the Trade-off between Energy and Multicast Efficiency in 802.16e-like Mobile Networks

Reuven Cohen (Technion, IL); Romeo Rizzi (University of Trento, IT)

Optimal Transmission Scheduling for Energy-efficient Wireless Networks

Lei Miao (Boston University, US); Christos Cassandras (Boston University, US)

Throughput Scaling of Wideband Sensory Relay Networks: Cooperative Relaying, Power Allocation and Achievable Rates

Bo Wang (Arizona State Univ, US); Junshan Zhang (Arizona State University, US)

Extending Network Lifetime for Precision-Constrained Data Aggregation in Wireless Sensor Networks

Xueyan Tang (Nanyang Technological University, SG); Jianliang Xu (Hong Kong Baptist University, HK)

Wednesday, April 26, 2006   09:00 - 11:00
Session 17: Broadband access
Session Chair:
Peter Marbach (University of Toronto, CA)

> **Wireless Operators in a Shared Spectrum**
>
> Mark Felegyhazi (EPFL - Switzerland, CH); Jean-Pierre Hubaux (EPFL, CH)

> **Provisioning Quality Controlled Medium Access in UltraWideBand-Operated WPANs**
>
> Chunyu Hu (University of Illinois at Urbana-Champaign, US); Hwangnam Kim (University of Illinois at Urbana-Champaign, US); Jennifer Hou (University of Illinois at Urbana-Champaign, US); Dennis Chi (University of Illinois at Urbana-Champaign, US); Saishankar Nandagopalan (Qualcomm Inc., US)

> **Fault-tolerant Wireless Access Network Design for Dual-homed Users**
>
> Xiaodong Huang (University of Texas at Dallas, US); Jianping Wang (Georgia Southern University, US); Vinod Vokkarane (University of Massachusetts Dartmouth, US); Jason Jue (University of Texas-Dallas, US)

> **Effective Scheduling with Fairness Adaptation in Ultra Wideband Wireless Networks**
>
> Hai Jiang (University of Waterloo, CA); Weihua Zhuang (University of Waterloo, CA)

Wednesday, April 26, 2006   09:00 - 11:00
Session 18: Trust, privacy and security
Session Chair:
Taieb Znati (University of Pittsburgh, US)

> **A Trust Evaluation Framework in Distributed Networks: Vulnerability Analysis and Defense against Attacks**
>
> Yan Sun (University of Rhode Island, US); Zhu Han (University of Maryland, College Park, US); Wei Yu (University of Maryland, US); K.J. Ray Liu (University of Maryland, US)

> **Session Privacy Enhancement by Traffic Dispersion**
>
> Haim Zlatokrilov (Tel Aviv University, IL); Hanoch Levy (Tel Aviv University, IL)

> **Trust Evaluation in Anarchy: A Case Study on Autonomous Networks**
>
> Tao Jiang (University of Maryland, College Park, US); John S. Baras (University of Maryland College Park, US)

> **Network Protocol System Fingerprinting - A Formal Approach**
>
> Guoqiang Shu (Ohio State University, US); David Lee (The Ohio State University, US)

Wednesday, April 26, 2006   09:00 - 11:00
Session 19: Synchronization and consisten
Session Chair:
Martín López-Nores (Universidad de Vigo, ES)

> **Resequencing delays under multipath routing -- Asymptotics in a simple queueing model**
>
> Yijie Han (University of Maryland, College Park, US); Armand Makowski (University of Maryland, US)

> **Impact of Load Sharing on Provisioning Services with Consistency Requirements**
>
> Daniel Villela (Columbia University, US); Dan Rubenstein (Columbia University, US); Vishal Misra (Columbia University, US); Sambit Sahu (IBM Research, US)

> **Network Clock Frequency Synchronization**
>
> Omer Gurewitz (Technion, IL); Israel Cidon (Technion, IL); Moshe Sidi (Technion, IL)

> **Time Synchronization for High Latency Acoustic Networks**
>
> Affan Syed (USC/ISI, US); John Heidemann (USC/ISI, US)

Wednesday, April 26, 2006   09:00 - 11:00
Session 20: Optical networks II
Session Chair:
Davide Careglio (Universitat Politècnica de Catalunya, ES)

> **Integrated Intermediate Waveband and Wavelength Switching for Optical WDM Mesh Networks**
>
> Mengke Li (Microsoft, US); Byrav Ramamurthy (University of Nebraska-Lincoln, US)

> **Time-domain Wavelength Interleaved Networking with Wavelength Reuse**
>
> Indra Widjaja (Bell Labs, Lucent Technologies, US); Carl Nuzman (Bell Laboratories, US)

> **Complexity of Wavelength Assignment in Optical Network Optimization**
>
> Matthew Andrews (Bell Labs, Lucent Technologies, US); Lisa Zhang (Bell Labs, Lucent Technologies, US)

> **Cooperative Data-Optical Inter-Networking: Distributed Multi-Layer Optimization**
>
> Anwar Elwalid (Bell Labs, Lucent Technologies, US); Mitra Debasis (Bell Labs, Lucent Technologies, US); Qiong Wang (Bell Labs, Lucent Technologies, US)

Wednesday, April 26, 2006   09:00 - 11:00
Session 21: Broadcast
Session Chair:
Robin Kravets (University of Illinois at Urbana-Champaign, US)

Optimized Stateless Broadcasting in Wireless Multi-hop Networks

Marc Heissenbuettel (University of Bern, CH); Torsten Braun (University of Bern, CH); Markus Waelchli (University of Bern, CH); Thomas Bernoulli (University of Bern, CH)

Controlled Flooding Search with Delay Constraints

Nicholas Chang (University of Michigan, US); Mingyan Liu (University of Michigan, US)

Information Dissemination in Power-constrained Wireless Networks

Rong Zheng (University of Houston, US)

Broadcasting in Sensor Networks: The Role of Local Information

Sundar Subramanian (University ot Texas at Austin, US); Sanjay Shakkottai (University of Texas at Austin, US); Ari Arapostathis (University of Texas at Austin, US)

Wednesday, April 26, 2006   11:30 - 13:00
Session 22: Mobility models & systems
Session Chair:
Lars Wolf (TU Braunschweig, IBR, DE)

Impact of Mobility on the Performance of Relaying in Ad Hoc Networks

Ahmad Al Hanbali (INRIA Sophia-Antipolis, FR); Arzad Kherani (INRIA, IN); Robin Groenevelt (INRIA,FR); Philippe Nain (INRIA, Sophia Antipolis, FR); Eitan Altman (INRIA, FR)

Predictability of WLAN Mobility and its Effects on Bandwidth Provisioning

Libo Song (Dartmouth College, US); Udayan Deshpande (Dartmouth College, US); Ulas Kozat (DoCoMo-Labs USA, TR); David Kotz (Dartmouth College, US); Ravi Jain (NTT DoCoMo USA Labs, US)

Impact of Human Mobility on the Design of Opportunistic Forwarding Algorithms

Augustin Chaintreau (Thompson Research, FR); Pan Hui (Cambridge University, UK); Jon Crowcroft (University of Cambridge, UK); Christophe Diot (Thompson Research, FR); Richard Gass (Intel Research Cambridge, UK); James Scott (Intel Research Cambridge, UK)

Extracting a mobility model from real user traces

Minkyong Kim (Dartmouth College, US); David Kotz (Dartmouth College, US); Songkuk Kim (Xerox Corporation, US)

Wednesday, April 26, 2006   11:30 - 13:00
Session 23: Wireless capacity planning
Session Chair:
Li Li (Bell Labs Lucent Technologies, US)

Adaptive CSMA for Scalable Network Capacity in High-Density WLAN: a Hardware Prototyping Approach

Jing Zhu (Intel, US); Benjamin Metzler (Intel Corp., US); York Liu (Intel Corp., US); Xingang Guo (Intel Corp., US)

Capacity of Wireless Data Networks with Intra- and Inter-Cell Mobility

Sem Borst (Bell Labs, Lucent Technologies, US; CWI, NL; Eindhoven University of Technology, NL); Alexandre Proutiere (France Telecom R&D, FR); Nidhi Hegde (France Telecom R & D, FR)

Scheduling Efficency of Distributed Greedy Scheduling Algorithms in Wireless Networks

Xinzhou Wu (University of Illinois Urbana Champaign, US); R. Srikant (University of Illinois at Urbana-Champaign, US)

Interference-Aware Channel Assignment in Multi-Radio Wireless Mesh Networks

Krishna Ramachandran (University of California, Santa Barbara, US); Elizabeth Belding-Royer (University of California Santa Barbara, US); Kevin Almeroth (University of California at Santa Barbara, US); Milind Buddhikot (Bell Labs, Lucent Technologies, US)

Wednesday, April 26, 2006   11:30 - 13:00
Session 24: Overlay routing
Session Chair:
Caterina Scoglio (Kansas State University, US)

Placing Relay Nodes for Intra-Domain Path Diversity

Meeyoung Cha (KAIST, KR); Sue Moon (KAIST, KR); Chong-Dae Park (KAIST, KR); Aman Shaikh (AT&T Labs - Research, US)

How to Select a Good Alternate Path in Large Peer-to-Peer Systems?

Teng Fei (University of Massachusetts Amherst, US); Shu Tao (IBM T. J. Watson Research Center, US); Lixin Gao (University of Massachusetts at Amherst, US); Roch Guerin (University of Pennsylvania, US)

On Heterogeneous Overlay Construction and Random Node Selection in Unstructured P2P Networks

Vivek Vishnumurthy (Cornell University, US); Paul Francis (Cornell University, US)

A Versatile Scheme for Routing Highly Variable Traffic in Service Overlays and IP Backbones

M. Kodialam (Bell Labs, Lucent Technologies, US; MIT, US); T. V. Lakshman (Bell Labs, Lucent Technologies, US; MIT, US); James Orlin (Bell Labs, Lucent Technologies, US; MIT, US); Sudipta Sengupta (Bell Labs, Lucent Technologies, US; MIT, US)

Wednesday, April 26, 2006   11:30 - 13:00
Session 25: Network simulations and testb
Session Chair:
Serge Frida (University Pierre & Marie Curie, FR)

Mobile emulab: A Robotic Wireless and Sensor Network

David Johnson (University of Utah, US); Tim Stack (University of Utah, US); Russ Fish (University of Utah, US); Daniel Flickinger (University of Utah, US); Leigh Stoller (University of Utah, US); Robert Ricci (University of Utah, US); Jay Lepreau (University of Utah, US)

TWINE: A Hybrid Emulation Testbed for Wireless Networks and Applications

Junlan Zhou (UCLA, US); Zhengrong Ji (UCLA, US); Rajive Bagrodia (UCLA, US)

SIMPLE: using Swarm Intelligence Methodology to design Data Acquisition Protocol in Sensor Networks with Mobile Sinks

Hua Yang (Rensselaer Polytechnic Institute, US); Fengji Ye (Rensselaer Polytechnic Institute, US); Biplab Sikdar (Rensselaer Polytechnic Institute, US)

Accelerating Simulation of Large-Scale IP Networks: A Network Invariant Preserving Approach

Hwangnam Kim (University of Illinois at Urbana-Champaign, US); Hyuk Lim (University of Illinois, US); Jennifer Hou (University of Illinois at Urbana-Champaign, US)

Wednesday, April 26, 2006   11:30 - 13:00
Session 26: Congestion control II
Session Chair:
Sergey Gorinsky (Washington University in St. Louis, US)

Flow Control over Wireless Network and Application Layer Implementation

Minghua Chen (University of California at Berkeley, US); Avideh Zakhor (University of California at Berkeley, US)

JetMax: Scalable Maxmin Congestion Control for High-Speed Heterogeneous Networks

Yueping Zhang (Texas A&M University, US); Derek Leonard (Texas A&M University, US); Dmitri Loguinov (Texas A&M University, US)

A Compound TCP Approach for High-speed and Long Distance Networks

Kun Tan (Microosft Research Asia, CN); Jingmin Song (Microsoft Research Asia, CN); Qian Zhang (Hong Kong University of Science and Technology, HK); Murari Sridharan (Microsoft Corporation, US)

Design and Analysis of a Self-tuning Proportional and Integral Controller for Active Queue Management Routers to support TCP Flows
Xiong Xue (Japan Advanced Institute of Science and Technology, JP; Wuhan University, CN); Xavier Defago (Japan Advanced Institute of Science and Technology, JP; Japan Science and Technology Agency, JP); Xiaohua Jia (Wuhan University, CN; City University of Hong Kong, HK); Yan Yang (Wuhan University of Science and Technology, CN); Xanxiang He (Wuhan University, CN)

Wednesday, April 26, 2006   14:30 - 16:00
Session 27: Sensor networks II
Session Chair:
Yunhao Liu (Hong Kong University of Science and Technolgy, HK)

Non-Interactive Location Surveying for Sensor Networks with Mobility-Differentiated ToA

Jun Luo (Swiss Federal Institute of Technology (EPFL), CH); Hersh Shukla (EPFL, CH); Jean-Pierre Hubaux (EPFL, CH)

Distributed Navigation Algorithms for Sensor Networks

Chiranjeeb Buragohain (University of California, Santa Barbara, US); Divyakant Agrawal (University of California, Santa Barbara, US); Subhash Suri (University of California at Santa Barbara, US)

On the Potential of Structure-free Data Aggregation in Sensor Networks

Kaiwei Fan (Ohio State University, US); Sha Liu (Ohio State University, US); Prasun Sinha (Ohio State University, US)

Efficiency Centric Communication Model for Wireless Sensor Networks

Qing Cao (University of Illinois Urbana-Champaign, US); Tian He (University of Virginia, US); Lei Fang (University of Virginia, US); Tarek Abdelzaher (University of Virginia, US); John Stankovic (University of Virginia, US); Sang Son (University of Virginia, US)

Wednesday, April 26, 2006   14:30 - 16:00
Session 28: Wireless access issues
Session Chair:
Albert Banchs (Universidad Carlos III de Madrid)

Modeling Per-flow Throughput and Capturing Starvation In CSMA Multi-hop Wireless Networks

Michele Garetto (Rice University, US); Theodoros Salonidis (Rice University, US); Edward W. Knightly (Rice University, US)

A Client-driven Approach for Channel Management in Wireless LANs

Arunesh Mishra (University of Maryland, US); Vladimir Brik (University of Wisconsin, Madison, US); Suman Banerjee (University of Wisconsin, US); Aravind Srinivasan (University of Maryland, US); William Arbaugh (Univ. of Maryland, US)

Cell Breathing Techniques for Load Balancing in Wireless LANs

Yigal Bejerano (Bell Labs, Lucent Technologies, US); Seung-Jae Han (Yonsei University, KR)

Flow Scheduling for End-host Multihoming

Nathanael Thompson (University of Illinois, Urbana-Champaign, US); Guanghui He (University of Illinois at Urbana-Champaign, US); Haiyun Luo (University of Illinois at Urbana-Champaign, US)

Wednesday, April 26, 2006   14:30 - 16:00
Session 29: Wireless routing
Session Chair:
Jarmo Harju (Tampere University of Technology, FI)

Density-based vs. Proximity-based Anycast Routing for Mobile Networks

Vincent Lenders (Swiss Federal Institute of Technology (ETH), CH); Martin May (Swiss Federal Institute of Technology (ETH), CH); Bernhard Plattner (Swiss Federal Institute of Technology (ETH), CH)

Energy-Efficient Interference-Based Routing for Multi-hop Wireless Networks

Sungoh Kwon (Purdue University, US); Ness Shroff (Purdue University, US)

Ad hoc routing with distributed ordered sequences

Marc Mosko (Palo Alto Research Center, US); J.J. Garcia-Luna-Aceves (Palo Alto Research Center and University of California at Santa Cruz, US)

Optimal Power, Throughput and Routing for Wireless Link Arrays

Francois Baccelli (INRIA-ENS, FR); Nicholas Bambos (Stanford University, US); Carri Chan (Stanford, US)

Wednesday, April 26, 2006   14:30 - 16:00
Session 30: Intrusion detection
Session Chair:
Ehab Al-Shaer (Depaul University, US)

Intelligent Distribution of Intrusion Prevention Services on Programmable Routers

Andreas Hess (Technical University of Berlin, DE); Hans-Florian Geerdes (Konrad-Zuse-Zentrum für Informationstechnik Berlin (ZIB), DE); Roland Wessäly (Konrad-Zuse-Zentrum, Berlin, DE)

Reverse Hashing for High-speed Network Monitoring: Algorithms, Evaluation, and Applications

Robert Schweller (Northwestern University, US); Zhichun Li (Northwestern University, US); Yan Chen (Northwestern University, US); Yan Gao (Northwestern University, US); Ashish Gupta (Northwestern University, US); Yin Zhang (University of Texas at Austin, US); Peter Dinda (Northwestern University, US); Ming-Yang Kao (Northwestern University, US); Gokhan Memik (Northwestern

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High-Performance Pattern-Matching for Intrusion Detection

Jan Van Lunteren (IBM, CH)

MIND: A Distributed Multi-Dimensional Indexing System for Network Diagnosis

Xin Li (University of Southern California, US); Fang Bian (Univeristy Of Southern California, US); Hui Zhang (NEC Laboratories America, US); Christophe Diot (Thomson, FR); Ramesh Govindan (University of Southern California, US); Wei Hong (Intel Research, US); Gianluca Iannaccone (Intel Research, US)

Wednesday, April 26, 2006   14:30 - 16:00
Session 31: Peer-to-Peer Networks and Qo
Session Chair:
Y. Charlie Hu (Purdue University, US)

Minimum User-perceived Interference Routing in Service Composition

Li Xiao (University of Illinois at Urbana-Champaign, US); Klara Nahrstedt (University of Illinois at Urbana-Champaign, US)

A Comparative Study of Current DNS with DHT-Based Alternatives

Vasileios Pappas (University of California, Los Angeles, US); Daniel Massey (Colorado State University, US); Andreas Terzis (Johns Hopkins University, US); Lixia Zhang (University of California at Los Angeles, US)

SmartSeer: Using a DHT to Process Continuous Queries over Peer-to-Peer Networks

Jayanthkumar Kannan (UC Berkeley, US); Beverly Yang (Google, US); Scott Shenker (UC Berkeley, ICSI, US); Puneet Sharma (HP Labs, US); Sujata Banerjee (HP Labs, US); Sujoy Basu (HP Labs, US); Sung-Ju Lee (HP Labs, US)

RandPeer: Membership Management for QoS Sensitive Peer to Peer Applications

Jin Liang (University of Illinois at Urbana-Champaign, US); Klara Nahrstedt (University of Illinois at Urbana-Champaign, US)

Wednesday, April 26, 2006   14:30 - 16:00
Session 32: Scheduling & buffer manageme
Session Chair:
Dapeng Oliver Wu (Univ. of Florida, US)

Joint Asynchronous Congestion Control and Distributed Scheduling for Multi-Hop Wireless Networks

Loc Bui (University of Illinois at Urbana-Champaign, US); Atilla Eryilmaz (LIDS, Massachusetts Institute of Technology, US); R. Srikant (University of Illinois at Urbana-Champaign, US); Xinzhou Wu (Flarion Technologies, US)

Energy Efficient Scheduling with Individual Packet Delay Constraints

Wanshi Chen (University of Southern California, US); Urbashi Mitra (University of Southern California, US)

Buffer Scalability of Wireless Networks

Predrag Jelenkovic (Columbia University, US); Petar Momcilovic (University of Michigan, US); Mark Squillante (IBM Thomas J. Watson Research Center, US)

Achieving Delay Guarantees in Ad Hoc Networks through Dynamic Contention Window Adaptation

Yaling Yang (University of Illinois at Urbana Champaign, US); Robin Kravets (University of Illinois at Urbana-Champaign, US)

Wednesday, April 26, 2006 14:30 - 16:00
Session 33: Multicast
Session Chair:
Salvatore Spadaro (Universitat Politècnica de Catalunya, ES)

Design and Implementation of An Efficient Multicast Support Scheme for FMIPv6

Dong-Hee Kwon (Pohang University of Science and Technology, KR); Woo-Jae Kim (POSTECH, KR); Yong-Sung Kim (Pohang University of Science and Technology, KR); Wan-Sun Im (POSTECH, KR); Young-Joo Suh (Pohang University of Science and Technology (POSTECH), KR)

Efficient Distributed MPLS P2MP Fast Reroute

Guangzhi Li (AT&T Labs - Research, US); Dongmei Wang (AT&T Labs - Research, US); Robert Doverspike (AT&T Labs - Research, US)

Asymptotic Performance Limits of Switches with Buffered Crossbars supporting Multicast Traffic

Paolo Giaccone (Politecnico di Torino, IT); Emilio Leonardi (Politecnico di Torino, IT)

Multicast Wavelength Assignment for Sparse Wavelength Conversion in WDM Networks

Yinzhu Zhou (Nanyang Technological University, SG); Gee-Swee Poo (Nanyang Technological University, SG)

Wednesday, April 26, 2006 16:30 - 18:00
Session 34: 802.11 Issues I
Session Chair:
Konstantina Papagiannaki (Intel Corporation, US)

A General Model and Analysis of Physical Layer Capture in 802.11 Networks

Hoon Chang (Columbia University, US); Vishal Misra (Columbia University, US); Dan Rubenstein (Columbia University, US)

Towards Performance Modeling of IEEE 802.11 based Wireless Networks: A Unified Framework and its Applications

Kamesh Medepalli (Stanford University, US); Fouad Tobagi (Stanford University, US)

Constant-Complexity Models for Wireless Channels

Syed Khayam (Michigan State University, US); Hayder Radha (Michigan State University, US)

Learn on the Fly: Data-driven Link Estimation and Routing in Sensor Network Backbones

Hongwei Zhang (Ohio State University, US); Anish Arora (Ohio State University, US); Prasun Sinha (Ohio State University, US)

Wednesday, April 26, 2006 16:30 - 18:00
Session 35: Wireless location
Session Chair:
Suman Bannerjee (University of Wisconsin, USA)

Location Discovery using Data-Driven Statistical Error Modeling

Jessica Feng (University of California, Los Angeles, US); Lewis Girod (University of California, Los Angeles, US); Miodrag Potkonjak (University of California at Los Angeles, US)

Zero-Configuration, Robust Indoor Localization: Theory and Experimentation

Hyuk Lim (University of Illinois, US); Lu-chuan Kung (University of Illinois, US); Jennifer Hou (University of Illinois at Urbana-Champaign, US); Haiyun Luo (University of Illinois at Urbana-Champaign, US)

Locating Sensors in Concave Areas

Chen Wang (Michigan State University, US); Li Xiao (Michigan State University, US)

Source-Assisted Direction Estimation Inside Buildings

Kamran Sayrafian-Pour (NIST, US); Dominik Kaspar (Swiss Federal Institute of Technology, SW)

Wednesday, April 26, 2006 16:30 - 18:00
Session 36: Routing II
Session Chair:
Tim Griffin (University of Cambridge, UK)

Bottleneck Routing Games in Communication Networks

Ron Banner (Technion, IL); Ariel Orda (Technion, IL)

Fast IP Network Recovery using Multiple Routing Configurations

Amund Kvalbein (Simula Research Laboratory, NO); Audun Hansen (Simula Research Laboratory, NO; Telenor R&D, NO); Tarik Cicic (Simula Research Laboratory, NO); Stein Gjessing (Simula Research Laboratory, NO); Olav Lysne (Simula Research Laboratory, NO)

MaxProp: Routing for Vehicle-Based Disruption-Tolerant Networks

John Burgess (Univ. of Massachusetts Amherst, US); Brian Gallagher (University of Massachusetts, US); David Jensen (University of Massachusetts, US); Brian Levine (University of Massachusetts at Amherst, US)

On Count-to-Infinity Induced Forwarding Loops in Ethernet Networks

Khaled Elmeleegy (Rice University, US); Alan L. Cox (Rice University, US); T. S. Eugene Ng (Rice University, US)

Wednesday, April 26, 2006   16:30 - 18:00
Session 37: Attacks and defenses in emergi
Session Chair:
Shivendra Panwar (Polytechnic University, USA)

A Statistical Framework for Intrusion Detection in Ad Hoc Networks

Dhanant Subhadrabandhu (University of Pennsylvania, US); Saswati Sarkar (University of Pennsylvania, US); Farooq Anjum (Telcordia Tech., US)

Eclipse Attacks on Overlay Networks: Threats and Defenses

Atul Singh (Rice University, US); Tseun-Wan Ngan (Rice University, US); Peter Druschel (MPI-SWS, DE); Dan Wallach (Rice University, US)

The Index Poisoning Attack in P2P File Sharing Systems

Jian Liang (Polytechnic University, US); Naoum Naoumov (Polytechnic University, US); Keith W. Ross (Polytechnic University, US)

Cooperative Security for Network Coding File Distribution

Christos Gkantsidis (Microsoft Research, UK); Pablo Rodriguez (Microsoft Research Ltd, Cambridge, UK)

Wednesday, April 26, 2006   16:30 - 18:00
Session 38: Topology characterization and
Session Chair:
Rui Aguiar (Universitat Aveiro, Portugal)

The Internet Dark Matter - on the Missing Links in the AS Connectivity Map

Rami Cohen (Technion, IL); Danny Raz (Technion, IL)

Wealth-based Evolution Model for the Internet AS-Level Topology

Xiaoming Wang (Texas A&M University, US); Dmitri Loguinov (Texas A&M University, US)

To Peer or not to Peer: Modeling the Evolution of the Internet's AS-level Topology

Hyunseok Chang (University of Michigan, US); Sugih Jamin (University of Michigan, US); Walter Willinger (AT&T Labs - Research, US)

Taking The Skeletons Out Of The Closets: A Simple And Efficient Topology Discovery Scheme For Large Ethernet LANs

Yigal Bejerano (Bell Labs, Lucent Technologies, US)

Wednesday, April 26, 2006   16:30 - 18:00
Session 39: Switches & switching
Session Chair:
Joseph Bannister (USC/ISI, US)

Optimal scheduling algorithms for input-queued switches

Devavrat Shah (Massachusetts Institute of Technology, US); Damon Wischik (University College London, UK)

The Concurrent Matching Switch Architecture

Bill Lin (University of California, San Diego, US); Isaac Keslassy (Technion, IL)

Routers with Very Small Buffers

Mihaela Enachescu (Stanford University, US); Yashar Ganjali (Stanford University, US); Ashish Goel (Stanford University, US); Nick McKeown (Stanford University, US); Tim Roughgarden (Stanford University, US)

IPv6-oriented 4*OC768 Packet Classification Scheme with Deriving-Merging Partition and Field-Variable Encoding Algorithm

Xin Zhang (University of Tsinghua, CN); Bin Liu (Tsinghua University, CN); Wei Li (Tsinghua University, CN); Xiaojun Wang (Dublin City Univ., IE)

Wednesday, April 26, 2006   16:30 - 18:00
Session 40: Multimedia protocols
Session Chair:
Narasimha Reddy (Texas A & M University, US)

MobiStream: Error-resilient Video Streaming in Wireless WANs using Virtual Channels

Rajiv Chakravorty (Unversity of Wisconsin, US); Suman Banerjee (University of Wisconsin, US); Samrat Ganguly (NEC Labs, US)

Performance of VoIP in a 802.11-based Wireless Mesh Network

Dragos Niculescu (NEC Labs, US); Samrat Ganguly (NEC Labs, US); KyungTae Kim (NEC Labs, US); Rauf Izmailov (NEC Labs, US)

Media Streaming via TFRC: An Analytical Study of the Impact of TFRC on User-Perceived Media Quality

Lisong Xu (University of Nebraska-Lincoln, US); Josh Helzer (University of Nebraska-Lincoln, US)

On the TCP-Friendliness of VoIP Traffic

Tian Bu (Bell labs, Lucent, US); Yong Liu (Polytechnic University, US); Don Towsley (University of Massachusetts at Amherst, US)

Thursday, April 27, 2006   09:00 - 11:00

Session 41: Wireless resource management

Session Chair:
Sunghyun Choi (Seoul National University, KR)

Resource Allocation for Multicast Services in Multicarrier Wireless Communications

Changho Suh (Samsung Electronics., KR); Jeonghoon Mo (Information and Communications University, KR)

Throughput Optimization and Fair Bandwidth Allocation in Multi-hop Wireless LANs

Qunfeng Dong (University of Wisconsin-Madison, US); Suman Banerjee (University of Wisconsin, US); Benyuan Liu (University of Massachusetts Lowell, US)

Distributed Uplink Power Control for Optimal SIR Assignment in Cellular Data Networks

Prashanth Hande (Princeton University, US; Flarion Technologies, US); Sundeep Rangan (Princeton University, US; Flarion Technologies, US); Mung Chiang (Princeton University, US; Flarion Technologies, US)

Maximum Throughput and Fair Bandwidth Allocation in Multi-Channel Wireless Mesh Networks

Jian Tang (Arizona State University, US); Guoliang Xue (Arizona State University, US); Weiyi Zhang (Arizona State University, US)

Thursday, April 27, 2006   09:00 - 11:00

Session 42: MAC Protocols

Session Chair:
Vishal Misra (Columbia University, US)

Utility-Optimal Medium Access Control: Reverse and Forward Engineering

Jang-Won Lee (Yonsei University, KR); Mung Chiang (Princeton University, US); A. Robert Calderbank (Princeton University, US) Virginia, US)

A Packing Approach to Compare Slotted and Non-Slotted Medium Access Control

Mathilde Durvy (EPFL, CH); Patrick Thiran (EPFL, CH)

MMSN: Multi-Frequency Media Access Control for Wireless Sensor Networks

Gang Zhou (University of Virginia, US); Chengdu Huang (University of Virginia, US); Ting Yan (University of Virginia, US); Tian He (University of Virginia, US); John Stankovic (University of Virginia, US); Tarek Abdelzaher (University of Virginia, US)

Performance Analysis of Contention Based Medium Access Control Protocols

Gaurav Sharma (Purdue University, US); Ayalvadi Ganesh (Microsoft Research, UK); Peter Key (Microsoft Research, UK)

Thursday, April 27, 2006   09:00 - 11:00

Session 43: Capacity planning

Session Chair:
Sebastia Sallent (Universidad Politecnica de Catalunya, ES)

Designing Low Cost Networks with Short Routes and Low Congestion

Van Nguyen (University of California, Davis, US); Charles Martel (University of California, Davis, US)

Asymptotics of Efficiency Loss in Competitive Market Mechanisms

Jia Yuan Yu (McGill University, CA); Shie Mannor (McGill University, CA)

Achieving Bounded Blocking in Circuit-Switched Networks

Rui Zhang-Shen (Stanford University, US); Muralid haran Kodialam (Bell Labs, Lucent Technologies, US); T. V. Lakshman (Bell Labs, Lucent Technologies, US)

Alternative Decompositions for Distributed Maximization of Network Utility: Framework and Applications

Daniel Palomar (Princeton University, US); Mung Chiang (Princeton University, US)

Thursday, April 27, 2006   09:00 - 11:00

Session 44: Secure wireless

Session Chair:
Cristina Nita-Rotaru (Purdue Univ., US)

Threshold Key-Establishment in Distributed Sensor Networks Using a Multivariate Scheme

Farshid Delgosha (Georgia Institute of Technology, US); Faramarz Fekri (Georgia Institute of Technology, US)

Leveraging Channel Diversity for Key Establishment in Wireless Sensor Networks

Matthew Miller (University of Illinois at Urbana-Champaign, US); Nitin Vaidya (University of Illinois at Urbana-Champaign, US)

Establishing Pair-Wise Keys in Heterogeneous Sensor Networks

Patrick Traynor (Penn State University, US); Heesook Choi (Penn State University, US); Guohong Cao (Pennsylvania State University, US); Sencun Zhu (The Pennsylvania State University, US); Tom La Porta (Penn State University, US)

Supporting Secure Communication and Data Collection in Mobile Sensor Networks

Li Zhou (University of California, Riverside, US); Jinfeng Ni (University of California, Riverside, US); Chinya Ravishankar (Universityiversity of California, Riverside, US)

Thursday, April 27, 2006   09:00 - 11:00
Session 45: Bandwidth sharing and resourc
Session Chair:
Lau Wing-Cheong (Chinese University of Hong Kong, HK)

Mean delay analysis of Multi Level Processor Sharing disciplines Samuli Aalto (Helsinki University of Technology, FI); Urtzi Ayesta (Helsinki University of Technology, FI; CWI, NL)
Trade-off curves for QoS Routing Piet Van Mieghem (Delft University of Technology, NL); Lieven Vandenberghe (University of California, Los Angeles, US)
Bandwidth Sharing Network Design for Multi-class Traffic Mohammad Taghi Hajiaghayi (Carnegie Mellon University, US); Li Li (Bell Labs, Lucent Technologies, US); Vahab Mirrokni (LCS MIT, US); Marina Thottan (Bell Labs, Lucent Technologies, US)
A New Distributed Dynamic Bandwidth Reservation Mechanism to Improve Resource Utilization. Simulation and analysis on real network and traffic scenarios Sukrit Dasgupta (Drexel University, US); Jaudelice de Oliveira (Drexel University, US); Jean-Phillippe Vasseur (Cisco Systems, US)

Thursday, April 27, 2006   09:00 - 11:00
Session 46: Scheduling & buffer manageme
Session Chair:
Bin Liu (Tsinghua University, CN)

Looking at Large Networks: Coding vs. Queueing Sandeep Bhadra (University of Texas at Austin, US); Sanjay Shakkottai (University of Texas at Austin, US)
Stable Scheduling Policies for Maximizing Throughput in Generalized Constrained Queueing Systems Prasanna Chaporkar (INRIA, FR); Saswati Sarkar (University of Pennsylvania, US)
SI-WF2Q: WF2Q Approximatin with Small Constant Execution Overhead Martin Karsten (University of Waterloo, CA)
Super-Fast Delay Tradeoffs for Utility Optimal Fair Scheduling in Wireless Networks Michael Neely (University of Southern California, US)

Thursday, April 27, 2006   11:30 - 13:00
Session 47: Fault tolerance in sensor netwo
Session Chair:
Christophe Diot (Thompson Research, France)

Fault-Tolerance in Sensor Networks: A New Evaluation Metric Arunabha Sen (Arizona State University, US); Bao Hong Shen (Arizona State University, US); Ling Zhou (Arizona State University, US); Bin Hao (Arizona State University, US)
Using End-to-End Data to Infer Lossy Links in Sensor Networks Hung Nguyen (Ecole polytechnique federal de Lausanne (EPFL), CH); Patrick Thiran (EPFL, CH)
DFT-MSN: The Delay Fault Tolerant Mobile Sensor Network for Pervasive Information Gathering Yu Wang (University of Louisiana at Lafayette, US); Hongyi Wu (University of Louisiana at Lafayette, US)
Relay Placement for Higher Order Connectivity in Wireless Sensor Networks Abhishek Kashyap (University of Maryland, US); Samir Khuller (University of Maryland at College Park, US); Mark Shayman (University of Maryland at College Park, US)

Thursday, April 27, 2006   11:30 - 13:00
Session 48: Power control III
Session Chair:
Sebastià Galmés (Universitat de les Illes Balears, ES)

Exploiting Idle Communication Power to Improve Wireless Network Performance and Energy Efficiency Lei Guo (Ohio State University, US); Xiaoning Ding (Ohio State University, US); Haining Wang (College of William and Mary, US); Qun Li (College of William and Mary, US); Songqing Chen (George Mason University, US); Xiaodong Zhang (Ohio State University, US)
Optimal Energy and Delay Tradeoffs for Multi-User Wireless Downlinks Michael Neely (University of Southern California, US)
Sleeping Coordination for Comprehensive Sensing Using Isotonic Regression and Domatic Partitions Farinaz Koushanfar ((Rice University/University of Illinois at Urbana-Champaign, US);); Nina Taft (Intel Research, US); Miodrag Potkonjak (University of California at Los Angeles, US)
A Power-Saving Multi-radio Multi-channel MAC Protocol for Wireless Local Area Networks Jianfeng Wang (University of Florida, US); Yuguang Fang (University of Florida, US); Dapeng Oliver Wu (University of Florida, US)

Thursday, April 27, 2006   11:30 - 13:00

Session 49: Content switching and routing
Session Chair:
Thomas Plagemann (University of Oslo, NO)

Content Based Rate Estimation using Lazy Membership Testing

Fang Hao (Bell Labs, Lucent technologies, US); M. Kodialam (Bell Labs, Lucent Technologies, US); T. V. Lakshman (Bell Labs, Lucent Technologies, US); Vivek Vishnumurthy (Cornell University, US); Hui Zhang (Nec Laboratories America, US)

Request-Aware Scheduling for Busy Internet Services

Jingyu Zhou (UC, Santa Barbara, US); Caijie Zhang (UC-Santa Barbara, US); Tao Yang (Ask Jeeves and University of California at Santa Barbara, US); Lingkun Chu (Ask Jeeves Inc., US)

ISP and Egress Path Selection for Multihomed Networks

Amogh Dhamdhere (Georgia Tech, US); Constantinos Dovrolis (Georgia Tech, US)

Two Level State Machine Architecure for Content Inspection Engines

Mohammadreza Yazdani (Carleton University, CA); Wojciech Fraczak (IDT Canada and Universite du Quebec en Outaouais, CA); Feliks Welfeld (IDT Canada, CA); Ioannis Lambadaris (Carleton University, CA)

Thursday, April 27, 2006   11:30 - 13:00

Session 50: Network measurement and infe
Session Chair:
Constantinos Dovrolis (Georgia Institute of Technology, US)

Formal Analysis of Passive Measurement Inference Techniques

Sharad Jaiswal (Bell Labs, IN); Gianluca Iannaccone (Intel Research, UK); James F. Kurose (University of Massachusetts at Amherst, US); Don Towsley (University of Massachusetts at Amherst, US)

A Measurement Based Solution for Service Quality Assurance in Operational GPRS Networks

Tamás Borsos (Ericsson Research, HU); István Szabó (Ericsson Research, HU); Jeroen Wieland (Vodafone Group R&D, UK); Pál Zarándy (Vodafone Hungary, HU)

End-to-end Service Quality Measurement Using Source-routed Probes

Fei Li (Columbia University, US); Marina Thottan (Bell Labs, Lucent Technologies, US)

Understanding packet pair separation beyond the fluid model: The key role of traffic granularity

Peter Haga (Eotvos University, HU); Krisztian Diriczi (Eotvos University, HU); Gabor Vattay (Collegium Budapest, HU); Istvan Csabai (Eotvos University, HU)

Thursday, April 27, 2006   11:30 - 13:00

Session 51: Application protocols and QoS
Session Chair:
Vera Goebel (University of Oslo, NO)

On the Sensitivity of Online Game Playing Time to Network QoS

Kuan-Ta Chen (National Taiwan University, TW); Polly Huang (National Taiwan University, TW); Guo-Shiuan Wang (IIS, Academia SINICA, Taiwan, TW); Chun-Ying Huang (National Taiwan University, TW); Chin-Laung Lei (National Taiwan University, TW)

Overhead and Performance Study of the General Internet Signal Transport (GIST) Protocol

Xiaoming Fu (University of Goettingen, DE); Henning Schulzrinne (Columbia University, US); Hannes Tschofenig (Siemens AG, DE); Christian Dickmann (University of Goettingen, DE); Dieter Hogrefe (University of Goettingen, GR)

AnySee: Peer-to-Peer Live Streaming

Xiaofei Liao (Huazhong Univ. of Science and Technology, CN); Hai Jin (Huazhong University of Science and Technology, CN); Yunhao Liu (Hong Kong University of Science and Technology, HK); Lionel M. Ni (Hong Kong University of Science and Technology, CN); Dafu Deng (Huazhong University of Science and Techology, CN)

Stall and Path Monitoring Issues in SCTP

James Noonan (Dublin City University, IE); John Murphy (University College Dublin, IE); Sean Murphy (University College Dublin, IE); Philip Perry (University College Dublin, IE)

Thursday, April 27, 2006   14:30 - 16:00

Session 52: Wireless network design and m
Session Chair:
Teruo Higashino (Osaka University, JP)

Is Deterministic Deployment Worse than Random Deployment for Wireless Sensor Networks?

Honghai Zhang (Lucent Technologies, US); Jennifer Hou (University of Illinois at Urbana-Champaign, US)

Identifying 802.11 Traffic from Passive Measurements Using Iterative Bayesian Inference

Wei Wei (University of Massachusetts, US); Sharad Jaiswal (University of Massachusetts at Amherst, US); James F. Kurose (University of Massachusetts at Amherst, US); Don Towsley (University of Massachusetts at Amherst, US)

Seeing the difference in IP traffic: Wireless versus Wireline

Julien Ridoux (Universite Pierre et Marie Curie, FR); Antonio Nucci (Narus inc., US); Darryl Veitch (EMULab, The University of Melbourne, AU)

Experimental Characterization of Home Wireless Networks and Design Implications

Konstantina Papagiannaki (Intel Corporation, UK); Mark Yarvis (Intel Corporation, US); Steven Conner (Intel, US)

Thursday, April 27, 2006   14:30 - 16:00
Session 53: Wireless power
Session Chair:
Marwan Krunz (University of Arizona, USA)

A Joint Design of Distributed QoS Scheduling and Power Control for Wireless Networks

Chun-Chia Chen (National Tsing Hua University, TW); Duan-Shin Lee (National Tsing Hua University, TW)

Analyzing the Energy-Latency Trade-off during the Deployment of Sensor Networks

Thomas Moscibroda (ETH Zurich, CH); Pascal von Rickenbach (ETH Zurich, CH); Roger Wattenhofer (ETH Zurich, CH)

Design guidelines for maximizing lifetime and avoiding energy holes in sensor networks with uniform distribution and uniform reporting

Stephan Olariu (Old Dominion University, US); Ivan Stojmenovic (University of Ottawa, CA)

Optimal Power Allocation in Wireless Networks with Transmitter-Receiver Power Tradeoffs

Sudarshan Vasudevan (University of Massachusetts, US); Chun Zhang (University of Massachusetts, Amherst, US); Dennis Goeckel (University of Massachusetts, US); Don Towsley (University of Massachusetts at Amherst, US)

Thursday, April 27, 2006   14:30 - 16:00
Session 54: Mobility and routing/forwarding
Session Chair:
Joerg Ott (University of Bremen TZI, DE)

VADD: Vehicle-Assisted Data Delivery in Vehicular Ad Hoc Networks

Jing Zhao (Pennsylvania State University, US); Guohong Cao (Pennsylvania State University, US)

Evaluating Mobility Pattern Space Routing for DTNs

Jeremie Leguay (Univ. Pierre et Marie Curie, FR; Thales Communications, UK); Timur Friedman (Univ. Pierre et Marie Curie, FR); Vania Conan (Thales Communications, UK)

Nomadic Service Points

Edward Bortnikov (The Technion, Israel Institute of Technology, IL); Israel Cidon (Technion, IL); Idit Keidar (Technion, IL)

A Brownian Motion Model for Last Encounter Routing

Stratis Ioannidis (University of Toronto, CA); Peter Marbach (University of Toronto, CA)

Thursday, April 27, 2006   14:30 - 16:00
Session 55: Security in wireless and sensor
Session Chair:
Wenjing Lou (Worcester Polytechnic Institute, US)

Secure Localization With Hidden and Mobile Base Stations

Srdjan Capkun (Technical University of Denmark, DK); Mario Cagalj (Ecole Polytechnique Federale de Lausanne, CH); Mani Srivastava (University of California, Los Angeles, US)

LEDS: Providing Location-aware End-to-end Data Security in Wireless Sensor Networks

Kui Ren (Worcester Polytechnic Institute, US); Wenjing Lou (Worcester Polytechnic Institute, US); Yanchao Zhang (University of Florida, US)

A Dynamic En-route Scheme for Filtering False Data Injection in Wireless Sensor Networks

Zhen Yu (Iowa State University, US); Yong Guan (Iowa State University, US)

Detecting Stations Cheating on Backoff Rules in 802.11 Networks Using Sequential Analysis

Yanxia Rong (George Washington University, US); Sang-Kyu Lee (Sookmyung Women's University, KR); Hyeong-Ah Choi (George Washington University, US)

Thursday, April 27, 2006   14:30 - 16:00
Session 56: Application system design and
Session Chair:
James P.G. Sterbenz (University of Massachusetts at Amhers)

Impact of the Inaccuracy of Distance Prediction Algorithms on Internet Applications---an Analytical and Comparative Study

Rongmei Zhang (Purdue University, US); Chunqiang Tang (IBM Watson Research, US); Y. Charlie Hu (Purdue University, US); Sonia Fahmy (Purdue University, US); Xiaojun Lin (Purdue University, US)

Modeling locality of reference via notions of positive dependence -- Some mixed news

Sarut Vanichpun (Qualcomm, Inc., US); Armand Makowski (University of Maryland, US)

Data Synchronization Methods Based on ShuffleNet and Hypercube for Networked Information Systems

David Houck (Bell Labs, Lucent Technologies, US); Kin Leung (Imperial College, UK); Peter Winkler (Dartmouth College, US)

Performance of Full Text Search in Structured and Unstructured Peer-to-Peer Systems

Yong Yang (Georgia Institute of Technology, US); Rocky Dunlap (Georgia Institute of Technology, US); Mike Rexroad (Georgia Institute of Technology, US); Brian Cooper (Georgia Institute of Technology, US)

Thursday, April 27, 2006   14:30 - 16:00

Session 57: Voice networking
Session Chair:
Shivkumar Kalyanaram (RPI, USA)

Measuring Human Satisfaction in Data Networks

Matthew Andrews (Bell Labs, Lucent Technologies, US); Jin Cao (Bell Labs, Lucent Technologies, US); Jim McGowan (Bell Laboratories, Lucent Technologies, US)

Packet Error Rate in OFDM-based Wireless LANs Operating in Frequency Selective Channels

Olufunmilola Awoniyi (Stanford University, US); Fouad Tobagi (Stanford University, US)

An Analysis of the Skype Peer-to-Peer Internet Telephony Protocol

Salman Baset (Columbia University, US); Henning Schulzrinne (Columbia University, US)

Characterizing and detecting Skype-Relayed Traffic

Kyoungwon Suh (University of Massachusetts Amherst, US); Daniel Figueiredo (University of Massachusetts at Amherst, US); James F. Kurose (University of Massachusetts at Amherst, US); Don Towsley (University of Massachusetts at Amherst, US)

Thursday, April 27, 2006   16:30 - 18:00

Session 58: 802.11 Issues II
Session Chair:
Jennifer Hou (University of Illinois at Urbana-Champaign, US)

The Case for Non-cooperative Multihoming of Users to Access Points in IEEE 802.11 WLANs

Srinivas Shakkottai (University of Illinois, US); Eitan Altman (INRIA, FR); Anurag Kumar (Indian Institute of Science, IN)

Self-learning Collision Avoidance for Wireless Networks

Chun-cheng Chen (University of Illinois, US); Eunsoo Seo (University Illinois, Urbana-Champaign, US); Hwangnam Kim (University of Illinois at Urbana-Champaign, US); Haiyun Luo (University of Illinois at Urbana-Champaign, US)

CARA: Collision-Aware Rate Adaptation for IEEE 802.11 WLANs

Jongseok Kim (Seoul National University, KR); Seongkwan Kim (Seoul National University, KR); Sunghyun Choi (Seoul National University, KR); Daji Qiao (Iowa State University, US)

Thursday, April 27, 2006   16:30 - 18:00

Session 59: Wireless mesh networks
Session Chair:
Byoung-Joon Lee (Samsung Advanced Institute of Technology, KR)

Channel Allocation in 802.11-based Mesh Networks

Bhaskaran Raman (Indian Institute of Technology, Kanpur, IN)

Backbone Topology Synthesis for Multi-Radio Meshed Wireless LANs

Laura Huei-Jiun Ju (UCLA, US); Izhak Rubin (University of California at Los Angeles, US)

Designing Multihop Wireless Backhaul Networks with Delay Guarantees

Gordon Wilfong (Bell Labs, Lucent Technologies, US); Girija Narlikar (Bell Labs, Lucent Technologies, US); Lisa Zhang (Bell Labs, Lucent Technologies, US)

Stimulating Participation in Wireless Community Networks

Elias Efstathiou (Athens University of Economics and Business, GR); Pantelis Frangoudis (Athens University of Economics and Business, GR); George Polyzos (Athens University of Economics and Business, GR)

Thursday, April 27, 2006   16:30 - 18:00

Session 60: Overlay placement
Session Chair:
Walid Dabbous (INRIA, FR)

On the Interaction between Dynamic Routing in the Native and Overlay Layers

Srinivasan Seetharaman (Georgia Institute of Technology, US); Mostafa Ammar (Georgia Institute of Technology, US)

Algorithms for Assigning Substrate Network Resources to Virtual Network Components

Yong Zhu (Georgia Institute of Technology, US); Mostafa Ammar (Georgia Institute of Technology, US)

Can an overlay compensate for a careless underlay?

Honggang Zhang (Univ. Massachusetts Amherst, US); James F. Kurose (University of Massachusetts at Amherst, US); Don Towsley (University of Massachusetts at Amherst, US)

Thursday, April 27, 2006   16:30 - 18:00
Session 61: Network monitoring techniques
Session Chair:
Timan Wolf (University of Massachusetts at Amherst, USA)

Simple and Accurate Identification of High-Rate Flows by Packet Sampling

Noriaki Kamiyama (NTT Service Integration Laboratories, JP); Tatsuya Mori (NTT, JP)

Theory and Network Application of Dynamic Bloom Filters

Deke Guo (National University of Defence Technology, CN); Honghui Chen (National university of defense technolgy, CN); Jie Wu (Florida Atlantic University, US); Xueshan Luo (National university of defense technolgy, CN)

Sketch Guided Sampling --- Using On-Line Estimates of Flow Size for Adaptive Data Collection

Abhishek Kumar (Georgia Institute of Technology, US); Jun Xu (Georgia Tech, US)

Integrated Play-Back, Sensing, and Networked Control

Vincenzo Liberatore (Case Western Reserve University, US)

Thursday, April 27, 2006   16:30 - 18:00
Session 62: Peer-to-peer network performa
Session Chair:
Simon Pietro Romano (University of Napoli, Italy)

Analyzing and Improving BitTorrent Performance

Ashwin Bharambe (CMU, US); Cormac Herley (Microsoft Research, US); Venkata Padmanabhan (Microsoft Research, US)

Improving Lookup Performance over a Widely-Deployed DHT

Daniel Stutzbach (University of Oregon, US); Reza Rejaie (University of Oregon, US)

A Fast Content-based Data Distribution Infrastructure

Samrat Ganguly (NEC Labs, US); Sudeept Bhatnagar (NEC Labs, US); Akhilesh Saxena (NEC Labs, US); Rauf Izmailov (NEC Labs, US); Suman Banerjee (University of Wisconsin, US)

Modeling, Analysis and Improvement for BitTorrent-Like File Sharing Networks

Ye Tian (Chinese University of Hong Kong, HK), Di Wu (Chinese University of Hong Kong, HK), Kam Wing Ng (Chinese University of Hong Kong, HK)

Thursday, April 27, 2006   16:30 - 18:00
Session 63: Optical networks III
Session Chair:
Sergi Sánchez-López (Universitat Politècnica de Catalunya, ES)

Preconfiguring IP-over-Optical Networks to Handle Router Failures and Unpredictable Traffic

M. Kodialam (Bell Labs, Lucent Technologies, US; MIT, US); T. V. Lakshman (Bell Labs, Lucent Technologies, US; MIT, US); James Orlin (Bell Labs, Lucent Technologies, US; MIT, US); Sudipta Sengupta (Bell Labs, Lucent Technologies, US; MIT, US)

Non-blocking WDM Switches Based on Arrayed Waveguide Grating and Shared Wavelength Conversion

Achille Pattavina (Politecnico di Milano, IT); Riccardo Zanzottera (Politecnico di Milano, IT)

Optical Networks with Average Packet Delay Cost Criterion

Zvi Rosberg (Ben Gurion University, IL)

Design and Analysis of Tunable Laser based Fractional Lambda Switching (FLS)

Viet Thang Nguyen (Università di Trento, IT); Renato Lo Cigno (Università di Trento, IT); Yoram Ofek (Università di Trento, IT)