2011 8th Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks

(SECON 2011)

Salt Lake City, Utah, USA
27 – 30 June 2011
Program

Tuesday, June 28

**Keynote: Putting the Cloud in the Palm of your Hand**

Dr. Victor Bahl

**Medium Access Control**

*NOMAD: Deterministic Collision-Free Channel Access with Channel Reuse in Wireless Networks*

Ji Garcia-Luna-Aceves (University of California at Santa Cruz, USA); Ashok N Masilamani (University of California, Santa Cruz, USA)

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Onur Soysal (Google Inc., USA); Sami Ayyorgun (Telcordia, USA); Murat Demirbas (University at Buffalo, SUNY, USA)

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*Any-MAC: Extending Any Asynchronous MAC with Anycast to Improve Delay in WSN*

Farhana Ashraf (University of Illinois at Urbana-Champaign, USA); Nitin Vaidya (University of Illinois at Urbana-Champaign, USA); Robin Kravets (University of Illinois at Urbana-Champaign, USA)

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*WiSP: A Protocol for Overcoming MAC Overheads Using Packet Size Dependent Channel Widths*

Vijay Raman (University of Illinois at Urbana-Champaign, USA); Nitin Vaidya (University of Illinois at Urbana-Champaign, USA)

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**Energy Efficiency**

*A Power-Efficient Wireless Sensor Network for Continuously Monitoring Seismic Vibrations*

Beat Weiss (IBM Zurich Research Laboratory, Switzerland); Hong Linh Truong (IBM Zurich Research Laboratory, Switzerland); Wolfgang Schott (IBM Zurich Research Laboratory, Switzerland); Andrea Munari (University of Padova, Italy); Clemens Lombriser (IBM Zurich Research Laboratory, Switzerland); Urs Hunkeler (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland); Pierre R Chevillat (IBM Zurich Research Laboratory, Switzerland)

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**Compressed Data Aggregation for Energy Efficient Wireless Sensor Networks**  
Liu Xiang (Nanyang Technological University, Singapore); Jun Luo (Nanyang Technological University, Singapore); Athanasios V. Vasilakos (National Technical University of Athens, Greece)  
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**Energy-Efficiency Through Micro-Managing Communication and Optimizing Sleep**  
Alexandru Caracas (IBM Research - Zurich, Switzerland); Clemens Lombriser (IBM Zurich Research Laboratory, Switzerland); Yvonne-Anne Pignolet (ABB Corporate Research, Dättwil, Switzerland); Thorsten Kramp (IBM Zurich Research Laboratory, Switzerland); Thomas Eirich (IBM Research Zurich, Switzerland); Rolf S Adelsberger (ETH Zurich & IBM Research Zurich, Switzerland); Urs Hunkeler (École Polytechnique Fédérale de Lausanne (EPFL), Switzerland)  
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**Energy Efficient Online Routing in Wireless Ad Hoc Networks**  
Hanan Shpungin (University of Calgary, Canada)  
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**Sensor Network Performance**

**Linear Decentralized Estimation of Correlated Data for Wireless Sensor Networks**  
Alireza S. Behbahani (University of California, Irvine, USA); Ahmed M. Eltawil (University of California, Irvine, USA); Hamid Jafarkhani (University of California, Irvine, USA)  
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**Information Capacity of Pulse-based Wireless Nanosensor Networks**  
Josep Miquel Jornet (Georgia Institute of Technology & School of Electrical and Computer Engineering, USA); Ian F. Akyildiz (Georgia Institute of Technology, USA)  
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Vibhav A Kapnadak (AT&T Labs, USA); Edward Coyle (Georgia Institute of Technology, USA)  
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**Energy-Delay Optimization in an Asynchronous Sensor Network with Multiple Gateways**  
Reuven Cohen (Technion, Israel); Boris Kapchits (Technion - Israel Institute of Technology, Israel)  
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Sensing

**OppSense: Information Sharing for Mobile Phones in Sensing Field with Data Repositories**
Edith C.-H. Ngai (Uppsala University & Division of Computer Systems, Sweden); He Huang (Uppsala University, Sweden); Jiangchuan Liu (Simon Fraser University, Canada); Mani B. Srivastava (University of California, Los Angeles, USA)
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**Efficient Network Management for Context-Aware Participatory Sensing**
Chi Harold Liu (IBM Research - China, P.R. China); Pan Hui (Deutsche Telekom Laboratories & Univeristy of Cambridge, Germany); Joel W. W. Branch (IBM T. J. Watson Research, USA); Chatschik Bisdikian (T. J. Watson Research & IBM Research, USA); Bo Yang (IBM China Research Lab, P.R. China)
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**RoadSoundSense: Acoustic Sensing based Road Congestion Monitoring in Developing Regions**
Rijurekha Sen (IIT Bombay, India); Pankaj Siriah (IIT Bombay, India); Bhaskaran Raman (Indian Institute of Technology, Bombay, India)
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**Distance and Time Based Node Selection for Probabilistic Coverage in People-Centric Sensing**
Asaad Ahmed Gad Elrab Ahmed (Nara Institute of Science and Technology, Japan); Keiichi Yasumoto (Nara Institute of Science and Technology, Japan); Yukiko Yamauchi (Nara Institute of Science and Technology, Japan); Minoru Ito (Nara Institute of Science and Technology, Japan)
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Posters and Demos

**Demonstrating Distributed Consensus Building by Locating the Spatial Centroid of a WSN**
Greggory P Carpenter (University of Vermont, USA); Lei Chen (University of Vermont, USA); Jeff Frolik (University of Vermont, USA)
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Arjun P Athreya (Carnegie Mellon University, USA); Patrick Tague (Carnegie Mellon University, USA)
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**Bankrupting the Jammer**
Farhana Ashraf (University of Illinois at Urbana-Champaign, USA); Yih-Chun Hu (University of Illinois at Urbana-Champaign, USA); Robin Kravets (University of Illinois at Urbana-Champaign, USA)
**Congestion-aware Multi-Gateway Routing for Wireless Mesh Video Surveillance Networks**
Keun-Woo Lim (Ajou University, Korea); Young-Bae Ko (Ajou University, Korea); Sung-Hee Lee (Ajou University, Korea); Sangjoon Park (ETRI, Korea)
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**Noise Reduction for Variance-Based Radio Tomographic Localization**
Yang Zhao (University of Utah, USA); Neal Patwari (University of Utah, USA)
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**Sleep Scheduling Towards Geographic Routing in Duty-Cycled Sensor Networks With A Mobile Sink**
Chunsheng Zhu (St. Francis Xavier University, Canada); Laurence T. Yang (St. Francis Xavier University, Canada); Lei Shu (Osaka University, Japan); Lei Wang (Dalian University of Technology, P.R. China); Takahiro Hara (Osaka University, Japan)
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**MEMS: Detection and Tracking of Mobile Events Using Mobile Sensors**
Na Yu (Colorado School of Mines, USA); Qi Han (Colorado School of Mines, USA)
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**Campus++: a publish-subscribe architecture for intermittently connected 802.15.4 networks**
Donato Battaglino (Universita' di Roma Tor Vergata, Italy); Lorenzo Bracciale (University of Roma "Tor Vergata", Italy); Andrea Detti (University of Rome "Tor Vergata", Italy); Francesca Lo Piccolo (University of Roma "Tor Vergata", Italy); Andrea Bragagnini (Telecom Italia, Italy); Maura Turolla (Telecom Italia & Strategy and innovation, Italy); Nicola Blefari-Melazzi (University of Rome "Tor Vergata", Italy)
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**Dynamic node placement for multi-hop localization in cluttered environments**
Muzammil Hussain (University of Oxford, United Kingdom); Niki Trigoni (University of Oxford, United Kingdom)
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**Wednesday, June 29**

**Keynote: Cyber-physical systems: linking sensing, networking, computation, and people**

Professor Jim Kurose
Detection/Tracking

Detection and Tracking of Dynamic Amorphous Events in Wireless Sensor Networks
Nicholas Hubbell (Lockheed Martin Corporation, USA); Qi Han (Colorado School of Mines, USA)
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Noise Reduction for Variance-Based Device-Free Localization and Tracking
Yang Zhao (University of Utah, USA); Neal Patwari (University of Utah, USA)
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Inferring Mobile Trajectories Using a Network of Binary Proximity Sensors
Eunjoon Cho (Stanford University, USA); Kevin Wong (Stanford University, USA); Omprakash Gnawali (Stanford University, USA); Martin Wicke (University of California, Berkeley, USA); Leonidas Guibas (Stanford University, USA)
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Ultra Wide Band Impulse Switching Protocols for Event and Target Tracking Applications
Qiong Huo (Michigan State University, USA); Subir Biswas (Michigan State University, USA); Anthony T Plummer (JHU/APL, USA)
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Cognitive networks

Adaptive Energy-Efficient Spectrum Probing in Cognitive Radio Networks
Zesheng Chen (Indiana University - Purdue University Fort Wayne, USA); Chao Chen (Indiana University Purdue University Fort Wayne, USA)
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Delay Analysis for Cognitive Radio Networks Supporting Heterogeneous Traffic
Yanxiao Zhao (Old Dominion University, USA); Min Song (Old Dominion University, USA); Chunsheng Xin (Norfolk State University, USA)
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Rateless-coding-based cooperative cognitive radio networks: design and analysis
Behzad Shahrasbi (Oklahoma State University, USA); Nazanin Rahnavard (Oklahoma State University, USA)
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Interference Pair-Based Distributed Spectrum Allocation in Wireless Mesh Networks with Frequency-Agile Radios
Tong Shu (Institute of Computing Technology, Chinese Academy of Sciences & Graduate University of Chinese Academy of Sciences, P.R. China); Min Liu (Institute of Computing Technology, Chinese Academy of Sciences, P.R. China); Zhongcheng Li (Institute of Computing Technology, Chinese Academy
Wireless Networks: Performance and Fairness

Realizing High Performance Multi-radio 802.11n Wireless Networks
Sriram Lakshmanan (Georgia Institute of Technology, USA); Jeongkeun Lee (HP Labs, USA); Raul Etkin (Hewlett-Packard Laboratories, USA); Sung-Ju Lee (HP Labs, USA); Raghupathy Sivakumar (Georgia Institute of Technology, USA)
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Characterizing WiFi Link Performance in Open Outdoor Networks
Utpal Paul (Stony Brook University, USA); Riccardo Crepaldi (University of Illinois at Urbana-Champaign, USA); Jeongkeun Lee (HP Labs, USA); Sung-Ju Lee (HP Labs, USA); Raul Etkin (Hewlett-Packard Laboratories, USA)
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FOG: Fairness in Mobile Opportunistic Networking
Abderrahmen Mtibaa (Carnegie Mellon University, USA); Khaled A. Harras (Carnegie Mellon University, USA)
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Capacity Bounds for Energy Efficient Data Streaming in Homogeneous Wireless Ad Hoc Networks
Hanan Shpungin (University of Calgary, Canada); Ajay Gopinathan (Linköping University, Sweden); Zongpeng Li (University of Calgary, Canada)
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RFID and Routing

Fast Identification of the Missing Tags in a Large RFID System
Rui Zhang (Arizona State University, USA); Yunzhong Liu (Arizona State University, USA); Yanchao Zhang (Arizona State University, USA); Jinyuan (Stella) Sun (University of Tennessee, USA)
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Efficient Pinpointing of Misplaced Tags in Large RFID Systems
Kai Bu (The Hong Kong Polytechnic University, Hong Kong); Bin Xiao (The Hong Kong Polytechnic University, Hong Kong); Qingjun Xiao (The Hong Kong Polytechnic University, Hong Kong); Shigang Chen (University of Florida, USA)
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Dynamic Data Prioritization for Quality-of-Service Differentiation in Heterogeneous Wireless Sensor Networks
Majid Nabi (Eindhoven University of Technology, The Netherlands); Milos Blagojevic (Eindhoven University of Technology, The Netherlands); Marc
Security 1

An Optimal Distributed Malware Defense System for Mobile Networks with Heterogeneous Devices
Yong Li (Tsinghua University, P.R. China); Pan Hui (Deutsche Telekom Laboratories & Univeristy of Cambridge, Germany); Depeng Jin (Tsinghua University, P.R. China); Li Su (Tsinghua University, P.R. China); Lieguang Zeng (Tsinghua University, P.R. China)
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Trade-offs of Source Location Protection in Globally Attacked Sensor Networks: a Case Analysis
Silvija Kokalj-Filipović (INRIA, France); Fabrice Le Fessant (INRIA Saclay, France); Predrag Spasojević (Rutgers University, USA)
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Making DTNs Robust Against Spoofing Attacks with Localized Countermeasures
Md Yusuf Sarwar Uddin (University of Illinois at Urbana-Champaign, USA); Ahmed Khurshid (University of Illinois at Urbana-Champaign, USA); Hee Dong Jung (University of Illinois at Urbana-Champaign, USA); Carl Gunter (University of Illinois at Urbana-Champaign, USA); Matthew Caesar (University of Illinois at Urbana-Champaign, USA); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA)
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Vehicular networks

QUO VADIS: QoS-aware Underwater Optimization Framework for Inter-vehicle Communication using Acoustic Directional Transducers
Baozhi Chen (Rutgers University, USA); Dario Pompili (Rutgers University, USA)
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Minimizing Age of Information in Vehicular Networks
Sanjit Kaul (WINLAB / Rutgers University, USA); Marco Gruteser (WINLAB / Rutgers University, USA); Vinuth Rai (Toyota InfoTechnology Center, USA); John Kenney (Toyota InfoTechnology Center, USA)
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**VTube: Towards the Media Rich City Life with Autonomous Vehicular Content Distribution**
Tom H. Luan (University of Waterloo, Canada); Lin X. Cai (Princeton University, USA); Jiming Chen (Zhejiang University, P.R. China); Sherman Shen (University of Waterloo, Canada); Fan Bai (General Motors, USA)
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**Thursday, June 30**

**Security 2**

**Coping with Packet Replay Attacks in Wireless Networks**
Zi Feng (University of California, Riverside, USA); Jianxia Ning (University of California, Riverside, USA); Ioannis Broustis (Alcatel-Lucent, USA); Konstantinos Pelechrinis (University of Pittsburgh, USA); Srikanth V. Krishnamurthy (University of California, Riverside, USA); Michalis Faloutsos (University of California, Riverside, USA)
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**Broadcasting in Multi Channel Wireless Networks in the Presence of Adversaries**
Alfred Asterjadhi (University of Padova, Italy); Raju Kumar (Penn State University, USA); Tom La Porta (Penn State University, USA); Michele Zorzi (University of Padova, Italy)
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**Trust-Assisted Anomaly Detection and Localization in Wireless Sensor Networks**
Shanshan Zheng (University of Maryland, College Park, USA); John S. Baras (University of Maryland College Park, USA)
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**Collusion-resilient Quality of Information Evaluation Based on Information Provenance**
Xinlei (Oscar) Wang (University of California, Davis, USA); Kannan Govindan (University of California Davis, USA); Prasant Mohapatra (University of California, Davis, USA)
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**Scheduling/Resource allocation**

**Optimal One-Shot Scheduling for MIMO Networks**
Douglas Blough (Georgia Institute of Technology, USA); Giovanni Resta (Istituto di Informatica e Telematica, Italy); Paolo Santi (IIT-CNR, Italy); Ramya Srinivasan (Georgia Institute of Technology, USA); Luis Miguel Cortés-Peña (Georgia Institute of Technology, USA)
Tom La Porta (Penn State University, USA); Chiara Petrioli (University of Rome "La Sapienza", Italy); Dora Spenza (University of Rome "La Sapienza", Italy)
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Minimum-Time Aggregation Scheduling in Multi-sink Sensor Networks
Bo Yu (Harbin Institute of Technology, P.R. China); Jianzhong Li (Harbin Institute of Technology, P.R. China)
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Interference-aware Spatio-Temporal Link Scheduling for Long Delay Underwater Sensor Networks
Junchao Ma (The Hong Kong Polytechnic University, Hong Kong); Wei Lou (The Hong Kong Polytechnic University, Hong Kong)
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Sensor network Systems

A Software-Hardware Emulator for Sensor Networks
Jingyao Zhang (Virginia Tech, USA); Yi Tang (Virginia Polytechnic Institute and State University, USA); Sachin Hirve (Virginia Polytechnic Institute and State University, USA); Srikrishna Iyer (Virginia Polytechnic Institute and State University, USA); Patrick Schaumont (Virginia Tech, USA); Yaling Yang (Virginia Tech, USA)
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Chryso -- A Multi-channel Approach to Mitigate External Interference
Venkat Iyer (Delft University of Technology, The Netherlands); Matthias Woehrle (Delft University of Technology, The Netherlands); Koen Langendoen (Delft University of Technology, The Netherlands)
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A Real-time Rescue System: Towards Practical Implementation of Robotic Sensor Network
Jing Yuan (Nanjing University, P.R. China); Shao-Jie Tang (Illinois Institute of Technology, USA)
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Vikram Gupta (Carnegie Mellon University & CISTER/ISEP, Polytechnic Institute of Porto, Porto, Portugal); Junsung Kim (Carnegie Mellon University, USA); Aditi Pandya (Carnegie Mellon University, USA); Karthik Lakshmanan (Carnegie Mellon University, USA); Ragunathan Rajkumar (Carnegie Mellon University, USA); Eduardo Tovar (ISEP-IIP, Portugal)
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Distributed Algorithms

On the Construction of the Minimum Cost Content-Based Publish/Subscribe Overlays
Yaxiong Zhao (Temple University, USA); Jie Wu (Temple University, USA)
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Distributed Coordination for Fast Iterative Optimization in Wireless Sensor/Actuator Networks
Rahul Balani (University of California, Los Angeles, USA); Nabil Hajj Chehade (UCLA, USA); Supriyo Chakraborty (University of California at Los Angeles, USA); Mani B. Srivastava (University of California, Los Angeles, USA)
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Distributed Algorithms for Bottleneck Identification and Segmentation in 3D Wireless Sensor Networks
Hongyu Zhou (University of Louisiana at Lafayette & University of Louisiana at Lafayette, USA); Ning Ding (University of Louisiana at Lafayette, USA); Miao Jin (University of Louisiana at Lafayette, USA); Su Xia (University of Louisiana at Lafayette, USA); Hongyi Wu (University of Louisiana at Lafayette, USA)
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Optimizing Cooperative Video Streaming in Wireless Networks
Zhangyu Guan (Shandong University & State University of New York at Buffalo, P.R. China); Tommaso Melodia (State University of New York at Buffalo, USA); Dongfeng Yuan (Shandong University, P.R. China)
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Incentives and Games

Analyzing Credit Evolution for Credit-based Incentive Schemes in Wireless Mesh Networks
Patrick Pak-Ching Lee (The Chinese University of Hong Kong, Hong Kong); Hongying Liu (Beihang University, P.R. China); John Chi Shing Lui (Chinese University of Hong Kong, Hong Kong)
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District: Embracing Local Markets in Truthful Spectrum Double Auctions
Wei Wang (University of Toronto, Canada); Baochun Li (University of Toronto, Canada); Ben Liang (University of Toronto, Canada)
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A Game Approach for Cell Selection and Resource Allocation in Heterogeneous Wireless Networks
Lin Gao (The Chinese University of Hong Kong, Hong Kong); Xinbing Wang (Shanghai Jiaotong University, P.R. China); Gaofei Sun (Shanghai Jiao Tong University, P.R. China); Youyun Xu (Shanghai Jiaotong University, P.R. China)
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Incentive-Aware Data Dissemination in Delay-Tolerant Mobile Networks
Ting Ning (University of Louisiana at Lafayette, USA); Zhipeng Yang (University of Louisiana at Lafayette, USA); Xiaojuan Xie (University of Louisiana at Lafayette, USA); Hongyi Wu (University of Louisiana at Lafayette, USA)
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Topology, Coverage and Connectivity

TOM: Topology Oriented Maintenance in Sparse Wireless Sensor Networks
Piotr Szczytowski (Technical University of Darmstadt, Germany); Abdelmajid Khelil (Technische Universität Darmstadt, Germany); Azad Ali (Technical University of Darmstadt, Germany); Neeraj Suri (Technical University of Darmstadt, Germany)
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Exploring Redundancy in Sensor Deployment to Maximize Network Lifetime and Coverage
Wei Shen (Zhejiang Sci-Tech University & University of Memphis, P.R. China); Qishi Wu (University of Memphis & Oak Ridge National Laboratory, USA)
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Dual Power Assignment Optimization For k-Edge Connectivity in WSNs
Nhat X Lam (University of Texas at Dallas, USA); Trac Ngoc Nguyen (Raytheon Systems, USA); Min Kyung An (University of Texas at Dallas, USA); Dung Huynh (University of Texas at Dallas, USA)
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A Cooperative Clustering Protocol for Energy Constrained Networks
Diep N. Nguyen (University of Arizona, USA); Marwan Krunz (University of Arizona, USA)
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Rate Adaptation/Selection

Rate Adaptation in Visual MIMO
Ashwin Ashok (Rutgers, The State University of New Jersey & WINLAB, USA); Marco Gruteser (WINLAB / Rutgers University, USA); Narayan Mandayam (WINLAB, Rutgers University, USA); Taekyoung Kwon (Seoul National University, Korea); Wenjia Yuan (Rutgers, The State University of New Jersey, USA); Michael Varga (Rutgers, The State University of New Jersey, USA); Kristin Dana (Rutgers University, USA)
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A Context-aware Approach to Wireless Transmission Adaptation
Veljko Pejovic (University of California, Santa Barbara, USA); Elizabeth Belding (University of California, Santa Barbara, USA)
End-to-End Rate Selection for Opportunistic Reception in Multi-Rate Wireless Networks

Raju Kumar (Penn State University, USA); Sharanya Eswaran (Telcordia Technologies, USA); Tom La Porta (Penn State University, USA)

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