

## K. WIRELESS NETWORKING THEORY SYMPOSIUM

### Technical Program Committee:

Co-Chair: Marco Chiani, *University of Bologna, Italy*

Co-Chair: Kin K. Leung, *AT&T Labs - Research, USA*

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Sung-Ju Lee, *HP Labs, USA*

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Sirin Tekinay, *New Jersey Institute of Technology, USA*

Ljiljana Trajkovic, *Simon Fraser University, Canada*

Velio Tralli, *University of Ferrara, Italy*

### Sponsoring Technical Committees:

*Personal Communications and Radio Communications*

### KO1 WIDEBAND CDMA NETWORKS: CODE ASSIGNMENT

Monday 29 April 2002

8:50 - 10:20

Odets, 4th Floor

*Session Chair:* Mauri Nissila, *VTT, Finland*

KO1-1 Performance Evaluation of Orthogonal Variable-Spreading-Factor Code Assignment Schemes in W-CDMA

Rujipun Assarut, Ken'ichi Kawanishi, Rajkumar Deshpande, Ushio Yamamoto, Yoshikuni Onozato, *Gunma University, Japan*

KO1-2 Efficient Algorithms for the Assignment of OVSF Codes in Wideband CDMA  
M. Dell'Amico, M. L. Merani, *University of Modena and Reggio Emilia, Italy*, F. Maffioli, *Politecnico di Milano, Italy*

KO1-3 Dynamic Code Assignment Improves Channel Utilization for Bursty Traffic in Third-Generation Wireless

Carl E. Fossa Jr., Nathaniel J. Davis IV, *Virginia Polytechnic Institute and State University, USA*

KO1-4 Spreading Code Assignment in an Ad Hoc DS-CDMA Wireless Network  
Yunnan Wu, S. Y. Kung, *Princeton University, USA*, Qian Zhang, Wenwu Zhu, *Microsoft Research, China, China*

### KO2 WIRELESS MULTIMEDIA SERVICES

Monday 29 April 2002

10:40 - 12:10

Odets, 4th Floor

*Session Chair:* Catherine Lamy, *Philips Research, France*

KO2-1 Utility-oriented Adaptive QoS and Bandwidth Allocation in Wireless Networks  
Yaxin Cao, Victor O. K. Li, *The University of Hong Kong, Hong Kong*

KO2-2 Resource Allocation for Multimedia Services on the UMTS Downlink  
Shahzad Ali Malik, Djamel Zeghlache, *Institut National des Telecommunications, France*

KO2-3 Inter-stream Synchronization for Multimedia Applications in Wireless-ATM Networks

A. Iera, A. Modafferi, R. Agostino, G. Araniti, *University of Reggio Calabria, Italy*, A. Molinaro, *University of Calabria, Italy*

KO2-4 A Capacity-Optimal QoS Provisioning Scheme for Multimedia Traffic in CDMA Networks  
Tao Shu, Zhisheng Niu, *Tsinghua Univ., China*

### KO3 WIDEBAND CDMA NETWORKS: CALL ADMISSION AND PERFORMANCE

Monday 29 April 2002

13:40 - 15:10

Odets, 4th Floor

*Session Chair:*

KO3-1 Uplink Admission Control in WCDMA Based on Relative Load Estimates  
Fredrik Gunnarsson, Erik Geijer-Lundin, *Ericsson Radio Systems, Sweden*, Gunnar Bark, *Niclas Wiberg, Linköpings Universitet, Sweden*

KO3-2 Performance Evaluation of Priority-based Call Admission Control in Multiservice DS-CDMA Cellular Networks Supporting VBR Video Traffic

T. S. Randhawa, *Sierra Wireless Cluster at New MIC, Canada*, R. H. S. Hardy, *Simon Fraser University, Canada*

KO3-3 An Analytical Framework for the Design and Performance Evaluation of Realistic CDMA-CPCH Systems  
Sebnem Z. Ozer, *MeshNetworks, Inc., USA*, Symeon Papavassiliou, *New Jersey Institute of Technology, USA*

KO3-4 A Serial Acquisition Scheme Based on Statistical-Hypothesis-Testing for Asynchronous DS/CDMA Systems  
Marco Guainazzo, Claudio Sacchi, Carlo S. Regazzoni, *University of Genoa, Italy*

### KO3 QoS OF AD-HOC NETWORKS, A JOINT SESSION WITH COMMUNICATIONS QoS AND RELIABILITY

Monday 29 April 2002

13:40 - 15:10

Carnegie, 5th Floor

*Session Chair:* Kenichi Mase, *Niigata University, Japan*

KO3-1 A Novel Framework for QoS-Aware Resource Discovery in Mobile Ad Hoc Networks

Jiangchuan Liu, Bo Li, *The Hong Kong University of Science and Technology, USA*, Qian Zhang, Wenwu Zhu, *Microsoft Research, China*, Jun Zhang, *University of Wisconsin at Milwaukee, USA*

KO3-2 Group Mobility and Partition Prediction in Wireless Ad-Hoc Networks  
Karen H. Wang, Baochun Li, *University of Toronto, Canada*

KO3-3 Predictive Location-based QoS Routing in Mobile Ad Hoc Networks  
Samarth H. Shah, Klara Nahrstedt, *University of Illinois at Urbana-Champaign, USA*

KO3-4 A Set Partitioning Approach for Cellular Planning of Mobile Radio Network  
Syed Zahid Ali, *Imperial College of Science, Technology, and Medicine, UK*

### KO4 PACKET SCHEDULING FOR WIRELESS NETWORKS

Monday 29 April 2002

15:30 - 17:00

Odets, 4th Floor

*Session Chair:* Zhimei Jiang, *AT&T Labs - Research, USA*

KO4-1 Channel Capacity Fair Queueing in Wireless Networks: Issues and a New Algorithm

Li Wang, Yu-Kwong Kwok, Wing-Cheong Lau, Vincent K. N. Lau, *The University of Hong Kong, Hong Kong*

KO4-2 Distributed Weighted Fair Queueing in 802.11 Wireless LAN  
Albert Banchs, Xavier Pérez, *NEC Europe Ltd., Germany*

KO4-3 Channel Error and Handoff Compensation Scheme for Fair Queueing Algorithms in Wireless Networks  
Suwon Lee, Kiseon Kim, *Kwangju Institute of Science and Technology, Korea*, Aftab Ahmad, *DePaul University, USA*

KO4-4 Scheduling Start Time in CDMA Burst Admission  
Lei Zhuge, *University of Southern California, USA*, Victor O. K. Li, *Univ. of Hong Kong, Hong Kong*

### KO4 MOBILE IP, A JOINT SESSION WITH COMMUNICATIONS QoS AND RELIABILITY

Monday 29 April 2002

15:30 - 17:00

Carnegie, 5th Floor

*Session Chair:* Kelly Krick, *Nortel Networks, USA*

KO4-1 Dynamic Service Negotiation Protocol (DSNP) and Wireless Diffserv  
Jyh-Cheng Chen, *National Tsing Hua University, Taiwan*, Anthony McAuley, *Telcordia Technologies, USA*, Venkatesh Sarangan, *Penn State University, USA*, Shinichi Baba, *Yoshihiro Ohba, Toshiba America Research, Inc., USA*

KO4-2 A Linux-based EGPRS Real-time Test Bed Software for Wireless QoS and Differentiated Service Studies  
Meng-Ju Lin, Hui Luo, Li Fung Chang, *AT&T Labs, USA*

KO4-3 Integration of IP Mobility and Security for Secure Wireless Communications  
Melbourne Barton, John Lee, Sanjai Narain, K. Daniel Wong, *Telcordia Technologies, USA*, Derek Atkins, *IHTFP Consulting, USA*, Deidra Ritcherson, *University of Chicago, USA*, Kemal E. Tepe, *Rutgers University, USA*

KO4-4 Optimizing Public-Key Encryption for Wireless Clients  
Nachiketh R. Potlapally, Srivaths Ravi, Anand Raghunathan, *NEC USA, Inc., USA*, Ganesh Lakshminarayana, *Alphion Corporation, USA*

**K05 AD-HOC WIRELESS NETWORKS: DESIGN 1**

Tuesday 30 April 2002  
10:40 - 12:10  
Alvin, 5th Floor

*Session Chair:* Hui Luo, *AT&T Labs - Research, USA*

**K05-1 An Ad Hoc Network with Mobile Backbones**

Kaixin Xu, Xiaoyan Hong, Mario Gerla, University of California at Los Angeles, USA

**K05-2 Ad Hoc Networks with Smart Antennas Using IEEE 802.11-based Protocols**

Nader S. Fahmy, Terence D. Todd, *McMaster Univ., Canada*, Vytas Kezys, *TalariCom Inc., Canada*

**K05-3 Adaptive Backbone-based Multicast for Ad Hoc Networks**

Chaiporn Jaikaeo, Chien-Chung Shen, *University of Delaware, USA*

**K06 NETWORK CAPACITY AND DIMENSIONING**

Tuesday 30 April 2002  
10:40 - 12:10  
Odets, 4th Floor

*Session Chair:* Franco Vatalaro, *University of Rome at Tor Vergata, Italy*

**K06-1 Analytical Concepts for GPRS Network Dimensioning**

Ulrich Vornefeld, *Aachen University of Technology, Germany*

**K06-2 Measurements from a Campus Wireless Network**

Ron Hutchins, Ellen W. Zegura, Georgia Institute of Technology, USA

**K06-3 Capacity Regions for Wireless Ad Hoc Networks**

Stavros Toumpis, Andrea Goldsmith, *Stanford University, USA*

**K06-4 Coverage in Wireless Ad-Hoc Sensor Networks**

Xiang-Yang Li, Peng-Jun Wan, Ophir Frieder, Illinois Institute of Technology, USA

**K07 AD-HOC WIRELESS NETWORKS: ROUTING JOINT SESSION WITH NEXT GENERATION INTERNET**

Tuesday 30 April 2002  
13:40 - 15:10  
Alvin, 5th Floor

*Session Chair:* Anthony C.K. Soong, *Ericsson*

**K07-1 Scalable Ad Hoc Routing in Large, Dense Wireless Networks Using Clustering and Landmarks**

Xiaoyan Hong, Mario Gerla, Yunjung Yi, Kaixin Xu, UCLA, USA, Taek Jin Kwon, Telcordia Technologies, Inc., USA

**K07-2 A TDMA-based Bandwidth Reservation Protocol for QoS Routing in a Wireless Mobile Ad Hoc Network**

Wen-Hwa Liao, *National Central Univ., Taiwan*, Yu-Chee Tseng, *National Chiao-Tung Univ., Taiwan*, Kuei-Ping Shih, *Tamkang Univ., Taiwan*

**K07-3 The Selective Intermediate Nodes Scheme for Ad Hoc On-Demand Routing Protocols**

Yunjung Yi, Mario Gerla, UCLA, USA, Taek Jin Kwon, Telcordia Technologies, USA

**K07-4 Load Balancing of Multipath Source Routing in Ad Hoc Networks**

Lianfang Zhang, Zenghua Zhao, Yantai Shu, Lei Wang, Tianjin University, China, Oliver W. W. Yang, University of Ottawa, Canada

**K08 POWER ALLOCATION IN CDMA NETWORKS**

Tuesday 30 April 2002  
13:40 - 15:10  
Odets, 4th Floor

*Session Chair:* Ljiljana Trajkovic, *Simon Fraser University, Canada*

**K08-1 Capacity and Power Investigation of Opportunity Driven Multiple Access (ODMA) Networks in TDD-CDMA Based Systems**

T. Rouse, S. McLaughlin, The University of Edinburgh, UK, Band, Elektrobot (UK) Ltd., UK

**K08-2 Optimum Power Allocation for Soft Handoff Algorithms over Lognormal Shadowing Channels**

Mazen O. Hasna, Mohamed-Slim Alouini, University of Minnesota, USA

**K08-3 Joint Error Control and Power Allocation for Video Transmission over CDMA Networks with Multiuser Detection**

Shengjie Zhao, Zixiang Xiong, Xiaodong Wang, Texas A&M University, USA

**K08-4 Self-similarities in Transmission Delay of CDMA Cellular Packet Systems for Varying Transmission Power Control Error**

Kazuo Mori, Tomotaka Nagaosa, Hideo Kobayashi, Mie University, Japan, Hirotochi Hidaka, YRP Key Technology Laboratories, Japan, Takehiko Kobayashi, Tokyo Denki University, Japan

**K09 HANDOFF TECHNIQUES**

Tuesday 30 April 2002  
15:30 - 17:00  
Alvin, 5th Floor

*Session Chair:* Alberto Zanella, *CSITE/CNR, University of Bologna, Italy*

**K09-1 Discrete-time Analysis of Soft Handoff in CDMA Cellular Networks**

Alexe E. Leu, Brian L. Mark, George Mason University, USA

**K09-2 Reordering Soft Handoff Frames to Minimize Delay in CDMA Cellular Networks**

Ivan N. Vukovic, Rajesh S. Pazhyannur, Irfan Ali, Philip J. Fleming, Motorola, Inc., USA

**K09-3 HOPOVER: A New Handoff Protocol for Overlay Networks**

Fan Du, Lionel M. Ni, Abdol-Hossein Esfahanian, Michigan State University, USA

**K09-4 Estimating Velocity of Mobiles in EDGE Systems**

Chengshan Xiao, University of Missouri-Columbia, USA

**K09-5 Low Latency Handoff for Wireless IP QOS with NeighborCasting**

Eunsoo Shim, Hung-yu Wei, Yusun Chang, Richard D. Gitlin, Columbia University, USA

**K10 TCP PERFORMANCE IN WIRELESS NETWORKS JOINT SESSION WITH NEXT GENERATION INTERNET**

Tuesday 30 April 2002  
15:30 - 17:00  
Odets, 4th Floor

*Session Chair:* Ljiljana Trajkovic, *Simon Fraser University, Canada*

**K10-1 On-Demand TCP: Transparent Peer to Peer TCP/IP over IrDA**

Jean Tourrilhes, *Hewlett Packard Laboratories, USA*, Luiz Magalhaes, Casey Carter, *University of Illinois at Urbana-Champaign, USA*

**K10-2 Improving TCP Performance after a Long Channel Outage**

Homare Murakami, Gang Wu, Masugi Inoue, *Communications Research Laboratory, Japan*

**K10-3 Handover Support for TCP Connections Through Path Prediction**

S. Papayiannis, S. Hadjiefthymiades, L. Merakos, University of Athens, Greece

**K10-4 ROHC+: A New Header Compression Scheme for TCP Streams in 3G Wireless Systems**

G. Boggia, P. Camarda, V. G. Squeo, *Politecnico di Bari, Italy*

**K11 AD-HOC WIRELESS NETWORKS: DESIGN 2**

Wednesday 01 May 2002  
8:50 - 10:20  
Alvin, 5th Floor

*Session Chair:* Herman D. Hughes, *Michigan State University, USA*

**K11-1 A Task Graph Based Application Framework for Mobile Ad Hoc Networks**

Wang Ke, Prithwish Basu, Thomas D. C. Little, Boston University, USA

**K11-2 Signaling and QoS Guarantees in Mobile Ad Hoc Networks**

Chi-Hsiang Yeh, Hussein T. Mouftah, Hossam Hassanein, *Queen's University, Canada*

**K11-3 Computing Optimal Local Cover Set for Broadcast in Ad Hoc Networks**

Min-Te Sun, Ten-Hwang Lai, *Ohio State University, USA*

**K11-4 Effect of Availability Factor Threshold and Clustering Gap on Performance of Clustering Mechanisms for Multicluster Mobile Ad Hoc Networks**

Aqeel A. Siddiqui, Ericsson Inc., USA, Ravi Prakash, *University of Texas at Dallas, USA*

**K12 MOBILITY MANAGEMENT**

Wednesday 01 May 2002  
8:50 - 10:20  
Odets, 4th Floor

*Session Chair:* Byoung-Jo J Kim, *AT&T Labs - Research, USA*

**K12-1 State Analysis and Aggregation Study for Multicast-based Micro Mobility**

Ahmed Helmy, *Univ. of Southern California, USA*

**K12-2 Connection Tree Based Micro-mobility Management for IP-centric Mobile Networks**

Qiang Gao, Anthony Acampora, *University of California at San Diego, USA*

**K12-3 An Optimal Location Management Scheme for Minimizing Signaling Cost in Mobile IP**

Jiang Xie, Ian F. Akyildiz, *Georgia Institute of Technology, USA*

**K12-4 Location Information Services in Mobile Ad Hoc Networks**

Tracy Camp, Jeff Boleng, Lucas Wilcox, *Colorado School of Mines, USA*

**K13 AD-HOC WIRELESS NETWORKS: POWER CONSERVATION TECHNIQUES**

Wednesday 01 May 2002  
10:40 - 12:10

Alvin, 5th Floor

*Session Chair:* Herman D. Hughes, Michigan State University, USA

**K13-1** Scheduled Rendezvous and RFID Wakeup in Embedded Wireless Networks  
Milan Nosovic, Terry D. Todd, McMaster University, Canada

**K13-2** Coordinated Power Conservation for Ad Hoc Networks  
Chavalit Srisathapornphat, Chien-Chung Shen, University of Delaware, USA

**K13-3** A Routing Protocol and Energy Efficient Techniques in Bluetooth Scatternets  
Balakrishna J. Prabhu, A. Chockalingam, Indian Institute of Science, India

**K13-4** A Comprehensive Energy Conservation Solution for Mobile Ad Hoc Networks  
John A. Stine, Gustavo de Veciana, The University of Texas at Austin, USA

**K14 PERFORMANCE ANALYSIS OF WIRELESS NETWORKS**

Wednesday 01 May 2002  
10:40 - 12:10

Odets, 4th Floor

*Session Chair:* Byoung-Jo J Kim, AT&T Labs - Research, USA

**K14-1** Performance of UMTS Radio Link Control

Qinqing Zhang, Hsuan-Jung Su, Bell Laboratories, Lucent Technologies, USA

**K14-2** Performance Analysis for Cellular Systems Supporting Heterogeneous Services  
Dongmei Zhao, Sherman Shen, Jon W. Mark, University of Waterloo, Canada

**K14-3** Performance Evaluation of WAP-based Applications over GPRS  
Peter Stuckmann, Christian Hoymann, Aachen University of Technology, Germany

**K14-4** Measurement-based Replanning of GSM Cell Capacities Considering Retrials, Redials and Hand-offs  
Ertan Onur, Hakan Delic, Cem Ersoy, M. Ufuk Caglayan, Bogazici University, Turkey

**K15 LINK ADAPTATION TECHNIQUES**

Wednesday 01 May 2002  
13:40 - 15:10

Alvin, 5th Floor

*Session Chair:* Velio Tralli, University of Ferrara, Italy

**K15-1** Wireless Link Adaptation Policies: QoS for Deadline Constrained Traffic with Imperfect Channel Estimates  
Tim Holliday, Andrea Goldsmith, Peter Glynn, Stanford University, USA

**K15-2** Performance Analysis of Rate Adaptation Scheme for Data Traffic in DS-CDMA Systems  
Liang Xu, Xuemin Shen, Jon W. Mark, University of Waterloo, Canada

**K15-3** Efficient Radio Resource Control for Manhattan Street Environments  
Mohamed Moustafa, Visionics Corporation, USA, Ibrahim Habib, The City University of New York, USA, Mahmoud Naghshineh, IBM Watson Research Center, USA

**K15-4** Unslotted DS/CDMA Packet Radio Network Using Rate/Space Adaptive CLSP  
Vinh V. Phan, Nokia Networks, Finland, Savo G. Glisic, University of Oulu, Finland

**K16 MULTICAST PROTOCOLS FOR WIRELESS NETWORKS**

Wednesday 01 May 2002  
13:40 - 15:10

Odets, 4th Floor

*Session Chair:* Kia Makki, Florida International University, USA

**K16-1** Analysis of Mobile Multicasting in IP-based Wireless Cellular Networks  
Nilanjan Banerjee, Sajal K. Das, The University of Texas at Arlington, USA

**K16-2** Family ACK Tree (FAT): A New Reliable Multicast Protocol for Mobile Ad Hoc Networks  
Ming-Yu Jiang, Wanjiun Liao, National Taiwan University, Taiwan

**K16-3** A Framework for Handling Multicast Source Movement in Mobile-IP  
Hrishikesh Gossain, Siddesh Kamat, Dharma P. Agrawal, University of Cincinnati, USA

**K16-4** Cumulative Acknowledgement Multicast Repetition Policy for Wireless LANs or Ad Hoc Network Clusters  
Leonard E. Miller, Byung-Jae Kwak, National Institute of Standards and Technology, USA

**K17 CHANNEL MODELS AND MAC PROTOCOLS**

Wednesday 01 May 2002  
15:30 - 17:00

Alvin, 5th Floor

*Session Chair:* Gianluca Mazzini, University of Ferrara, Italy

**K17-1** Analytical Study of a Slotted CSMA Protocol on a Two-State Markov Channel  
A. Giovanardi, University of Ferrara, Italy

**K17-2** A First-Order Markov Model for Correlated Nakagami-m Fading Channels  
A. Ramesh, Synopsys (India) Pvt. Ltd., India, A. Chockalingam, Indian Institute of Science, India, L. B. Milstein, University of California at San Diego, USA

**K17-3** Aloha with Preamble Sampling for Sporadic Traffic in Ad Hoc Wireless Sensor Networks  
Amre El-Hoiydi, Centre Suisse d'Electronique et de Microtechnique, Switzerland

**K17-4** An Accurate Line of Sight Propagation Performance Model for Ad Hoc 802.11 Wireless LAN (WLAN) Devices  
David G. Green, SRI International and Monmouth University, USA, M. S. Obaidat, Monmouth University, USA

**K18 RADIO ACCESS**

Wednesday 01 May 2002  
15:30 - 17:00

Odets, 4th Floor

*Session Chair:* Fulvio Babich, University of Trieste, Italy

**K18-1** Performance Evaluation of Common Radio Resource Management (CRRM)  
Antti Tölli, Petteri Hakalin, Nokia Networks, Spain, Harri Holma, Nokia Networks, Finland

**K18-2** A New Protocol for Wireless LANs  
P. Nicopolitidis, G. I. Papadimitriou, A. S. Pomportsis, Aristotle University, Greece, M. S. Obaidat, Monmouth University, USA

**K18-3** Web SHAKE: A Fast WWW Access Method for Mobile Terminals on Temporary Cluster Networks  
Yousuke Konishi, Susumu Ishihara, Tadanori Mizuno, Shizuoka University, Japan

**K18-4** Running TCP over IS-2000  
Farid Khafizov, Mehmet Yavuz, Nortel Networks, USA

**UPCOMING CONFERENCES****IWQOS 2002**

10th International Workshop on Quality of Service  
15-17 May - Miami Beach, FL, USA  
[www.cs.virginia.edu/iwqos](http://www.cs.virginia.edu/iwqos)

**CTW 2002**

IEEE Communication Theory Workshop  
19-22 May - Sanibel Island, FL, USA  
[www.ct02.gatech.edu](http://www.ct02.gatech.edu)

**INFOCOM 2002**

21<sup>st</sup> IEEE International Conference on Computer Communications  
23-27 June - New York, NY, USA  
<http://www.ieee-infocom.org/2002>

**ICME 2002**

IEEE International Conference on Multimedia and Expo  
26-29 August - Lausanne, Switzerland  
<http://www.icme2002.org>

**PIMRC 2002**

3rd IEEE International Symposium on Personal, Indoor and Mobile Communications  
15-18 September - Lisbon, Portugal  
<http://www.pimrc2002.org>

**MILCOM 2002**

IEEE Military Communications Conference  
6-9 October - Anaheim, CA, USA  
<http://www.milcom.org/2002>

**GLOBECOM 2002**

IEEE Global Communications Conference  
17-21 November - Taipei, Taiwan, R.O.C.  
<http://www.globecom2002.com.tw>

**WCNC 2003**

IEEE Wireless Communications and Networking Conference  
17-19 March - New Orleans, LA, USA  
[WCNC2003x@comsoc.org](mailto:WCNC2003x@comsoc.org)

**OFC 2003**

Optical Fiber Communications Conference and Exhibit  
25-27 March - Atlanta, GA, USA  
<http://www.osa.org>

**IM 2003**

IFIP/IEEE International Symposium on Integrated Network Management  
24-28 March - Colorado Springs, CO, USA  
[IM2003x@comsoc.org](mailto:IM2003x@comsoc.org)

**INFOCOM 2003**

22nd IEEE International Conference on Computer Communications  
25-29 March - San Francisco, CA, USA  
[INFOCOM2003x@comsoc.org](mailto:INFOCOM2003x@comsoc.org)

**ICC 2003**

IEEE International Conference on Communications  
11-15 May - Anchorage, AK, USA  
[ICC2003x@comsoc.org](mailto:ICC2003x@comsoc.org)

**MILCOM 2003**

IEEE Military Communications Conference  
25-29 October - Boston, MA, USA  
[MILCOM2003x@comsoc.org](mailto:MILCOM2003x@comsoc.org)

**GLOBECOM 2003/IEEE ComSoc EXPO 2003**

IEEE Global Communications Conference  
1-5 December - San Francisco, CA, USA  
[GLOBECOM2003x@comsoc.org](mailto:GLOBECOM2003x@comsoc.org)