2002 IEEE International Conference on Communications

(V.2)

2002 IEEE International Conference on Communications

Conference Proceedings

28 April –2 May 2002
New York, NY USA

A Fifty-Year Foundation for the Future
IEEE COMMUNICATIONS SOCIETY
1952–2002

IEEE COMMUNICATIONS SOCIETY

ICC
GLOBECOM

IEEE

2002 IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS

Copyright and Reprint Permission

IEEE Catalog Number	02CH37333 (softbound) 02CH37333C (CD-ROM)
ISBN	0-7803-7400-2 (softbound) 0-7803-7401-0 (CD-ROM)
Library of Congress	81-649547

Additional copies of this publication are available from

IEEE Operations Center
P.O. Box 1331
445 Hoes Lane
Piscataway, NJ 08855-1331 USA

1-800-678-IEEE
1-732-981-1393
1-732-981-9667 (FAX)
email: customer.services@ieee.org

ICC 2002 PATRONS

AT&T Labs

Avaya Labs

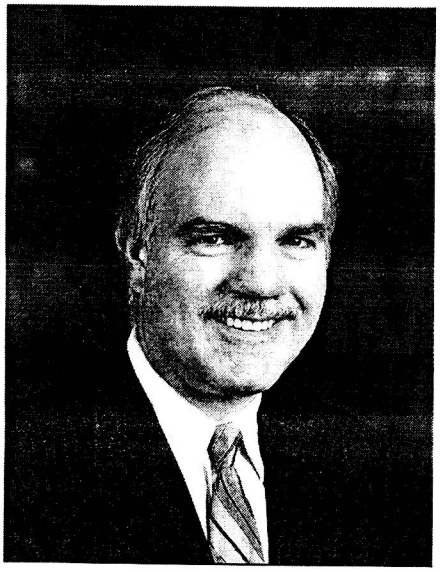
Nippon Telegraph and Telephone (NTT)

Nokia

Polytechnic University

Verizon Communications

MESSAGE FROM THE GENERAL CHAIR



On behalf of the ICC2002 Organizing Committee, I am pleased to welcome you to New York City for this IEEE International Conference on Communications (ICC2002). We worked hard and put together an exciting Program that we hope you will find interesting and enjoyable.

As a graduate student beginning my research, the very first technical conference that I attended was ICC'82 in Philadelphia. It is a great honor, 20 years later, to now serve as the General Chair of ICC2002. It is even more special since we are celebrating the 50th anniversary of the Communications Society (ComSoc) this year, as reflected in our conference theme: "50 Years of Advancement in Communications." In recognition of this golden anniversary, we have scheduled a number of events, including a special retrospective 50th Anniversary Panel chaired by Bob Lucky. In addition, with your full or limited registration you will receive a DVD set that contains 50 years of papers that have been published in ComSoc magazines and journals and the last few years of conference proceedings! It is a library of more than 28,000 technical research/industry papers from more than 23,000 authors.

For the first time, ICC consists entirely of thematic Symposia. We selected 11 hot topics that encompass a broad range of interests. Even without a "General Conference," 1568 papers were submitted for review: a new record for ICC/GLOBECOM conferences! A tremendous thanks is due Malathi Veeraraghavan and her Technical Program Committee for handling this incredible number of submissions under difficult circumstances between September and November 2001.

In addition to this collection of peer-reviewed technical papers, we also have scheduled 11 exciting Panel and Business Application Sessions, 16 Tutorials, 3 Workshops, and Plenary presentations by Dr. Ravi Sethi, Mark Wegleitner and Dr. Michael Hluchyj.

We are glad that you were able to join us for ICC2002 in New York City, as it recovers from the terrible September 11 tragedy. I am sure you will enjoy your stay as you meet with your colleagues from around the world, celebrate ComSoc's "Fifty-Year Foundation for the Future," and perhaps help launch your own new career as I did 20 years ago. While you are visiting, of course take some time to enjoy the many attractions and entertainment of New York.

The ICC2002 Organizing Committee looks forward to making your visit a success in every way!

Mark J. Karol
General Chair, ICC2002

MESSAGE FROM THE TECHNICAL PROGRAM CHAIR

The International Conference on Communications, ICC, is being held this year under somewhat unique circumstances. First, we are experiencing a significant slow-down in the telecommunications marketplace. Following the boom of the nineties when large sums of money were invested in telecommunications companies, we are now experiencing a period of relative drought. Startups are struggling to find customers, layoffs are rampant in big companies, and stock prices of major telecommunications companies are significantly lower than in their heyday. Second, ICC is being held in New York City, which is recovering from the terrible 9/11 tragedy of year 2001. Security has become of paramount importance both here in the USA and worldwide. As engineers in various communications fields, we are all keenly aware of the role we can play toward improving security without a loss of freedom.

ICC2002 is thus being largely influenced by these two factors. With major cost reductions in companies and the perceived risks of air travel, attendance at ICC2002 is likely to be impacted. We received a record number of papers, 1568, a number that may have been lower has our paper submission deadline been a mere 9 days later (our paper submission deadline was Sept. 3, 2001). Authors of a few accepted papers have cited the above two reasons for withdrawing their papers from the conference before the publications deadline of this proceedings.

However, in spite of these negative circumstances, I am personally optimistic on the prospects of telecommunications in the coming years. Two technologies, optical communications/switching, and CDMA for next-generation wireless networks, inspired the start-up of several companies in the nineties. We need to deliver on the promises of these two technologies. For wired networks, I do not see an alternative to this promised transition to optical networks. The current situation is that we have a bandwidth glut. However, this "glut" does not exist end-to-end. If it were available end-to-end, as a simple example, I would not be struggling with my current effort to teach a class synchronously at two of our campuses. Virtual reality, high-quality video-conferencing, work collaborations across distances (which, if done effectively, could have a significant impact on our current urban-based societal structures), etc., become truly possible only with large amounts of bandwidth. Moving to optical fiber from our current copper based infrastructure is a necessary to achieve this goal. A complement to optical networks is a high-bandwidth outdoor wireless network. Just because anywhere-anytime high-bandwidth communications is not possible with today's limitations does not mean it is something we should not strive toward. Wireless communication is clearly needed to achieve the "anywhere" part. Be it through satellites, terrestrial deployments or stratospheric communications, we need high-bandwidth wireless links. A killer application for wireless communications will be sensor networks. The placement of communication-capable sensors in common items like light bulb switches, refrigerators, microwaves, along roads, and other currently-inconceivable places will dramatically change our everyday lives.

Given this tremendous upside to the value of our work as communications engineers, I think conferences such as ICC are most important to provide researchers a forum in which to exchange ideas and results, an fuel new thinking and joint efforts to achieve these ambitious goals. For this ICC, we have selected 655 papers with the hard work of a technical program committee of 21 Symposia Chairs/Vice-Chairs, 250 TPC members, and Debora Kingston, IEEE Communications Society. I hope you find this collection of papers useful toward making the big advances we need in achieving the next level of data communications. Happy reading!

Malathi Veeraraghavan
ICC 2002 Technical Program Chair

EXECUTIVE COMMITTEE

General Chair
Mark Karol
Avaya Inc., USA

Vice Chair
Tom Plevyak
Verizon Communications, USA

Technical Program Chair
Malathi Veeraraghavan
Polytechnic University, USA

Technical Program Vice-Chair
Kin Leung
AT&T Labs, USA

Technical Program Vice-Chair
Moe Win
AT&T Labs, USA

Tutorials Chair
Salah Aidarous
NEC America, USA

Finance Chair
Bruce Worthman
IEEE Communications Society, USA

Corporate Patrons Chair
Victor Lawrence
Lucent Technologies, USA

Exhibits Chair
Addy Zeni
Lucent Technologies, USA

Local Arrangements Chair
Thomas LaPorta
Lucent Technologies, USA

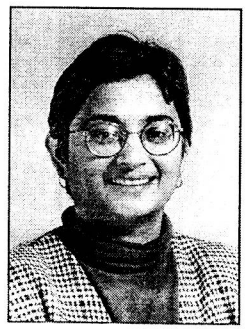
GICC Advisor
Mike Kincaid
MSK & Associates

IEEE Communication Society:
Senior Conference Planner
Debora Kingston

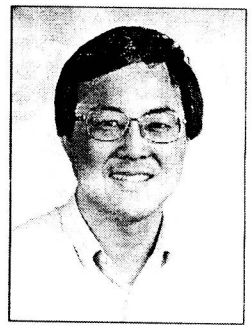
Meeting Administrator
Phyllis Curran

Graphic Designer
Jana Colonna

Tom Plevyak



Malathi Veeraraghavan



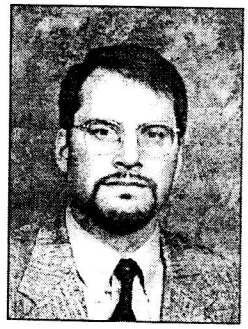
Kin Leung

Moe Win

Salah Aidarous

Bruce Worthman

Victor Lawrence



Thomas LaPorta

SYMPOSIUM CHAIRS

Koichi Asatani, *Kogakuin University, Japan*
Chair: Communications QoS and Reliability Symposium

Marco Chiani, *University of Bologna, Italy*
Co-Chair: Wireless Networking Theory Symposium

Michael Devetsikiotis, *North Carolina State University, USA*
Co-Chair: Next-Generation Internet Symposium

Elliot Eichen, *Genuity, USA*
Co-Chair: Multimedia and VoIP - Services & Technologies Symposium

Ibrahim Habib, *City University of New York, USA*
Co-Chair: High-Speed Networks Symposium

Andrzej Jajszczyk, *AGH University of Technology, Poland*
Co-Chair: High-Speed Networks Symposium

Ryoichi Komiya, *Multimedia University, Malaysia*
Co-Chair: Multimedia and VoIP - Services & Technologies Symposium

G.S. Kuo, *National Chengchi University, Taiwan*
Chair: Communications QoS and Reliability Symposium

Paul Lemson, *Woodinville, WA, USA*
Co-Chair: Advanced Wireless Communications Systems Symposium

Kin K. Leung, *AT&T Labs - Research, U.S.A.*
Chair: Wireless Networking Theory Symposium

Hussein Mouftah, *Queen's University, Kingston, Ontario*
Chair: Optical Networking Symposium

Stanley Moyer, *Telcordia Technologies, USA*
Co-Chair: Next-Generation Internet Symposium

Ross Murch, *Hong Kong University of Science & Technology, Clear Water Bay, Hong Kong*
Chair: Advanced Wireless Communications Systems Symposium

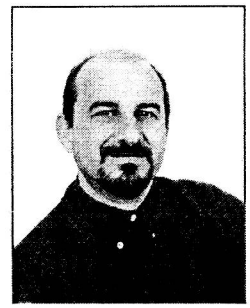
Jong-Tae Park, *KNU Korea*
Chair: Global Service Portability and Infrastructure for Next-Generation Virtual Home/Office Environments Symposium

Hikmet Sari, *Juniper Networks, France*
Chair: Communication Theory Symposium

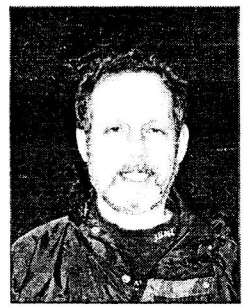
Iwao Sasase, *Keio University*
Chair: Satellite Communications Symposium

Tomohiko Taniguchi, *Fujitsu Laboratories, Kawasaki, Japan*
Chair: Advanced Signal Processing for Communications Symposium


Koichi Asatani


Marco Chiani

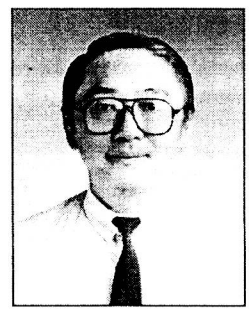

Michael Devetsikiotis


Elliot Eichen


Ibrahim Habib

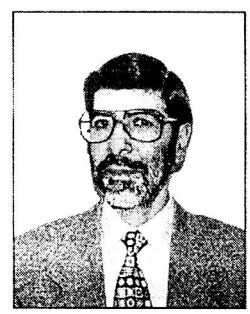

Andrzej Jajszczyk

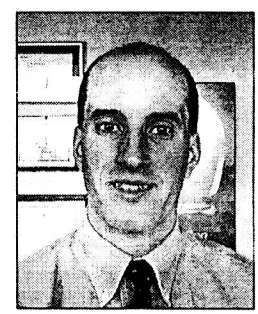

Ryoichi Komiya


G.S. Kuo


Iwao Sasase


Kin K. Leung


Hussein Mouftah


Stanley Moyer


Ross Murch


Tomohiko Taniguchi


Hikmet Sari

TECHNICAL PROGRAM COMMITTEES

A. ADVANCED SIGNAL PROCESSING FOR COMMUNICATIONS

Technical Program Committee

Chair: Tomohiko Taniguchi, *Fujitsu, Japan*

Florence Alberge, *Laboratoire des Signaux et Systemes, France*
Horst Bessai, *University of Siegen, Germany*
Trevor Clarkson, *Kings College London, UK*
Jaafar Elmirghani, *University of Northumbria, UK*
Yumin Lee, *National Taiwan University, Taiwan*
Naohisa Ohta, *Sony, Japan*
Bin Qiu, *Monash University, Australia*
Ron Smith, *TRW, USA*

B. ADVANCED WIRELESS COMMUNICATIONS SYSTEMS SYMPOSIUM

Technical Program Committee

Chair: Ross Murch, *Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong*
Co-Chair: Paul Lemson, *Woodinville, WA, USA*

Marcelo S. Alencar, *Laboratorio de Comunicacoes - LABCOM, UFPB, Brazil*
Mohamed Slim Alouini, *University of Minnesota, Minneapolis, USA*
Mark Beach, *University of Bristol, Bristol, UK*
Claes Beckman, *Royal Institute of Technology, Stockholm, Sweden*
Sathish Chandran, *URSI, Malaysia*
Sheng Chen, *University of Southampton, Southampton, UK*
Andrea Conti, *Univ. of Bologna, Italy*
Tolga Duman, *Arizona State University, USA*
Hesham El Gamal, *Ohio State University, USA*
Moshen Guizani, *University of West Florida, USA*
Fredrik Gunnarsson, *Ericsson Research, Linkoping, Sweden*
Ridha Hamila, *Tampere University of Technology, Tampere, Finland*
Bassam Hashem, *Nortel Networks, Ontario, Canada*
Mostofa Howlader, *University of Tennessee, Tennessee, USA*
Joseph Kabara, *University of Pittsburgh, Pittsburgh, USA*
Rodney Kennedy, *Australia National University, Canberra, Australia*
Timo Korhonen, *Helsinki University, Finland*
Prashant Krishnamurthy, *University of Pittsburgh, Pittsburgh, USA*
Kwang Bok Lee, *Seoul National University, Korea*
Geofferey Li, *Georgia Tech, Atlanta, USA*
Wanjiun Liao, *National Taiwan Univ, Taiwan*
Angel Lozano, *Lucent, New Jersey, USA*
I-Tai Lu, *Polytechnic University, New York, USA*
Urbashi Mitra, *University of Southern California, Los Angeles, USA*
Andreas F. Molisch, *AT&T Labs - Research, Middletown, New Jersey, USA*
Wai Ho Mow, *Hong Kong University of Science and Technology, Hong Kong*
Nguyen Nam Hoang, *Vienna University of Technology, Austria*
Tony Ottosson, *Chalmers University, Gothenberg, Sweden*
Nandana Rajatheva, *Asian Institute of Thailand,, Bangkok, Thailand*
Sang Wu Kim, *AT&T Labs-Research Middletown, NJ, USA*
N. K. Shankaranarayanan, *AT&T Labs-Research, Middletown, NJ, USA*
Kevin Sowerby, *University of Auckland, Auckland, New Zealand*
Umberto Spagnolini, *Politecnico di Milano, Italy*
Su, Hsuan-Jung, *Lucent, USA*
Oguz Sunay, *Koc University, Istanbul, Turkey*
Mallikarjun Tatipamula, *Cisco Systems, USA*
Chin-Liang Wang, *National Tsing Hua University, Hsinchu, Taiwan*
J. Wang, *University of Hong Kong, Hong Kong*
Li-Chun Wang, *National Chiao Tung University, Hsinchu, Taiwan*
Lei Wei, *University of Central Florida, USA*
Kainam Thomas WONG, *Waterloo, Canada*
Tan Wong, *University of Florida, Gainesville, USA*
Weiping Xu, *Skybitz Inc, Dulles, USA*
Hao Xu, Lucent, *New Jersey, USA*
Tim Yao, *Interwave Communications, IMenlo Park, CA, USA*
Aylin Yener, *Pennsylvania State University, USA*
Young Yoon, Ericsson, *San Diego, USA*
Alberto Zanella, *Univ. of Bologna, Italy*
Keith QT Zhang, *City University of Hong Kong, Hong Kong*

C. COMMUNICATIONS QoS AND RELIABILITY SYMPOSIUM

Technical Program Committee:

Co-Chair: Koichi Asatani, *Kogakuin University, Japan*
Co-Chair: G-S. Kuo, *Taiwan*
Karl Rauscher, *Lucent Technologies, USA*
Weider Yu, *Lucent Technologies, USA*
Anil P. Macwan, *Lucent Technologies, USA*
Chi-Ming Chen, *AT&T, USA*
Kelly Krick, *Nortel Networks, USA*
Kenichi Mase, *Niigata University, Japan*
Brahim Bensaou, *Hong Kong Univ. of Science & Technology, China*
Young-Sun Kim, *ETRI, Korea*
Masayuki Murata, *Osaka University, Japan*
Fumito Kubota, *CRL, Japan*
Pascal Lorenz, *University of Haute Alsace, France*
Yantai Shu, *Tianjin University, China*
Dan Keun Sung, *KAIST, Korea*
Hyong Ho Lee, *ETRI, Korea*
Daniel C. Lee, *University of Southern California, USA*
Timo Korhonen, *Helsinki University of Technology, Finland*
Hiromi Ueda, *NTT, Japan*
Juergen Quittek, *NEC Europe, Heidelberg, Germany*
Zhisheng Niu, *Tsinghua University, Beijing, China*
Go Hasegawa, *Osaka Univeristy, Japan*
Tadayuki Kanno, Hitachi, Japan
Mostafa Hashem Sherif, *AT&T, USA*
Daneshmand, Mahmoud, *AT&T, USA*
Cathy Savolaine, *ATT, USA*
Petre Dini, *Cisco Systems, USA*

D. COMMUNICATION THEORY SYMPOSIUM

Technical Program Committee:

Chair: Hikmet Sari, *Juniper Networks, France*
Naofal Al-Dhahir, *AT&T Labs, USA*
Sergio Benedetto, *Politecnico di Torino, Italy*
Joseph Boutros, *ENST Paris, France*
Luc Deneire, *IMEC Leuven*
David D. Falconer, *Carleton University, USA*
Andrea Goldsmith, *Stanford University, USA*
Stefan Kaiser, *German Aerospace Center, Germany*
Aleksandar Kavcic, *Harvard University, USA*
Zoran Kostic, *AT&T Labs, USA*
Witold Krzymien, *University of Alberta, USA*
Umberto Mengali, *University of Pisa, Italy*
Ayman Naguib, *Morphics, Inc.*
Sedat Olcer, *IBM Zurich Research Laboratory, Switzerland*
Erdal Panayirci, *ISIK University*
Ramesh Pyndiah, *ENST Bretagne*
Branka Vucetic, *University of Sydney, Australia*

TECHNICAL PROGRAM COMMITTEES

E. GLOBAL SERVICE PORTABILITY AND INFRASTRUCTURE FOR NEXT-GENERATION VIRTUAL HOME/OFFICE ENVIRONMENTS SYMPOSIUM

Organizing Committee:
Chair: Jong-Tae. Park, *KNU, Korea*
Vice-Chair: Seshadri Mohan, *Comverse*
Vice-Chair: Fawzi Daoud, *CRL, Japan*
Vice-Chair: Dan Keun Sung, *KAIST, Korea*

Advisory Board Members:
Salah Aidarous, *NEC America, USA*
Veli Sahin, *MARCONI Communications*
Mehmet Ulema, *Monmouth Internet Corporation*
Masayoshi Ejiri, *Fujitsu Ltd.*

Technical Program Committee:
Bernard Aboba, *Microsoft, USA*
Cengiz Akgun, *Consultant, USA*
Hamid Alikhani, *Sony International, Germany*
John J. Barton, *HP Labs, USA*
Lieve Bos, *Alcatel Bell, Belgium*
Raouf Boutaba, *University of Waterloo, Canada*
Claude Castelluccia, *INRIA, France*
Patricia Charlton, *Motorola Labs, France*
Dongho Cho, *KAIST, Korea*
Paolo Conforto, *Alespazio, Italy*
Kazi Farooqui, *AT&T, USA*
Ravi Jain, *Telcordia, USA*
Jayapalan Jay, *Motorola, USA*
Stefan Gessler, *NEC Labs, Germany*
Terry Hodgkinson, *BT, UK*
Guenter Karjoth, *IBM Labs, Switzerland*
Bongtae Kim, *ETRI, Korea*
Sangryong Kim, *Samsung, Korea*
Hong-Yon Lach, *Motorola Labs, France*
Jaeyong Lee, *Yonsei Univ., Korea*
Wang-Chien Lee, *GTE, USA*
Kyungshik Lim, *KNU, Korea*
Robert Mort, *Alcatel Space, France*
Stanley Moyer, *Telcordia Technologies*
Yamanaka Naoaki, *NTT Labs, Japan*
Rami Neudorfer, *Comverse*
Ioanis Nikolaidis, *University of Alberta, Canada*
Odd-Wiking Rahlff, *SINTEF, Norway*
Do van Thanh, *Telenor, Norway*
Moh. Torabi, *Lucent Technologies, USA*
Ikjun Yeom, *KNU, Korea*

F. HIGH-SPEED NETWORKS SYMPOSIUM

Technical Program Committee:
Co-Chair: Ibrahim Habib, *City University of New York, USA*
Co-Chair: Andrzej Jajszczyk, *AGH University of Technology, Poland*

Oreste Andrisano, *University of Bologna, Italy*
Daniel Awduche, *Movaz Networks, USA*
Greg Bernstein, *Ciena Networks, USA*
Horst Besier, *Deutsche Telekom, Germany*
Jonathan Chao, *Polytechnic University, USA*
Tom Chen, *Southern Methodist University, USA*
Franco Davoli, *DIST-University of Genoa, Italy*
Christos Douligeris, *University of Piraeus, Greece*
Andrea Fumagalli, *University of Texas at Dallas, USA*
Joan Garcia-Haro, *Polytechnic University of Cartagena, Spain*
Erol Gelenbe, *University of Central Florida, USA*
Mario Gerla, *UCLA, USA*
Nasir Ghani, *Sorrento Networks*
Moshen Guizani, *University of West Flordia, USA*
Anant Kumar Jain, *Lucent Technologies*
Wojciech Kabacinski, *Poznan University of Technology, Poland*
Miguel Labrador, *University of South Florida, USA*
Marco Ajmone Marsan, *Politechnico di Torino, Italy*
Nader Mir, *University of Kentucky, USA*
Sergio Palazzo, *University of Catania, Italy*
Zdzislaw Papir, *AGH University of Technology, Poland*
Franco Vatalaro, *University of Rome at Tor Vergata, Italy*
Naoaki Yamanaka, *NTT, Japan*

G. MULTIMEDIA AND VoIP* - SERVICES AND TECHNOLOGIES SYMPOSIUM

Technical Program Committee:
Co-Chair: Elliot Eichen, *Genuity, USA*
Co-Chair: Ryoichi Komiya, *NTT Advanced Technology Corporation*
Tomonori Aoyama, *University of Tokyo, Japan*
Melbourne Barton, *Telcordia Technologies, USA*
Gregory Bond, *AT&T Labs, USA*
Dave Boyer, *Avaya, USA*
Anni Cai, *Beijing University of Posts and Telecommunications, China*
Georg Carle, *GMD Fokus, Germany*
S.-H. Gary Chan, *Hong Kong University of Science and Technology, Hong Kong*
R. Chandramouli, *Stevens Institute of Technology, USA*
Nim Cheung, *Telcordia Technologies, USA*
Wongyu Cho, *Dialpad.com, USA*
Jeff H. Derby, *IBM Microelectronics, USA*
Hrvoje Dujmic, *University of Split, Croatia*
Nelson Fonseca, *State University of Campinas, Brazil*
Nobuo Fujii, *NTT Network Innovation Lab, Japan*
David Gurle, *Microsoft, USA*
Olivier Hersent, *Netcentrex, France*
Michitaka Hirose, *University of Tokyo, Japan*
Masayuki Ihara, *NTT Cyber Space Lab, Japan*
Ajay Joseph, *Ibasis, USA*
Charlie Judice, Eastman Kodak, *Rutgers and Monmouth University, USA*
Jonathan Kaye, *Adir Technologies, USA*
Romel Khan, *Net2Phone, USA*
Janusz Konrad, *Boston University, USA*
Jiri Kuthan, *GMD Fokus, Germany*
Xin Li, *Sharp Research Lab of America, USA*
Yukou Mochida, *Fujitsu Laboratories Ltd., Japan*
John A. Modrowsky, *Verizon Communications, USA*
Stan Moyer, *Telcordia Technologies, USA*
Ryohei Nakatsu, *ATR, Japan*
Gleb Naumovich, *Polytechnic University, USA*
Tadanobu Okada, *NTT Network Service System Lab, Japan*
Dave Oran, *Cisco, USA*
I.P. Park, *Panasonic Research Lab, USA*
Henning Schulzrinne, *Columbia University, USA*
Jakub Segen, *Bell Laboratories, Lucent Technologies, USA*
Mel Siegel , *Carnegie Mellon University, USA*
Henry Sinnreich, *WorldComm, USA*
Ralf Steinmetz, *Technical University Darmstadt, Germany*
Baruch Sterman, *Delta Three, Israel*
Heiner Stuettgen, *NEC Europe, Germany*
Jing-ao Sun, *Beijing University of Posts and Telecommunications, China*
Steve Weinstein, *USA*
Wilhelm Wimmreuter, *Siemens AG, Germany*
Lars Wolf, *University of Karlsruhe, Germany*
Adam Wolisz, *Technical University Berlin, Germany*
Hisao, Yamamoto, *NTT Service Integration Lab, Japan*
Heather Yu, *Panasonic Research Lab, USA*

TECHNICAL PROGRAM COMMITTEES

H NEXT GENERATION INTERNET

Technical Program Committee

Co-Chair: Stan Moyer, *Telcordia Technologies, USA*
Co-Chair: Michael Devetsikiotis, *North Carolina State University, USA*
Alagan Anpalagan, *University of Toronto*
S.-H. Gary Chan, *Hong Kong University of Science and Technology*
Ted Faber, *USC Information Sciences Institute*
Nelson Fonseca, *State University of Campinas, Brazil*
David Harle, *University of Strathclyde, Scotland*
Bassam Hashem, *Nortel Networks*
Mohammad Ilyas, *Florida Atlantic University*
Muhammad Jaseemuddin, *Nortel Networks*
Sung-Ju Lee, *HP Labs*
Pascal Lorenz, *University of Haute-Alsace, France*
Amitabh Mishra, *Virginia Polytech*
Vishal Misra, *University of Massachusetts*
Tim Moors, *Polytechnic University*
Jogesh Muppala, *Hong Kong University of Science & Technology*
Eric Nahum, *IBM Watson Research*
Algirdas Pakstas, *University of North London*
Symeon Papavassiliou, *New Jersey Institute of Technology*
Elizabeth Royer, *UC Santa Barbara*
Behcet Sarikaya, *Alcatel USA*
Ray Sundararaman, *Lucent*
Joe Touch, *USC Information Sciences Institute*

I. OPTICAL NETWORKING SYMPOSIUM

Technical Program Committee:

Chair: Hussein Mouftah, *Queen's University, Canada*
Peter Arijs, *Comsof, Belgium*
M. Atiquzzaman, *Univ Oklahoma, USA*
Mario Baldi, *Synchrodyne Net, USA*
L. Benmohamed, *Corvis, USA*
D. Blumenthal, *Univ California, Santa Barbara, USA*
Thomas Chen, *Southern Methodist Univ, USA*
Imrich Chlamtac, *Univ of Texas, Dallas, USA*
Jacek Chrostowski, *Cisco, Canada*
Piet Demeester, *Univ. of Gent, Belgium*
Sudhir Dixit, *Nokia, USA*
M. Ilyas, *Florida Atlantic Univ, USA*
Tarek El-Bawab, *Alcatel, USA*
Jeff Fitchett, *Nortel Networks, Canada*
Nasir Ghani, *Sorrento Networks*
Mounir Hamdi, *Hong Kong Univ Science & Technology, Hong Kong*
P. Harshavardhana, *VPI, USA*
Raj Jain, *Nayna Networks, USA*
Bilel Jamoussi, *Nortel Networks, Canada*
Victor Li, *Univ of Hong Kong, Hong Kong*
Chunming Qiao, *University of Buffalo, USA*
Ramu Ramamurthy, *Tellium, USA*
Brunilde Sanso, *Ecole Politechnique of Montreal, Canada*
Ken ichi Sato, *NTT, Japan*
Kris Stuyve, *Tellium, Belgium*
Nico Wauters, *Tellium, Belgium*
Oliver Yang, *University of Ottawa, Canada*

J. SATELLITE COMMUNICATION SYMPOSIUM

Technical Program Committee:

Chair: Iwao Sasase, *Keio University*
Organizing Chair: Guy Omidyar, *National University of Singapore, Singapore*
Vice Chair: Ron P. Smith, *TRW Space & Electronics*
Secretary & Organizer: Takaya Yamazato, *Nagoya University*
Secretary: Abbas Jamalipour, *University of Sydney, Australia*
Special Session/Workshop Organizer: Mario Marchese, *CNIT - DIST University of Genoa Research Unit, Italy*
Special Session/Workshop Organizer: Takaya Yamazato, *Nagoya University*

Franco Davoli, *DIST-University of Genoa, Italy*
Erina Ferro, *CNUCE, Institute of National Research Council (C.N.R.)*
Istvan Frigyes, *Budapest Technical University, Hungary*
Mizuno Hideki, *NTT Wireless System Innovation Lab*
Sastri Kota, *Loral Skynet, USA*
Takeshi Mizuike, *KDDI R&R Laboratories Inc.*
Toshihiro Nomoto, *NHK Science & Technical Research Laboratories*
Fernando D. Nunes, *Instituto de Telecomunicacoes*
Desmond P. Taylor, *University of Canterbury*
Michael A. Thorburn, *Communications Engineering, Space Systems/Loral*
Satchandi Verma, *TRW Space & Electronic Group*
Abbas Yongacoglu, *University of Ottawa, Canada*

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*
Vice Chair: Nicholas Zervos, *Ellemedia, Inc. USA*

Alagan Anpalagan, *University of Toronto, Canada*
A. Brinton Cooper III, *Army Research Laboratory, USA*
Mohsen Guizani, *Computer Science, University of West Florida, USA*
Bassam Hashem, *Nortel Networks, Canada*
Hermann Hughes, *Wireless Lab and Michigan State University, USA*
Demetrios Kazakos, *University of Louisiana at Lafayette, USA*
Sung-Ju Lee, *HP Labs, USA*
Wei Li, *University of Louisiana at Lafayette, USA*
Sam Makki, *Queensland University of Technology, Australia*
Kia Makki, *Florida International University, USA*
Jogesh Muppala, *Hong Kong University of Science and Technology, China*
Mort Naraghi-Pour, *Louisiana State University, USA*
Behcet Sarikaya, *Alcatel, USA*
Ioannis Stavrakakis, *University of Athens, Greece*
Sirin Tekinay, *New Jersey Institute of Technology, USA*
Ljiljana Trajkovic, *Simon Fraser University, Canada*
Velio Tralli, *University of Ferrara, Italy*

CONTENTS

Volume 1

A. Advanced Signal Processing for Communications

A01 Channel Estimation 1

Monday 29 April 2002—8:50 am

A02 Channel Estimation 2

Monday 29 April 2002—10:

A03 Equalization and Synchronization 1

Monday 29 April 2002—1:40 pm

A04 Equalization and Synchronization 2

Monday 29 April 2002—3:30 pm

A05 Channel Estimation 3

Tuesday 30 April 2002—10:40 am

A06 Multimedia Signal Procesiing

Tuesday 30 April 2002—1:40 pm

A07 Equalization and Synchronization 3

Tuesday 30 April 2002—3:30 pm

A08 Adaptive Antennas 1

Wednesday 01 May 2002—8:50 am

A09 Adaptive Antennas 2

Wednesday 01 May 2002—10:40 am

A10 Adaptive Signal Processing

Wednesday 01 May 2002—10:40 am

A11 Multirate and Multicarrier Communications

Wednesday 01 May 2002—1:40 pm

A12 Diversity and Interference Suppression 1

Wednesday 01 May 2002—1:40 pm

A13 Diversity and Interference Suppression 2

Wednesday 01 May 2002—3:30 pm

B. Advanced Wireless Communications Systems

B01 MIMO Channels

Monday 29 April 2002—8:50 am

B02 Multiuser Detection-1

Monday 29 April 2002—8:50 am

B03 Bluetooth

Monday 29 April 2002—8:50 am

B04 BLAST Systems

Monday 29 April 2002—10:40 am

B05 Multiuser Detection-2

Monday 29 April 2002—10:40 am

B06 Resource Allocation

Monday 29 April 2002—10:40 am

B07 MIMO Systems

Monday 29 April 2002—1:40 pm

B08 OFDM-1

Monday 29 April 2002—1:40 pm

B09 Location Techniques

Monday 29 April 2002—1:40 pm