IEEE
Information
Theory
Society

**The 2011 IEEE International Symposium
on Information Theory
Saint Petersburg, Russia**

Annual Awards
Luncheon
August 2, 2011

Recognition of Editors

The Information Theory Society recognizes the contributions of the following individuals whose terms as Associate Editors have ended since the last ISIT:

Randall Berry
Communication Networks (2008–2010)

Uri Erez
Coding Techniques (2009–2011)

Toru Fujiwara
Complexity and Cryptography (2007–2010)

Michael Gastpar
Shannon Theory (2008–2011)

Patrick Hayden
Quantum Information Theory (2008–2011)

Franz Hlawatsch
Detection and Estimation (2008–2011)

Ioannis Kontoyiannis
Shannon Theory (2007–2010)

Keith M. Martin
Complexity and Cryptography (2008–2011)

Aria Nosratinia
Communication Networks (2008–2011)

Adriaan J. Van Wijngaarden
Communications   (2008–2011)

Emanuele Viterbo
Coding Techniques   (2007–2010)

En-hui Yang
Source Coding   (2007–2010)

Lizhong Zheng
Communications   (2008–2011)

Guest Editors of the 2010 Special Issue on Molecular Biology and Neuroscience

Olgica Milenkovic

Gil Alterovitz

Gerard Battail

Todd P. Coleman

Joachim Hagenauer

Sean P. Meyn

Nathan Price

Marco F. Ramoni

Ilya Shmulevich

Wojciech Szpankowski

Guest Editors of the 2010 Special Issue on Facets of Coding Theory

Michelle Effros

G. David Forney, Jr.

Frank R. Kschischang

Muriel Médard

Andrew C. Singer

Alexander Vardy

Guest Editors of the 2010 Special Issue on Interference Networks

A. Salman Avestimehr

Hesham El Gamal

Syed A. Jafar

Sennur Ulukus

Sriram Vishwanath

Recognition of Outgoing Members of the IT Society Board of Governors

Alexander Barg	(2008–2010)
Daniel J. Costello, Jr	(2005–2010)
G. David Forney Jr.	(2004–2010)
Kenneth Zeger	(2005–2010)

Recognition of Conference Organizers

The Information Theory Society recognizes the following individuals, who have been General Co-Chairs or Program Committee Co-Chairs since and including the last ISIT:

2010 IEEE International Symposium on Information Theory, Austin TX

General Co-Chairs:
Benhaam Aazhang
Costas Georghiades

Technical Program Committee Co-Chairs:
Michael Gastpar
Robert W. Heath, Jr.
Krishna Narayanan

2009 IEEE Information Theory Workshop Dublin, Ireland

General Co-Chairs:
Marcus Greferath
Joseph Rosenthal

Technical Program Committee Co-Chairs:
Alexander Barg
Gilles Zemor

2011 Chapter of the Year Award

The Information Theory Society Chapter of the Year Award annually recognizes a chapter that has provided their membership with the best overall set of programs and activities. The prize includes $1,000 to support local chapter activities.

Spain Section Chapter
"For providing an outstanding set of technical and educational activities ranging from invited talks, to meetings on coding and communications theory, and a school of information theory, which served its own IEEE membership and the IEEE membership beyond its borders."

Recognition of Special Service

The Information Theory Society recognizes the exceptional service and leadership of the following individuals:

J. Nicholas Laneman
Chair of the On-Line Committee
2007–2010

Aylin Yener
Chair of the Student Committee
2007–present

Frank R. Kschischang
President
IEEE Information Theory Society
2010

IEEE Medals

to be presented at the IEEE Honors Ceremony, San Francisco CA, Saturday, August 20, 2011.

2011 IEEE Richard W. Hamming Medal
(for exceptional contributions to information sciences, systems and technology, sponsored by Qualcomm, Inc.)
Toby Berger
For contributions to Information Theory, including source coding and its application.

2011 IEEE Alexander Graham Bell Medal
(for exceptional contributions to the advancement of communications sciences and engineering, sponsored by Alcatel-Lucent Bell Labs)
Arogyaswami J. Paulraj
For pioneering contributions to the application of multiantenna technology to wireless communication systems.

2011 IEEE Jack S. Kilby Signal Processing Medal
(for outstanding achievements in signal processing)
Ingrid Daubechies
For pioneering contributions to the theory and applications of wavelets and filter banks.

IEEE Awards

2011 IEEE Koji Kobayashi Computer and Communications Award
Thomas J. Richardson and **Rudiger Urbanke**
For developing the theory and practice of transmitting data reliably at rates approaching channel capacity.

2011 IEEE Eric E. Sumner Award
H. Vincent Poor
For pioneering contributions to multiple-access communications.

2011 IEEE Kiyo Tomiyasu Award
Moe Z. Win
For fundamental contributions to high-speed reliable communications over optical and wireless channels.

2011 IEEE Donald G. Fink Prize Paper Award
Andreas F. Molisch, **Larry J. Greenstein** and **Mansoor Shafi**
For their paper "Propagation Issues for Cognitive Radio" Proceedings of the IEEE, Vol. 97, No. 5, May 2009.

2009 Best Paper Award in "Signal Processing and Coding for Data Storage" of the IEEE Communications Society
Anxiao (Andrew) Jiang, **Robert Mateescu**, **Moshe Schwartz** and **Jehoshua Bruck**
For their paper "Rank Modulation for Flash Memories," IEEE Transactions on Information Theory, Vol. 55, No. 6, June 2009.

2011 Communications Society Leonard G. Abraham Prize
Watcharapan Suwansantisuk, **Marco Chiani**, **Moe Z. Win**
For their paper "Frame Synchronization for Variable-Length Packets," IEEE Journal on Selected Areas in Communications, Vol. 26, No. 1, January 2008.

2010 IEEE Communications Society Young Researcher Award
(for the Europe, Middle East and Africa region)
João Barros

2011 IEEE Fellows

The following members of the Information Theory Society were elected Fellows of the IEEE in 2011:

Thomas Kolze
"For contributions to physical layer architecture in communication systems."

Dharmendra Modha
"For contributions to cognitive computing and caching algorithms."

Marco Chiani
"For contributions to wireless communication systems."

Keith Chugg
"For contributions to adaptive and iterative data detection and decoding."

Tolga Duman
"For contributions to coding and modulation for wireless, recording and underwater acoustic channels."

Elza Erkip
"For contributions to multi-user and cooperative communications."

Dennis Goeckel
"For contributions to wireless communication systems and networks."

Piyush Gupta
"For contributions to wireless networks."

Yunghsiang Han
"For contributions to decoding techniques."

Robert W. Heath, Jr.
"For contributions to multiple antenna wireless communications."

Kwang Bok Lee
"For contributions to high-speed wireless communication systems."

2011 IEEE Fellows (cont'd)

Shivendra Panwar
"For contributions to design and analysis of communication networks."

James Ritcey
"For contributions to bit-interleaved coded modulation with iterative decoding."

William Ryan
"For contributions to channel coding for reliable data transmission and storage."

Jawad Salehi
"For contributions to fundamental principles of optical code division multiple access."

Vinay Vaishampayan
"For contributions to error-resilient compression systems."

Roy Yates
"For contributions to wireless network resource allocation."

Ioannis Kontoyiannis
"For contributions to data compression."

Erik Ordentlich
"For contributions to universal algorithms and data compression."

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Jawad Salehi

William Ryan

2011 IEEE Fellows (cont'd)

Hirosuke Yamamoto
"For contributions to source coding and information-theoretic secure coding."

Mark R. Bell
"For contributions to signal design and processing

2010 ISIT Student Paper Awards

This award is given annually for an outstanding paper presented at the IEEE International Symposium on Information Theory, with a student (or students) making the dominant contribution as well as presenting the paper. The award is based both on the paper's technical contribution as well as the quality of its presentation. The 2010 recipients are:

Yury Polyanskiy for "Variable-Length Coding with Feedback in the Non-Asymptotic Regime," (co-authored with H. V. Poor and S. Verdú)

Yury Polyanskiy received the M.S. degree (with honors) in applied mathematics and physics from the Moscow Institute of Physics and Technology, Moscow, Russia in 2005 and the Ph.D. degree in electrical engineering from Princeton University in 2010. His current research focuses on non-asymptotic characterization of the performance limits of communication systems, optimal feedback strategies and optimal codes.

Jayadev Acharya for "On Reconstructing a Sequence from its Subsequence Compositions," (co-authored with H. Das, O. Milenkovic, A. Orlitsky, and S. Pan)

Jayadev Acharya received a B.Tech degree in ECE from IIT Kharagpur in 2007. He is currently a PhD student at the University of California, San Diego. He is interested in information theory, probability estimation, and DNA sequencing.

Yashodhan Kanoria for "On the Deletion Channel with Small Deletion Probability," (co-authored with A. Montanari)
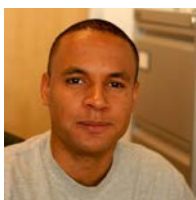

Yashodhan Kanoria is a PhD student in EE at Stanford University. He received a B. Tech. in EE from IIT Bombay in 2007. His primary research interests are in graphical models and message passing, with applications to social networks and network games.

Arya Mazumdar for "Codes in Permutations and Error Correction for Rank Modulation," (co-authored with A. Barg)

Arya Mazumdar received the Ph.D. degree with the Distinguished Dissertation Fellowship award from the University of Maryland, College Park, in May 2011. He received the M.Tech. and the B.E. degrees from IIT Kanpur, India, and Jadavpur University, India, respectively. His research interests include Information and Coding Theory, Signal Processing, Communications, Combinatorics and Probabilistic Methods.

Benjamin G. Kelly for "Universal Hypothesis Testing in the Learning-Limited Regime," (co-authored with T. Tularak, A. Wagner and P. Viswanath)

Benjamin G. Kelly received the B.Sc. (Hons.). and M.Phil. degrees in computer science from the University of Nottingham, Nottingham, U.K., in 2002 and 2006, respectively, and the M.S. degree in electrical and computer engineering from Cornell University, Ithaca, NY, in 2010, where he is currently pursuing the Ph.D. degree in electrical and computer engineering. His research interests include information theory and statistics.

2011 IEEE ComSoc/ITSoc Joint Paper Award

The IEEE Communications Society and Information Theory Society Joint Paper Award is given annually to the author(s) of outstanding papers, relevant to both societies, published in any publication of either society during the previous three calendar years. The 2011 award goes to the following papers:

Matthieu Bloch, **João Barros**, **Miguel R. D. Rodrigues** and **Steven W. McLaughlin**, "Wireless Information-Theoretic Security," *IEEE Transactions on Information Theory*, Vol. 54, No. 6, pp. 2515–2534, June 2008.

Giuseppe Caire, **Nihar Jindal**, **Mari Kobayashi** and **Niranjay Ravindran**, "Multiuser MIMO Achievable Rates With Downlink Training and Channel State Feedback," *IEEE Transactions on Information Theory*, Vol. 56, No. 6, pp. 2845–2866, June 2010.

Matthieu Bloch received the Diplome d'Ingénieur from Supélec, Gif-sur-Yvettes, France, the M.S.E.E. degree from the Georgia Institute of Technology, Atlanta, in 2003, the Ph.D. degree in engineering from the Université de Franche-Comté, Besançon, France, in 2006, and the Ph.D. degree in electrical engineering from the Georgia Institute of Technology in 2008. Since July 2009, Dr. Bloch has been on the faculty of the School of Electrical and Computer Engineering at the Georgia Institute of Technology, where he is currently an Assistant Professor based at the Georgia Tech Lorraine campus, Metz, France. His research interests are in the areas of information theory, error-control coding, wireless communications, and cryptography. He is the Co-Chair of the ICC 2011 Workshop on Physical-Layer Security and the co-author of Physical-Layer Security: From Information Theory to Security Engineering, which will be published by Cambridge University Press in Summer 2011.

Steven W. McLaughlin received the B.S.E. E. degree from Northwestern University, the M.S.E. degree from Princeton University, and the Ph.D. degree from the University of Michigan. He joined the School of Electrical and Computer Engineering at Georgia Tech in September 1996 where is now Vice Provost for International Initiatives and Ken Byers Professor of ECE. He is also a co-founder of Whisper Communications , a physical-layer security company established in 2009. He was previously Deputy Director of Georgia Tech - Lorraine - the European Campus of the Georgia Institute of Technology - in Metz, France from 2006-2007. He was President of the IEEE Information Theory Society in 2005. He was a recipient of the Presidential Early Career Award for Scientists and Engineers (PECASE). His research interests are in the general area of communications and information theory. His research group has on-going projects in the areas of

Nihar Jindal received the B.S. degree in electrical engineering and computer science from the University of California at Berkeley in 1999 and the M.S. and Ph.D. degrees in electrical engineering from Stanford University, Stanford, CA, in 2001 and 2004, respectively. He is an Associate Professor at the Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis.

His research spans the fields of information theory and wireless communication, with specific interests in multiple-antenna/multiuser channels, dynamic resource allocation, and sensor and ad hoc networks. Dr. Jindal currently serves as an Associate Editor for the IEEE Transactions on Communications. He was the recipient of the 2005 IEEE Communications Society and Information Theory Society Joint Paper Award, the University of Minnesota McKnight Land-Grant Professorship Award in 2007, the NSF CAREER award in 2008, and the best paper award for the IEEE Journal on Selected Areas in Communications in 2009.

Mari Kobayashi received the B.E. degree in electrical engineering from Keio University, Yokohama, Japan, in 1999, the M.S. degree in Mobile Radio and the Ph.D. from Ecole Nationale Supérieure des Télécommunications, Paris, France, in 2000 and in 2005 respectively.

From November 2005 to March 2007, she was a post-doc researcher at Centre Tecnològic de Telecomunicacions de Catalunya, Barcelona, Spain. Since May 2007, she is an assistant professor at Supélec, Gif-sur-Yvette, France. Her current research interests include physical-layer security, MIMO communication systems, multiuser communication theory.

Niranjay Ravindran received the B.E. degree in electronics and communication engineering from Anna University, Chennai, India, in 2005, and the M.S. degree in electrical engineering from the University of Minnesota, Minneapolis, in 2008, and is currently working toward the Ph.D. degree at the same university.

He was a Summer Intern at the Wireless Communications Research Laboratory of Alcatel-Lucent Bell Labs, Holmdel, NJ, in 2008. His research interests include multiple-antenna/multiuser channels, limited feedback techniques, and ad hoc networks. Mr. Ravindran was a recipient of the best paper award for the IEEE Journal on Selected Areas in Communications in 2009.

2010 Information Theory Society Paper Award

The Information Theory Society Paper Award is given annually for an outstanding publication in the fields of interest to the Society and appearing anywhere during the

2011 IEEE Information Theory Society Aaron D. Wyner Distinguished Service Award

The Aaron D. Wyner Distinguished Service Award is given annually to an individual who has shown outstanding leadership in—and provided long-standing exceptional service to—the Information Theory community.

G. David Forney, Jr. received the B.S.E. degree in electrical engineering from Princeton University, Princeton, NJ, in 1961, and the M.S. and Sc.D. degrees in electrical engineering from the Massachusetts Institute of Technology, Cambridge, MA, in 1963 and 1965, respectively. From 1965-99 he was with the Codex Corporation, which was acquired by Motorola, Inc. in 1977, and its successor, the Motorola Information Systems Group, Mansfield, MA. Since 1996, he has been an Adjunct Professor at M.I.T. . Dr. Forney was Editor of the IEEE Transactions on Information Theory from 1970 to 1973, and currently serves on its Executive Editorial Board. He has been a member of the Board of Governors of the IEEE Information Theory Society during 1970-76, 1986-94, and 2004-10, and was President in 1992 and 2008. In 1998, he was Co-Chair of the 50th Anniversary ISIT at M.I.T. . He is currently a member of the IEEE Awards Board, and chairs its Awards Review Committee. He has been awarded the 1970 IEEE Information Theory Group Prize Paper Award, the 1972 IEEE Browder J. Thompson Memorial Prize Paper Award, the 1990 and 2009 IEEE Donald G. Fink Prize Paper Awards, the 1992 IEEE Edison Medal, the 1995 IEEE Information Theory Society Claude E. Shannon Award, the 1996 Christopher Columbus International Communications Award, and the 1997 Marconi International Fellowship. In 1998 he received an IT Golden Jubilee Award for Technological Innovation, and two IT Golden Jubilee Paper Awards. He received an honorary doctorate from EPFL, Lausanne, Switzerland in 2007. He was elected a

Fellow of the IEEE in 1973, a member of the National Academy of Engineering (U.S.A.) in 1983, a Fellow of the American Association for the Advancement of Science in 1993, an honorary member of the Popov Society (Russia) in 1994, a Fellow of the American Academy of Arts and Sciences in 1998, and a member of the National Academy of Sciences (U.S.A.) in 2003.

2011 Claude E. Shannon Award

The Claude E. Shannon Award recognizes consistent and profound contributions to the field of information theory.

Shlomo Shamai (Shitz) (S'8 – M'82 – SM'89 – F'94) received the B.Sc., M.Sc., and Ph.D. degrees in electrical engineering from the Technion–Israel Institute of Technology, in 1975, 1981 and 1986 respectively.

During 1975-1985 he was with the Communications Research Labs in the capacity of a Senior Research Engineer. Since 1986 he is with the Department of Electrical Engineering, Technion–Israel Institute of Technology, where he is now the William Fondiller Professor of Telecommunications. His research interests encompass a wide spectrum of topics in information theory and statistical communications.

Dr. Shamai (Shitz) is an IEEE Fellow, and the recipient of the 2011 Claude E. Shannon Award. He is the recipient of the 1999 van der Pol Gold Medal of the Union Radio Scientifique Internationale (URSI), and a co-recipient of the 2000 IEEE Donald G. Fink Prize Paper Award, the 2003, and the 2004 joint IT/COM societies paper award, the 2007 IEEE Information Theory Society Paper Award, the 2009 European Commission FP7, Network of Excellence in Wireless COMmunications (NEWCOM++) Best Paper Award, and the 2010 Thomson Reuters Award for International Excellence in Scientific

Research. He is also the recipient of 1985 Alon Grant for distinguished young scientists and the 2000 Technion Henry Taub Prize for Excellence in Research. He has served as Associate Editor for Shannon Theory of the IEEE Transactions on Information Theory, and has also served on the Board of Governors of the Information Theory Society. He serves on the Executive Editorial Board of the IEEE Transactions on Information Theory.