

2022 IEEE International Symposium on Information Theory (ISIT 2022)

**Espoo, Finland
26 June - 1 July 2022**

Pages 1-636



**IEEE Catalog Number: CFP22SIF-POD
ISBN: 978-1-6654-2160-7**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22SIF-POD
ISBN (Print-On-Demand):	978-1-6654-2160-7
ISBN (Online):	978-1-6654-2159-1
ISSN:	2157-8095

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2022 IEEE International Symposium on Information Theory (ISIT)

Coding Theory, Decoding I

<i>Multichannel Optimal Tree-Decodable Codes are Not Always Optimal Prefix Codes</i> Hoover H. F. Yin (The Chinese University of Hong Kong, Hong Kong), Harry W. H. Wong (The Chinese University of Hong Kong, Hong Kong), Mehrdad Taheri (Hong Kong), Russell W. F. Lai (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)	1
<i>Error-Erasure Decoding of Linearized Reed-Solomon Codes in the Sum-Rank Metric</i> Felicitas Hörmann (German Aerospace Center (DLR), Germany), Hannes Bartz (German Aerospace Center (DLR), Germany, Germany), Sven Puchinger (Hensoldt Sensors GmbH, Germany, Germany)	7
<i>Fully Analog Noise-Resilient Dynamical Systems Storing Binary Sequence</i> Tadashi Wadayama (Nagoya Institute of Technology, Japan)	13
<i>Universal Decoding for the Typical Random Code and for the Expurgated Code</i> Ran Tamir (ETH Zurich, Switzerland), Neri Merhav (Technion, Israel)	19

Network Coding I

<i>Broadcast Approach Meets Network Coding for Data Streaming</i> Alejandro Cohen (Technion, Israel), Muriel Médard (MIT, USA), Shlomo (Shitz) Shamai (The Technion, Israel)	25
<i>The Undecidability of Network Coding With Some Fixed-Size Messages and Edges [virtual]</i> Cheuk Ting Li (The Chinese University of Hong Kong, Hong Kong)	31
<i>Enhancing the Decoding Rates of BATS Codes by Learning With Guided Information [virtual]</i> Jiaxin Qing (The Chinese University of Hong Kong, Hong Kong), Hoover H. F. Yin (The Chinese University of Hong Kong, Hong Kong), Raymond W. Yeung (The Chinese University of Hong Kong, Hong Kong)	37

DNA and Data Storage I

<i>Covering Sequences for ℓ-Tuples</i> Sagi Marcovitch (Technion - Israel Institute of Technology, Israel), Tuvi Etzion (Technion-Israel Institute of Technology, Israel), Eitan Yaakobi (Technion, Israel)	43
<i>The Gapped k-Deck Problem</i> Rebecca S Golm (University of Illinois at Urbana-Champaign, USA), Mina Nahvi (University of Illinois at Urbana-Champaign, USA), Ryan Gabrys (University of California, San Diego, USA), Olgica Milenkovic (University of Illinois at Urbana-Champaign (UIUC), USA)	49

Source Coding and Data Compression I

<i>Log-CCDM: Distribution Matching via Multiplication-Free Arithmetic Coding</i> Yunus Can Gültekin (Eindhoven University of Technology, The Netherlands, The Netherlands), Frans MJ Willems (Technical University Eindhoven, The Netherlands), Alex Alvarado (Eindhoven University of Technology (TU/e), The Netherlands)	55
<i>Centralised Multi Link Measurement Compression With Side Information</i> Sayantan Chakraborty (Tata Institute of Fundamental Research, India), Arun Padakandla (University of Tennessee, USA), Pranab Sen (Tata Institute of Fundamental Research, India)	61
<i>Universal Compression of Large Alphabets With Constrained Compressors [virtual]</i> Hao Lou (University of Virginia, USA), Farzad Farnoud (University of Virginia, USA)	67
<i>Ternary Convolutional LDGM Codes With Applications to Gaussian Source Compression [virtual]</i> Tingting Zhu (Sun Yat-sen University, China), Jifan Liang (Sun Yat-Sen University, China), Xiao Ma (Sun Yat-sen University, China)	73

Quantum I

<i>The Communication Value of a Quantum Channel</i> Eric Chitambar (University of Illinois Urbana-Champaign, USA), Ian George (University of Illinois at Urbana-Champaign, USA), Brian Doolittle (University of Illinois Urbana-Champaign, USA), Marius Junge (University of Illinois at Urbana-Champaign, USA)	79
<i>Singleton Bounds for Entanglement-Assisted Classical and Quantum Error Correcting Codes</i> Manideep Mamindlapally (Indian Institute of Technology Kharagpur, India), Andreas Winter (Universitat Autònoma de Barcelona & ICREA, Spain)	85
<i>Analytical Calculation Formulas for Capacities of Classical and Classical-Quantum Channels [virtual]</i> Masahito Hayashi (Southern University of Science and Technology, China)	91

Distributed Learning I

<i>Secure Distributed/Federated Learning: Prediction-Privacy Trade-Off for Multi-Agent System</i> Gaurav Gupta (University of Southern California, USA), Mohamed Ridha Znaidi (University of Southern California, USA), Paul Bogdan (University of Southern California, USA)	97
<i>SwiftAgg: Communication-Efficient and Dropout-Resistant Secure Aggregation for Federated Learning With Worst-Case Security Guarantees</i> Tayyeb Jahani-Nezhad (Sharif University of Technology & Technische Universität Berlin, Germany), Mohammad Ali Maddah-Ali (Nokia Bell Labs, USA), Songze Li (The Hong Kong University of Science and Technology, China), Giuseppe Caire (Technische Universität Berlin, Germany)	103
<i>Fundamental Limits of Personalized Federated Linear Regression With Data Heterogeneity</i> Chun-Ying Hou (National Taiwan University, Taiwan), I-Hsiang Wang (National Taiwan University, Taiwan)	109
<i>Social Learning Under Randomized Collaborations</i> Yunus Inan (EPFL, Switzerland), Mert Kayaalp (EPFL, Switzerland), Emre Telatar (EPFL, Switzerland), Ali Sayed (Ecole Polytechnique Federale de Lausanne EPFL, School of Engineering, Switzerland)	115

Fundamentals of Machine Learning I

<i>On How to Avoid Exacerbating Spurious Correlations When Models are Overparameterized</i> Tina Behnia (University of British Columbia, Canada), Ke Wang (University of California, Santa Barbara, USA), Christos Thrampoulidis (University of British Columbia (UBC), Canada)	121
<i>Asymptotic Behavior of Adversarial Training in Binary Linear Classification</i> Hossein Taheri (University of California, Santa Barbara, USA), Ramtin Pedarsani (University of California, Santa Barbara, USA), Christos Thrampoulidis (University of British Columbia (UBC), Canada)	127
<i>Understanding Deep Neural Networks Using Sliced Mutual Information</i> Shelvia Wongso (National University of Singapore, Singapore), Rohan Ghosh (Postdoctoral Research Fellow, Singapore), Mehul Motani (National University of Singapore, Singapore)	133

Age of Information I

<i>AoI in Source-Aware Preemptive M/G/1/1 Queueing Systems: Moment Generating Function</i> Mohammad Moltafet (University of Oulu, Finland), Markus Leinonen (University of Oulu, Finland), Marian Codreanu (Linköping University, Sweden)	139
<i>Query Age of Information: Optimizing AoI at the Right Time</i> Muhammed Emrullah Ildiz (Middle East Technical University Ankara, Turkey), Orhan Tahir Yavascan (METU, Turkey), Elif Uysal (METU, Turkey), Ozkan Tugberk Kartal (Middle East Technical University, Turkey)	144
<i>Analysis of an Age-Dependent Stochastic Hybrid System</i> Ali Maatouk (Paris Research Center, Huawei Technologies, France), Mohamad Assaad (CentraleSupélec, France), Anthony Ephremides (University of Maryland, USA)	150

<i>Performance Modeling of Scheduling Algorithms in a Multi-Source Status Update System</i>	
Peng Zou (George Washington University, USA), Jin Zhang (George Washington University, USA), Suresh Subramaniam (George Washington University, USA)	156

Probability and Entropy I

<i>Efficient Representation of Large-Alphabet Probability Distributions via Arcsinh-Compander</i>	
Aviv Adler (MIT, USA), Jennifer Tang (MIT, USA), Yury Polyanskiy (MIT, USA)	162
<i>A Tighter Approximation Guarantee for Greedy Minimum Entropy Coupling (JKW Award Finalist)</i>	
Spencer P Compton (Massachusetts Institute of Technology, USA; MIT-IBM Watson AI Lab, USA, USA)	168
<i>Probability Distribution on Rooted Trees</i>	
Yuta Nakahara (Waseda University, Japan), Shota Saito (Gunma University, Japan), Akira Kamatsuka (Shonan Institute of Technology, Japan), Toshiyasu Matsushima (Waseda University, Japan)	174

Coding Theory, Decoding II

<i>Algebraic Chase Decoding of Elliptic Codes Through Computing the Gröbner Basis [virtual]</i>	
Yunqi Wan (Sun Yat-sen University, China), Li Chen (Sun Yat-sen University, China), Fangguo Zhang (Sun Yat-sen University, China)	180
<i>Comparison of 2D Topological Codes and Their Decoding Performances</i>	
Kao-Yueh Kuo (National Yang Ming Chiao Tung University, Taiwan), Ching-Yi Lai (National Yang Ming Chiao Tung University, Taiwan)	186
<i>Dual-Domain Recursive SISO Decoding of Linear Block Codes [virtual]</i>	
Liudmila Karakchieva (ITMO University, Russia), Peter Trifonov (ITMO University, Russia)	192

DNA and Data Storage II

<i>Capacity-Achieving Constrained Codes With GC-Content and Runlength Limits for DNA Storage [virtual]</i>	
Yajuan Liu (Southwest Jiaotong University, China), Xuan He (Southwest Jiaotong University, China), Xiaohu Tang (Southwest Jiaotong University, China)	198
<i>On Homopolymers and Secondary Structures Avoiding, Reversible, Reversible-Complement and GC-Balanced DNA Codes</i>	
Krishna Gopal Benerjee (IIT Kanpur, India), Adrish Banerjee (Indian Institute of Technology, Kanpur, India)	204
<i>Capacity of the Shotgun Sequencing Channel [virtual]</i>	
Aditya Narayan Ravi (University of Illinois Urbana-Champaign, USA), Alireza Vahid (University of Colorado Denver, USA), Ilan Shomorony (University of Illinois at Urbana-Champaign, USA)	210
<i>Finite-State Semi-Markov Channels for Nanopore Sequencing</i>	
Brendon Peter McBain (Monash University, Australia), Emanuele Viterbo (Monash University, Australia), James Saunderson (Monash University, Australia)	216

Source Coding and Data Compression II

<i>Source Coding With Unreliable Side Information in the Finite Blocklength Regime</i>	
Siming Sun (California Institute of Technology, USA), Michelle Effros (California Institute of Technology, USA)	222
<i>Relationship Between Intrinsic Randomness With f-Divergence and Fixed-Length Source Coding</i>	
Ryo Nomura (Waseda University, Japan)	228
<i>Excess-Distortion Exponents for Successive Refinement Using Gaussian Codebooks [virtual]</i>	
Zhuangfei Wu (Beihang University, China), Lin Bai (Beihang University, China), Lin Zhou (Beihang University, China)	234
<i>Universal Joint Source-Channel Coding Under an Input Energy Constraint</i>	
Omri Lev (Tel-Aviv University, Israel), Anatoly Khina (Tel Aviv University, Israel)	240

<i>Speeding Up AIFV-m Dynamic Programs by m-1 Orders of Magnitude</i> Mordecai Golin (HKUST, Hong Kong), Albert Patupat (HKUST, Hong Kong)	246
---	-----

Quantum II

<i>Minimizing Quantum Renyi Divergences via Mirror Descent With Polyak Step Size</i> Jun-Kai You (National Taiwan University, Taiwan), Hao-Chung Cheng (National Taiwan University, Taiwan), Yen-Huan Li (National Taiwan University, Taiwan)	252
<i>Identification Over Quantum Broadcast Channels</i> Uzi Pereg (Technical University of Munich & Munich Center for Quantum Science and Technology, Germany, Germany), Johannes Rosenberger (Technical University of Munich, Germany), Christian Deppe (Technical University of Munich, Germany)	258
<i>Run Length Limited de Bruijn Sequences for Quantum Communications</i> Yeow Meng Chee (National University of Singapore, Singapore), Duc Tu Dao (Nanyang Technological University, Singapore), Tien Long Nguyen (Hanoi University of Science and Technology, Vietnam), Hoang Ta (École Normale Supérieure de Lyon, France), Van Khu Vu (National University of Singapore, Singapore)	264
<i>Sequential Quantum Channel Discrimination</i> Yonglong Li (National University of Singapore, Singapore), Christoph Hirche (National University of Singapore, Singapore & Technical University Munich, Germany), Marco Tomamichel (National University of Singapore, Singapore)	270

Fundamentals of Machine Learning II

<i>(α)-GAN: Convergence and Estimation Guarantees</i> Gowtham R. Kurri (Arizona State University, USA), Monica Welfert (Arizona State University, USA), Tyler Sypherd (Arizona State University, USA), Lalitha Sankar (Arizona State University, USA)	276
<i>Statistical Minimax Lower Bounds for Transfer Learning in Linear Binary Classification</i> Seyed Mohammadreza Mousavi Kalan (USC, USA), Mahdi Soltanolkotabi (University of Southern California, USA), Salman Avestimehr (University of Southern California, USA)	282
<i>Multi-Scale Zero-Order Optimization of Smooth Functions in an RKHS</i> Madison Lee (University of California, San Diego, USA), Shubhanshu Shekhar (University of California, San Diego, USA), Tara Javidi (UCSD, USA)	288
<i>From Generalisation Error to Transportation-Cost Inequalities and Back</i> Amedeo R Esposito (EPFL, Switzerland), Michael Gastpar (EPFL, Switzerland)	294
<i>Analytic Mutual Information in Bayesian Neural Networks</i> Jae Oh Woo (Samsung SDS Research America, USA)	300

Covert Systems

<i>Covert Communication in the Presence of an Uninformed, Informed, and Coordinated Jammer</i> Hassan ZivariFard (Wichita State University, USA), Matthieu Bloch (Georgia Institute of Technology, USA), Aria Nosratinia (University of Texas, Dallas, USA)	306
<i>Covert Communication With Mismatched Decoders</i> Qiaosheng Zhang (Shanghai Artificial Intelligence Laboratory, China), Vincent Y. F. Tan (National University of Singapore, Singapore)	312
<i>Towards a Characterization of the Covert Capacity of Bosonic Channels Under Trace Distance</i> Shi-Yuan Wang (Georgia Institute of Technology, USA), Tuna Erdoğan (Georgia Institute of Technology, USA), Matthieu Bloch (Georgia Institute of Technology, USA)	318
<i>Covert Best Arm Identification of Stochastic Bandits</i> Meng-Che Chang (Georgia Institute of Technology, USA), Matthieu Bloch (Georgia Institute of Technology, USA)	324

Probability and Entropy II

<i>Density Estimation of Processes With Memory via Donsker Vardhan</i> Ziv Aharoni (Ben-Gurion University of the Negev, Israel), Dor Tsur (Ben-Gurion University of the Negev, Israel), Haim H Permuter (Ben-Gurion University of the Negev, Israel)	330
<i>Matroidal Entropy Functions: Constructions, Characterizations and Representations [virtual]</i> Qi Chen (Xidian University, China), Minquan Cheng (Guangxi Normal University, China), Baoming Bai (Xidian University, China)	336
<i>Generalized Longest Repeated Substring Min-Entropy Estimator</i> Jiheon Woo (DGIST, Korea (South)), Yuval Cassuto (Technion, Israel), Chanhee Yoo (DGIST, Korea (South)), Yongjune Kim (DGIST, Korea (South)), Young-Sik Kim (Chosun University, Korea (South))	342
<i>Modeling Network Contagion via Interacting Finite Memory Polya Urns</i> Somya Singh (Queen's University, Canada), Fady Alajaji (Queen's University, Canada), Bahman Ghahsifard (Queens University, Canada)	348

Sequences I

<i>A New Algebraic Approach for String Reconstruction From Substring Compositions</i> Utkarsh Gupta (University of Michigan, USA), Hessam Mahdaviifar (University of Michigan, USA)	354
<i>Coding for Trace Reconstruction Over Multiple Channels With Vanishing Deletion Probabilities</i> Serge Kas Hanna (Technical University of Munich, Germany)	360
<i>Nonsingularity of Galois Nonlinear Feedback Shift Registers [virtual]</i> Yingyin Pan (Institute of Information Engineering, Chinese Academy of Sciences, China), Jianghua Zhong (Institute of Information Engineering, Chinese Academy of Sciences, China), Dongdai Lin (Institute of Information Engineering, Chinese Academy of Sciences, China)	366
<i>4-Adic Complexity of Quaternary Cyclotomic Sequences and Ding-Helleseth Sequences With Period Pq [virtual]</i> Chenhuang Wu (Putian University, China), Vladimir Edemskiy (Novgorod State University, Russia)	372

LDPC I

<i>On Average Number of Cycles in Finite-Length Spatially Coupled LDPC Codes [virtual]</i> Sima Naseri (Carleton University, Canada), Ali Dehghan (Carleton University, Canada), Amir Banihashemi (Carleton University, Canada)	378
<i>Efficient ADMM Decoder for Non-Binary LDPC Codes Based on Bit Embedding Technique [virtual]</i> Xiaomeng Guo (Xidian University State Key Laboratory of Integrated Services Network, China), Yongchao Wang (Xidian University, China)	384
<i>Cycle-Free Windows of SC-LDPC Codes</i> Emily Mcmillon (University of Nebraska - Lincoln, USA), Christine Kelley (University of Nebraska-Lincoln, USA)	390
<i>Geometric Versus Probabilistic Shaping for Circular-QAM With Nonbinary LDPC Codes</i> Asma Maalaoui (INP-ENSEEIH TOULOUSE FRANCE, France), Charly Poulliat (INP - ENSEEIHT Toulouse, France), Iryna Andriyanova (CY Cergy Paris University & ENSEA, CNRS, France)	396

Private Information Retrieval I

<i>Communication Cost of Two-Database Symmetric Private Information Retrieval: A Conditional Disclosure of Multiple Secrets Perspective [virtual]</i> Zhusheng Wang (University of Maryland, USA), Sennur Ulukus (University of Maryland, USA)	402
<i>Two-Server Private Information Retrieval With Result Verification [virtual]</i> Pengzhen Ke (ShanghaiTech University, China, China), Liang Feng Zhang (ShanghaiTech University, China, China)	408
<i>The Role of Reusable and Single-Use Side Information in Private Information Retrieval</i> Anoosheh Heidarzadeh (Texas A&M University, USA), Alex Sprintson (Texas A&M University, USA)	414

Fundamental Limits of Cache-Aided Multiuser PIR: The Two-Message Two-User Case

Xiang Zhang (University of Utah, USA), Kai Wan (Technische Universität Berlin, Germany), Hua Sun (University of North Texas, USA), Mingyue Ji (University of Utah, USA), Giuseppe Caire (Technische Universität Berlin, Germany) 420

Optimization and Machine Learning I

Regularization-Wise Double Descent: Why It Occurs and How to Eliminate It

Fatih Furkan Yilmaz (Rice University, USA), Reinhard Heckel (TU München, Germany) 426

Uniqueness of Local Maximizers for Some Non-Convex Log-Determinant Optimization Problems Using Information Theory

Ken Lau (The Chinese University of Hong Kong, Hong Kong), Chandra Nair (Chinese University of Hong Kong, Hong Kong), Chaorui Yao (The University of California, Los Angeles, USA) 432

Sequential Vs Fixed Design Regrets in Online Learning [virtual]

Changlong Wu (Purdue University, USA), Mohsen Heidari (Purdue University, USA), Ananth Grama (Purdue University, USA), Wojciech Szpankowski (Purdue University, USA) 438

Precise Minimax Regret for Logistic Regression

Philippe Jacquet (INRIA, France), Wojciech Szpankowski (Purdue University, USA), Gil I. Shamir (Google, USA) 444

Statistics and Machine Learning I

Monotonicity of the Trace-Inverse of Covariance Submatrices and Two-Sided Prediction

Anatoly Khina (Tel Aviv University, Israel), Arie Yeredor (Tel-Aviv University, Israel), Ram Zamir (Tel Aviv University, Israel) 450

On the Number of Graphs With a Given Histogram

Shahar Stein Ioushua (Tel Aviv University, Israel), Ofer Shayevitz (Tel Aviv University, Israel) 456

Approximate Empirical Bayes Estimation of the Regularization Parameter in ℓ_1 Trend Filtering

Akiharu Omae (Toyoashi University of Technology, Japan), Kazuho Watanabe (Toyoashi University of Technology, Japan) 462

Alpha-NML Universal Predictors

Marco Bondaschi (EPFL, Switzerland), Michael Gastpar (EPFL, Switzerland) 468

Learning and Detection for Communications

Learning-Augmented Streaming Codes are Approximately Optimal for Variable-Size Messages

Michael Rudow (CMU, USA), Rashmi Vinayak (Carnegie Mellon University, USA) 474

MetaSSD: Meta-Learned Self-Supervised Detection

MoonJeong Park (Pohang University of Science and Technology, Korea (South)), Jungseul Ok (Pohang University of Science and Technology, Korea (South)), Yo-Seb Jeon (POSTECH, Korea (South)), Dongwoo Kim (Pohang University of Science and Technology, Korea (South)) 480

CuSum for Sequential Change Diagnosis

Austin Warner (University of Illinois, Urbana-Champaign, USA), Georgios Fellouris (University of Illinois at Urbana-Champaign, USA) 486

Feedback Capacity

Capacity of the Trapdoor Channel With Delayed Feedback

Bashar Huleihel (Ben-Gurion University, Israel), Haim H Permuter (Ben-Gurion University of the Negev, Israel), Oron Sabag (Caltech, USA) 492

Capacity of Finite State Channels With Feedback: Algorithmic and Optimization Theoretic Properties

Andrea Grigorescu (Technical University of Munich, Germany), Holger Boche (Technical University Munich, Germany), Rafael F. Schaefer (University of Siegen, Germany), H. Vincent Poor (Princeton University, USA) 498

On the Capacity of Additive AVCs With Feedback

Pranav Joshi (Independent Researcher, India), Amritakshya Purkayastha (Indian Institute of Technology, Kharagpur, India), Yihan Zhang (IST Austria, Austria), Amitalok J. Budkuley (Indian Institute of Technology Kharagpur, India), Sidharth Jaggi (University of Bristol, United Kingdom (Great Britain)) 504

Sequences II

On the List Size in the Levenshtein's Sequence Reconstruction Problem

Ville Junnila (University of Turku, Finland), Tero K Laihonon (University of Turku, Finland), Tuomo Lehtilä (Université Claude Bernard Lyon 1, Finland) 510

Robust Locally Positioning Sequences and Codes: Capacity, Constructions and Applications

Yeow Meng Chee (National University of Singapore, Singapore), Nhat Hoang Le (National University of Singapore, Singapore), Van Khu Vu (National University of Singapore, Singapore) 516

New Family of Cross Z-Complementary Sequences With Large ZCZ Width

Shibsankar Das (Indian Institute of Technology Kanpur, India), Adrish Banerjee (Indian Institute of Technology, Kanpur, India), Zilong Liu (University of Essex, United Kingdom (Great Britain)) 522

The 4-Adic Complexity of Quaternary Sequences of Even Period With Ideal Autocorrelation [virtual]

Minghui Yang (Institute of Information Engineering, Chinese Academy of Sciences, China), Shiyuan Qiang (Sichuan University, China), Xiaoyan Jing (Northwest University(China), China), Keqin Feng (Tsinghua University, China), Dongdai Lin (Institute of Information Engineering, Chinese Academy of Sciences, China) 528

An Upper Bound of the Set Size of Perfect Sequences With Optimal Cross-Correlation [virtual]

Zilong Wang (Xidian University, China), Qian Chen (Xidian University, China), Guang Gong (University of Waterloo, Canada) 532

LDPC II

Systematic Doping of SC-LDPC Codes

Min Zhu (Xidian University, China), David G. M. Mitchell (New Mexico State University, USA), Michael Lentmaier (Lund University, Sweden), Daniel J. Costello, Jr. (University of Notre Dame, USA) 536

Trade-Based LDPC Codes

Farzane Amirzade (Amirkabir University of Technology, Iran), Daniel Panario (Carleton University, Canada), Mohammad-Reza Sadeghi (Amirkabir University of Technology, Iran) 542

Using Minors to Construct Generator Matrices for Quasi-Cyclic LDPC Codes

Roxana Smarandache (University of Notre Dame, USA), Anthony Gómez-Fonseca (University of Notre Dame, USA), David G. M. Mitchell (New Mexico State University, USA) 548

A Design of Layered Decoding for QC-LDPC Codes Based on Reciprocal Channel Approximation

Min Jang (Samsung Electronics, Korea (South)), Kyeongyeon Kim (Samsung Electronics, Korea (South)), Seho Myung (Samsung Electronics Co., Ltd., Korea (South)), Hongsil Jeong (Samsung Electronics, Korea (South)), Kyung-Joong Kim (Samsung Electronics, Korea (South)), Sang-Hyo Kim (Sungkyunkwan University, Korea (South)) 554

Coded Computing IV

Byzantine Attack Identification in Distributed Matrix Multiplication via Locally Testable Codes

Sangwoo Hong (Seoul National University, Korea (South)), Heecheol Yang (Chungnam National University, Korea (South)), Jungwoo Lee (Seoul National University, Korea (South)) 560

DoF of a Cooperative X-Channel With an Application to Distributed Computing

Yue Bi (Telecom Paris, France & Shanghai Jiao Tong University, China), Michele A Wigger (Telecom Paris, France), Philippe Ciblat (Telecom Paris & Institut Polytechnique de Paris, France), Yue Wu (Shanghai Jiaotong University, China) 566

A New Coding Scheme for Matrix-Vector Multiplication via Universal Decodable Matrices [virtual]

Hongru Cao (University of Science and Technology of China, China), Wei Yan (University of Science and Technology of China, China), Sian-Jheng Lin (Huawei Technology Co. Ltd., Hong Kong), Weiming Zhang (University of Science and Technology of China, China) 572

Wyner-Ziv Compression is (Almost) Optimal for Distributed Optimization

Prathamesh Mayekar (IISc, India), Shubham K Jha (Indian Institute of Science Bangalore, India), Himanshu Tyagi (Indian Institute of Science, India) 578

Rate Distortion

<i>On One-Bit Quantization</i> Sourbh Nitin Bhadane (Cornell University, USA), Aaron Wagner (Cornell University, USA)	584
<i>A Rate Distortion Approach to Goal-Oriented Communication</i> Photios A. Stavrou (EURECOM, France), Marios Kountouris (EURECOM, France)	590
<i>Lossy Compression With Universal Distortion [virtual] (JKW Award Finalist)</i> Adeel Mahmood (Cornell University, USA), Aaron Wagner (Cornell University, USA)	596
<i>Minimax Rate-Distortion</i> Adeel Mahmood (Cornell University, USA), Aaron Wagner (Cornell University, USA)	602
<i>Neural Estimation of the Rate-Distortion Function for Massive Datasets</i> Eric Lei (University of Pennsylvania, USA), Hamed Hassani (University of Pennsylvania, USA), Shirin Saeedi Bidokhti (University of Pennsylvania, USA)	608

Privacy I

<i>Rainbow Differential Privacy</i> Ziqi Zhou (Technical University of Berlin, Germany), Onur Günlü (University of Siegen, Germany), Rafael D'Oliveira (Clemson University, USA), Muriel Médard (MIT, USA), Parastoo Sadeghi (University of New South Wales, Australia), Rafael F. Schaefer (University of Siegen, Germany)	614
<i>Bounds for Privacy-Utility Trade-Off With Non-Zero Leakage</i> Amirreza Zamani (KTH Royal Institute of Technology, Sweden), Tobias J. Oechtering (KTH Royal Institute of Technology, Sweden), Mikael Skoglund (KTH Royal Institute of Technology, Sweden)	620
<i>Pointwise Maximal Leakage</i> Sara Saeidian (KTH Royal Institute of Technology, Sweden), Giulia Cervia (IMT Lille Douai, France), Tobias J. Oechtering (KTH Royal Institute of Technology, Sweden), Mikael Skoglund (KTH Royal Institute of Technology, Sweden)	626
<i>Gaussian Data Privacy Under Linear Function Recoverability [virtual]</i> Ajaykrishnan Nageswaran (University of Maryland, USA)	632
<i>Multi-User Privacy Cooperation Game by Leveraging Users' Service Flexibility</i> Shu Hong (Singapore University of Technology and Design, Singapore), Lingjie Duan (Singapore University of Technology and Design (SUTD), Singapore)	637

Cryptography I

<i>Constrained Obfuscation to Thwart Pattern Matching Attacks</i> Saeede Enayati (University of Massachusetts Amherst, USA), Dennis Goeckel (University of Massachusetts Amherst, USA), Amir Houmansadr (University of Massachusetts Amherst, USA), Hossein Pishro-Nik (University of Massachusetts, Amherst, USA)	643
<i>Hybrid Multiplicative Non-Perfect Secret Sharing [virtual]</i> Maki Yoshida (National Institute of Information and Communications Technology, Japan)	649
<i>Attacking Masked Cryptographic Implementations: Information-Theoretic Bounds</i> Wei Cheng (Télécom Paris, Institut Polytechnique de Paris & Secure-IC S.A.S., France), Yi Liu (Télécom Paris & Institut Polytechnique de Paris, France), Sylvain Guilley (Telecom ParisTech & Secure-IC, France), Olivier Rioul (Telecom Paris, Institut Polytechnique de Paris, France)	654
<i>Construction of the Visual Cryptography Scheme With the Maximum Relative Difference Under a Strong General Access Structure</i> Hiroki Koga (University of Tsukuba, Japan)	660
<i>Coding With Cyclic PAM and Vector Quantization for the RLWE/MLWE Channel</i> Irina Bocharova (University of Tartu, Estonia), Henk D.L. Hollmann (University of Tartu, The Netherlands), Karan Khathuria (University of Tartu, Estonia), Boris D. Kudryashov (University of Tartu, Estonia), Vitaly Skachek (University of Tartu, Estonia)	666

Optimization and Machine Learning II

<i>Accelerated Proximal Alternating Gradient-Descent-Ascent for Nonconvex Minimax Machine Learning [virtual]</i>	
Ziyi Chen (University of Utah, USA), Shaocong Ma (University of Utah, USA), Yi Zhou (University of Utah, USA)	672
<i>The Directional Bias Helps Stochastic Gradient Descent to Generalize in Kernel Regression Models</i>	
Yiling Luo (Georgia Institute of Technology, USA), Xiaoming Huo (Georgia Institute of Technology, USA), Yajun Mei (Georgia Institute of Technology, USA)	678
<i>Empirical Risk Minimization With Relative Entropy Regularization: Optimality and Sensitivity Analysis</i>	
Samir M. Perlaza (INRIA, France), Gaetan Bisson (University of French Polynesia, French Polynesia), Iñaki Esnaola (University of Sheffield, United Kingdom (Great Britain)), Alain Jean-Marie (Inria, France), Stefano Rini (National Yangming Jiaotong University, Taiwan)	684
<i>Stochastic Chaining and Strengthened Information-Theoretic Generalization Bounds</i>	
Ruida Zhou (Texas A&M University, USA), Chao Tian (Texas A&M University, USA), Tie Liu (Texas A&M University, USA)	690
<i>Implicit Regularization Properties of Variance Reduced Stochastic Mirror Descent</i>	
Yiling Luo (Georgia Institute of Technology, USA), Xiaoming Huo (Georgia Institute of Technology, USA), Yajun Mei (Georgia Institute of Technology, USA)	696

Statistics and Machine Learning II

<i>The Posterior Distribution of Bayesian Context-Tree Models: Theory and Applications</i>	
Ioannis Papageorgiou (University of Cambridge & St. Johns College, United Kingdom (Great Britain)), Ioannis Kontoyiannis (University of Cambridge & Statistical Laboratory, United Kingdom (Great Britain))	702
<i>The Entropic Central Limit Theorem for Discrete Random Variables</i>	
Lampros Gavalakis (University of Cambridge, United Kingdom (Great Britain)), Ioannis Kontoyiannis (University of Cambridge & Statistical Laboratory, United Kingdom (Great Britain))	708
<i>A Simpler Proof of the Four Functions Theorem and Some New Variants [virtual]</i>	
Dimitris Achlioptas (University of Athens, Greece), Kostas Zampetakis (University of California Santa Cruz, USA)	714
<i>Entropic CLT for Order Statistics</i>	
Martina Cardone (University of Minnesota, USA), Alex Dytso (New Jersey Institute of Technology, USA), Cynthia Rush (Columbia University, USA)	718
<i>Smoothed InfoNCE: Breaking the $\ln(N)$ Curse Without Overshooting [virtual]</i>	
Xu Wang (City University of Hong Kong, Hong Kong), Ali Al-Bashabsheh (Beijing Advanced Innovation Center for Big Data and Brain Computing (BDBC), Beihang University, China), Chao Zhao (City University of Hong Kong, Hong Kong), Chung Chan (City University of Hong Kong, Hong Kong)	724

Wireless Networks

<i>Continuity of Link Scheduling Rate Region for Wireless Networks With Propagation Delays [virtual]</i>	
Yijun Fan (The Chinese University of Hong Kong, Shenzhen, China), Yanxiao Liu (The Chinese University of Hong Kong, Hong Kong), Shenghao Yang (The Chinese University of Hong Kong, Shenzhen, China)	730
<i>QoE-Centric Multi-User mmWave Scheduling: A Beam Alignment and Buffer Predictive Approach [virtual]</i>	
Babak Badnava (University of Kansas, USA), Sravan Reddy Chintareddy (University of Kansas, USA), Morteza Hashemi (University of Kansas, USA)	736
<i>Average Downlink Rate Analysis for Clustered Cell-Free Networks With Access Point Selection [virtual]</i>	
Ouyang Zhou (Tongji University, China), Junyuan Wang (Tongji University, China), Fuqiang Liu (Tongji University, China)	742
<i>Average Coverage Probability for Base-Station-To-UAV Communications Over 6G Multiple Access Wireless Networks [virtual]</i>	
Xi Zhang (Texas A&M University, USA), Qixuan Zhu (Texas A&M University, USA), H. Vincent Poor (Princeton University, USA)	748
<i>Information and Energy Transmission With Wavelet-Reconstructed Harvesting Functions</i>	
Daewon Seo (DGIST, Korea (South)), Yongjune Kim (DGIST, Korea (South))	754

Algorithmic Approaches to Information Inequalities

<i>Symmetries in Linear Programming for Information Inequalities</i> Emirhan Gürpınar (LIRMM, Université de Montpellier, France)	760
<i>Strong Data Processing Inequalities via Sums of Squares (JKW Award Finalist)</i> Oisin Faust (University of Cambridge, United Kingdom (Great Britain)), Hamza Fawzi (University of Cambridge, United Kingdom (Great Britain))	766
<i>Proving Information Inequalities and Identities With Symbolic Computation [virtual]</i> Laigang Guo (Beijing Normal University, China), Raymond W. Yeung (The Chinese University of Hong Kong, Hong Kong), Xiao-Shan Gao (Chinese Academy of Sciences, China)	772

Randomness and Algorithms

<i>The Random Number Partitioning Problem: Overlap Gap Property and Algorithmic Barriers</i> David Gamarnik (MIT, USA), Eren C. Kizildag (MIT, USA)	778
<i>Weak Superimposed Codes of Improved Asymptotic Rate and Their Randomized Construction</i> Yu Tsunoda (University of Tsukuba, Japan), Yuichiro Fujiwara (Chiba University, Japan)	784
<i>Rate-Energy Optimal Probabilistic Shaping Using Linear Codes</i> Maxim Goukhshtein (University of Toronto, Canada), Stark Draper (University of Toronto, Canada), Jeebak Mitra (Huawei Technologies Canada, Canada)	790
<i>One-Shot Point-To-Point Channel Simulation</i> Michael Xuan Cao (National University of Singapore, Singapore), Navneeth Ramakrishnan (Imperial College London, United Kingdom (Great Britain)), Mario Berta (Imperial College London, United Kingdom (Great Britain)), Marco Tomamichel (National University of Singapore, Singapore)	796

Insertions and Deletions I

<i>Insertion and Deletion Correction in Polymer-Based Data Storage</i> Anisha Banerjee (Technical University of Munich, Germany), Antonia Wachter-Zeh (Technical University of Munich (TUM), Germany), Eitan Yaakobi (Technion, Israel)	802
<i>$\lfloor t \rfloor$-Deletion-1-Insertion-Burst Correcting Codes [virtual]</i> Ziyang Lu (Shandong University, China), Yiwei Zhang (Shandong University, China)	808
<i>Equivalence of Insertion/Deletion Correcting Codes for d-Dimensional Arrays</i> Evagoras Stylianou (Technical University of Munich, Germany), Lorenz Welter (Technical University of Munich(TUM), Germany), Rawad Bitar (Technical University of Munich, Germany), Antonia Wachter-Zeh (Technical University of Munich (TUM), Germany), Eitan Yaakobi (Technion, Israel)	814

Coded Computing I

<i>Identifying Reliable Machines for Distributed Matrix-Vector Multiplication</i> Sarthak Jain (University of Minnesota, Twin Cities, USA), Martina Cardone (University of Minnesota, USA), Soheil Mohajer (University of Minnesota, USA)	820
<i>Orthonormal Sketches for Secure Coded Regression</i> Neophytos Charalambides (University of Michigan & at Ann Arbor, USA), Hessam Mahdaviyar (University of Michigan, USA), Mert Pilanci (Stanford University, USA), Alfred Hero III (University of Michigan, USA)	826
<i>Generalized Lagrange Coded Computing: A Flexible Computation-Communication Tradeoff [virtual]</i> Jinbao Zhu (The Hong Kong University of Science and Technology (Guangzhou), China), Songze Li (The Hong Kong University of Science and Technology, China)	832
<i>Successive Approximation for Coded Matrix Multiplication</i> Shahrazad Kiani (University of Toronto, Canada), Stark Draper (University of Toronto, Canada)	838

Information Theoretic Security I

Secure Joint Communication and Sensing

Onur Günlü (University of Siegen, Germany), Matthieu Bloch (Georgia Institute of Technology, USA), Rafael F. Schaefer (University of Siegen, Germany), Aylin Yener (The Ohio State University, USA) 844

On the Capacity Achieving Input of Amplitude Constrained Vector Gaussian Wiretap Channel

Antonino Favano (Politecnico di Milano & CNR-IEIT, Italy), Luca Barletta (Politecnico di Milano, Italy), Alex Dytso (New Jersey Institute of Technology, USA) 850

Mosaics of Combinatorial Designs for Semantic Security on Quantum Wiretap Channels

Holger Boche (Technical University Munich, Germany), Minglai Cai (Universitat Autònoma de Barcelona, Spain), Moritz Wiese (Technical University of Munich, Germany) 856

A Framework for Shannon Ciphers Under Side-Channel Attacks: A Strong Converse and More

Yasutada Oohama (University of Electro-Communications, Japan), Bagus Santoso (The University of Electro-Communications, Japan) 862

Group Testing I

Group Testing With Geometric Ranges

Benjamin Aram Berendsohn (Freie Universität Berlin, Germany), Laszlo Kozma (Freie Universität Berlin, Germany) 868

Group Testing on General Set-Systems

Mira Gonen (Ariel University, Israel), Michael Langberg (State University of New York at Buffalo, USA), Alex Sprintson (Texas A&M University, USA) 874

Group Testing With Correlation via Edge-Faulty Graphs [virtual]

MohammadHesam NikpeySalekde (University of Pennsylvania, USA), Jungyeol Kim (University of Pennsylvania, USA), Xingran Chen (University of Pennsylvania, USA), Saswati Sarkar (University of Pennsylvania, USA), Shirin Saeedi Bidokhti (University of Pennsylvania, USA) 880

Scheduling Group Tests Over Time

Akhil Bhimaraju (University of Illinois Urbana-Champaign, USA), Lav R. Varshney (University of Illinois at Urbana-Champaign, USA) 886

Estimation I

Nonparametric Matrix Estimation With One-Sided Covariates [virtual]

Christina Lee Yu (Cornell University, USA) 892

Maximum Likelihood Estimation of Optimal Receiver Operating Characteristic Curves From Likelihood Ratio Observations

Bruce Hajek (University of Illinois, USA), Xiaohan Kang (University of Illinois at Urbana-Champaign, USA) 898

Interaction Improves Two-Party Nonparametric Pointwise Density Estimation [virtual]

Jingbo Liu (UIUC, USA) 904

Missing Mass Estimation From Sticky Channels

Prafulla Chandra (IIT Madras, India), Andrew Thangaraj (IIT Madras, India), Nived Rajaraman (University of California, Berkeley, USA) 910

New Directions in Age of Information

State Amplification and Masking While Timely Updating [virtual]

Ömur Özel (George Washington University, USA), Aylin Yener (The Ohio State University, USA), Sennur Ulukus (University of Maryland, USA) 916

Asymptotically Optimal On-Demand AoI Minimization in Energy Harvesting IoT Networks

Mohammad Hatami (University of Oulu, Finland), Markus Leinonen (University of Oulu, Finland), Zheng Chen (Linköping University, Sweden), Nikolaos Pappas (Linköping University, Sweden), Marian Codreanu (Linköping University, Sweden) 922

Timely Gossiping With File Slicing and Network Coding

Priyanka Kaswan (University of Maryland CP, USA), Sennur Ulukus (University of Maryland, USA) 928

<i>The Dissemination of Time-Varying Information Over Networked Agents With Gossiping</i> Melih Bastopcu (University of Illinois Urbana-Champaign, USA), Seyed Rasoul Etesami (University of Illinois at Urbana-Champaign, USA), Tamer Başar (University of Illinois at Urbana-Champaign, USA)	934
---	-----

Information Inequalities

<i>Reversing Jensen's Inequality for Information-Theoretic Analyses</i> Neri Merhav (Technion, Israel)	940
<i>A New Proof of the Extremal Inequality [virtual]</i> Yinfei Xu (Southeast University, China), Guojun Chen (Southeast University & National Mobile Communications Research Laboratory, China), Shi Jin (Southeast University, China)	946
<i>A Mutual Information Inequality and Some Applications [virtual]</i> Ken Lau (The Chinese University of Hong Kong, Hong Kong), Chandra Nair (Chinese University of Hong Kong, Hong Kong), David Ng (The Chinese University of Hong Kong, Hong Kong)	951
<i>An MMSE Lower Bound via Poincare Inequality</i> Ian Zieder (New Jersey Institute of Technology, USA), Alex Dytso (New Jersey Institute of Technology, USA), Martina Cardone (University of Minnesota, USA)	957

Alex Vardy Special Session

<i>PCR, Tropical Arithmetic, and Group Testing</i> Hsin-Po Wang (University of California San Diego, USA), Ryan Gabrys (University of California, San Diego, USA), Alexander Vardy (University of California San Diego, USA)	963
<i>Bee Identification for DNA Strands</i> Johan Chrisnata (Nanyang Technological University, Singapore & Technion University, Israel), Han Mao Kiah (Nanyang Technological University, Singapore), Alexander Vardy (University of California San Diego, USA), Eitan Yaakobi (Technion, Israel)	969
<i>Lower Bounds on the Redundancy of Linear Codes With Disjoint Repair Groups</i> Sankeerth Rao Karingula (University of California San Diego, USA), Alexander Vardy (University of California San Diego, USA), Mary Wootters (Stanford University, USA)	975
<i>Polar Coded Modulation via Hybrid Bit Labeling [virtual]</i> Hanwen Yao (University of California, San Diego, USA), Jinfeng Du (Nokia Bell Labs, USA), Alexander Vardy (University of California San Diego, USA)	980

Insertions and Deletions II

<i>Zero Deletion/Insertion Codes and Zero Error Capacity</i> Luca G. Tallini (Università di Teramo, Italy), Nawaf A Alqwaifly (2274 NW Hummingbird Drive & Oregon State University, USA), Bella Bose (Oregon State University, USA)	986
<i>Sequence Reconstruction Problem for Deletion Channels: A Complete Asymptotic Solution</i> Van Long Phuoc Pham (Nanyang Technological University, Singapore), Keshav Goyal (Nanyang Technological University, Singapore), Han Mao Kiah (Nanyang Technological University, Singapore)	992
<i>Genomic Compression With Decoder Alignment Under Single Deletion and Multiple Substitutions</i> Yotam Gershon (Technion - Israel Institute of Technology, Israel), Yuval Cassuto (Technion, Israel)	998
<i>List-Decodable Codes for Single-Deletion Single-Substitution With List-Size Two</i> Wentu Song (Singapore University of Technology and Design, Singapore), Kui Cai (Singapore University of Technology and Design, Singapore), Thanh Tuan Nguyen (Singapore University of Technology and Design, Singapore)	1004

Coded Computing II

<i>An Integrated Method to Deal With Partial Stragglers and Sparse Matrices in Distributed Computations [virtual]</i> Anindya Bijoy Das (Iowa State University, USA), Aditya Ramamoorthy (Iowa State University, USA)	1010
<i>Coded Wireless Distributed Computing via Interference Alignment [virtual]</i> Kai Yuan (ShanghaiTech University, China), Youlong Wu (ShanghaiTech University, China)	1016
<i>An Improved Capacity Bound for Secure Network Function Computation [virtual]</i> Xuan Guang (Nankai University, China), Yang Bai (Nankai University, China), Raymond W. Yeung (The Chinese University of Hong Kong, Hong Kong)	1022
<i>Distributed Matrix-Vector Multiplication With Sparsity and Privacy Guarantees</i> Marvin Xhemrishi (Technical University of Munich, Germany), Rawad Bitar (Technical University of Munich, Germany), Antonia Wachter-Zeh (Technical University of Munich (TUM), Germany)	1028

Information Theoretic Security II

<i>Arithmetic Network Coding for Secret Sum Computation [virtual]</i> Sijie Li (The Chinese University of Hong Kong, China), Cheuk Ting Li (The Chinese University of Hong Kong, Hong Kong)	1034
<i>The Secrecy Capacity of the Gaussian Wiretap Channel With Rate-Limited Help at the Decoder</i> Sergey Loyka (University of Ottawa, Canada), Neri Merhav (Technion, Israel)	1040
<i>Encoding Individual Sequences for the Wiretap Channel</i> Neri Merhav (Technion, Israel)	1046
<i>Matched Information Rate Codes for Binary-Input Intersymbol Interference Wiretap Channels</i> Aria Nouri (Shahid Beheshti University, Iran), Reza Asvadi (Shahid Beheshti University, Iran)	1052

Quantum III

<i>Commitment Capacity of Classical-Quantum Channels [virtual]</i> Masahito Hayashi (Southern University of Science and Technology, China), Naqeeb Warsi (Indian Statistical Institute, Singapore)	1058
<i>Entanglement-Assisted Quantum Error-Correcting Codes Over Local Frobenius Rings</i> Tania Sidana (Indian Institute of Science, India), Navin Kashyap (Indian Institute of Science, India)	1064
<i>Quantum Codes Construction From Skew Polycyclic Codes</i> Shikha Patel (Indian Institute of Technology Patna, India), Om Prakash (Indian Institute of Technology Patna, India)	1070
<i>The Quantum MAC With Cribbing Encoders</i> Uzi Pereg (Technical University of Munich, Germany), Christian Deppe (Technical University of Munich, Germany), Holger Boche (Technical University Munich, Germany)	1076

Group Testing II

<i>Group Testing With Blocks of Positives</i> Thach Van Bui (National University of Singapore, Singapore), Yeow Meng Chee (National University of Singapore, Singapore), Jonathan Scarlett (National University of Singapore, Singapore), Van Khu Vu (National University of Singapore, Singapore)	1082
<i>Exact Recovery Threshold in Dynamic Binary Censored Block Model [virtual]</i> Javad Zahedi Moghaddam (University of Texas at Dallas, USA), Mohammad Esmaeili (The University of Texas at Dallas, USA), Aria Nosratinia (University of Texas, Dallas, USA)	1088
<i>Error-Correcting Locating Arrays for Interaction Fault Location in Combinatorial Testing</i> Xiao-Nan Lu (University of Yamaguchi, Japan), Masakazu Jimbo (The Institute of Statistical Mathematics, Japan)	1094

Estimation II

<i>Robust Estimation for Non-Parametric Families via Generative Adversarial Networks</i> Banghua Zhu (University of California, Berkeley & Tsinghua University, China), Jiantao Jiao (University of California, Berkeley, USA), Michael Jordan (UC Berkeley, USA)	1100
<i>Lower-Bounds on the Bayesian Risk in Estimation Procedures via f-Divergences</i> Adrien Vandenbroucque (& Entropica Labs, Switzerland), Amedeo R Esposito (EPFL, Switzerland), Michael Gastpar (EPFL, Switzerland)	1106
<i>The Pisarenko Spectral Estimation Method: Extension to AR Vector Processes</i> Jesús Gutiérrez-Gutiérrez (University of Navarra, Spain), Adam Podhorski (University of Navarra, Spain), Xabier Insausti (Tecnun University of Navarra, Spain), Marta Zárraga-Rodríguez (Tecnun, University of Navarra, Spain)	1112
<i>Robust Mean Estimation in High Dimensions: An Outlier Fraction Agnostic and Efficient Algorithm</i> Aditya Deshmukh (University of Illinois at Urbana-Champaign, USA), Jing Liu (UIUC & Coordinated Science Lab, USA), Venugopal Veeravalli (University of Illinois at Urbana-Champaign, USA)	1115

Topics in Coded Caching I

<i>An Improved Coded Caching Scheme for Partially Cooperative D2D Networks</i> Aniruddha Phatak (University of Colorado Boulder, USA), Mahesh K Varanasi (University of Colorado, USA)	1121
<i>An Improved Lower Bound for Device-To-Device Coded Caching</i> Aniruddha Phatak (University of Colorado Boulder, USA), Mahesh K Varanasi (University of Colorado, USA)	1127
<i>On Coded Caching Systems With Offline Users</i> Yinbin Ma (University of Illinois Chicago, USA), Daniela Tuninetti (University of Illinois Chicago, USA)	1133
<i>Coded Caching Does Not Generally Benefit From Selfish Caching</i> Federico Brunero (EURECOM, France), Petros Elia (EURECOM, France)	1139

Broadcast Channels

<i>Blahut-Arimoto Algorithms for Computing Capacity Bounds of Broadcast Channels [virtual]</i> Yanqing Liu (State Key Lab. of ISN, Xidian University, China), Yanlin Geng (State Key Lab. of ISN, Xidian University, China)	1145
<i>Capacity of $\sqrt{3}$-User Linear Computation Broadcast Over $\sqrt{1}Bbb F_q$ With $\sqrt{1}D$ Demand and Side-Information</i> Yuhang Yao (University of California, Irvine, USA), Syed Ali Jafar (University of California Irvine, USA)	1151
<i>Byzantine Consensus Over Broadcast Channels (JKW Award Finalist)</i> Neha Sangwan (Tata Institute of Fundamental Research, India), Varun Narayanan (Technion, Israel, India), Vinod M Prabhakaran (Tata Institute of Fundamental Research, India)	1157

Graphs and Codes

<i>On the Feasible Region of Efficient Algorithms for Attributed Graph Alignment</i> Ziao Wang (University of British Columbia, Canada), Ning Zhang (University of British Columbia, Canada), Weina Wang (Carnegie Mellon University, USA), Lele Wang (University of British Columbia, Canada)	1163
<i>Analysis of Non-Binary High-Rate Repetition-Parity-Parity Codes Over the BEC</i> Iryna Andriyanova (CY Cergy Paris University & ENSEA, CNRS, France), Charly Poulliat (INP - ENSEEIHT Toulouse, France)	1169
<i>(c^3)-Locally Testable Codes From Lossless Expanders</i> Ting-Chun Lin (University of California San Diego, USA), Min-Hsiu Hsieh (University of Technology Sydney, Australia)	1175
<i>Some Results on Maximally Recoverable Codes With Locality and Hierarchical Locality</i> D. Shivakrishna (IIIT Hyderabad, India), V. Lalitha (IIIT Hyderabad, India)	1181

Message Passing I

<i>Warm-Starting in Message Passing Algorithms</i> Nikolajs Skuratovs (University of Edinburgh, Latvia), Mike E Davies (University of Edinburgh, United Kingdom (Great Britain))	1187
<i>Analysis of Symbol Message Passing LDPC Decoder for the Poisson PPM Channel</i> Emna Ben Yacoub (Technical University of Munich, Germany), Balazs Matuz (German Aerospace Center (DLR), Germany)	1193
<i>Adaptive Importance Sampling Message Passing</i> Semih Akbayrak (Eindhoven University of Technology, The Netherlands), Ismail Senoz (Eindhoven University of Technology, The Netherlands), Bert de Vries (Eindhoven University of Technology, The Netherlands)	1199
<i>Error-And-Erasure Decoding of Product and Staircase Codes With Simplified Extrinsic Message Passing</i> Sisi Miao (Karlsruhe Institute of Technology, Germany), Lukas Rapp (Karlsruhe Institute of Technology, Germany), Laurent Schmalen (Karlsruhe Institute of Technology (KIT), Germany)	1205

Coded Computing III

<i>Analog Secure Distributed Matrix Multiplication Over Complex Numbers</i> Okko Makkonen (Aalto University, Finland), Camilla Hollanti (Aalto University, Finland)	1211
<i>Adaptive Gap Entangled Polynomial Coding for Multi-Party Computation at the Edge</i> Elahe Vedadi (UIC, USA), Yasaman Keshtkarjahromi (Seagate Technology, Storage Research Group, USA), Hulya Seferoglu (University of Illinois at Chicago, USA)	1217
<i>Function Computation Without Secure Links: Information and Leakage Rates</i> Remi A Chou (Wichita State University, USA), Joerg Kliever (New Jersey Institute of Technology, USA)	1223
<i>Co-Design of CSS Codes and Diagonal Gates</i> Jingzhen Hu (Duke University, USA), Qingzhong Liang (Duke University, USA), Robert Calderbank (Duke University, USA)	1229

Information Theoretic Security III

<i>Subspace Decomposition of Extreme-Rate Secrecy Codes</i> David Hunn (Brigham Young University, USA), Willie K Harrison (Brigham Young University, USA)	1235
<i>Secure Coding via Gaussian Random Fields</i> Ali Berekhi (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany), Bruno Loureiro (EPFL, Switzerland), Florent Krzakala (Ecole Normale Supérieure, France), Ralf R. Müller (Friedrich-Alexander Universität Erlangen-Nürnberg, Germany), Hermann Schulz-Baldes (Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany)	1241
<i>Controller Manipulation Attack on Reconfigurable Intelligent Surface Aided Wireless Communication [virtual]</i> Siddharth Sankar Acharjee (Indian Institute of Technology, Delhi, India), Arpan Chattopadhyay (Indian Institute of Technology Delhi, India)	1247
<i>Determining the Equivocation in Coded Transmission Over a Noisy Channel</i> Joakim Algrøy (Simula UIB, Norway), Angela Isabel Barbero (Universidad de Valladolid, Spain), Øyvind Ytrehus (University of Bergen, Norway)	1253

Over-the-Air Federated Learning

<i>Over-The-Air Federated Learning With Joint Adaptive Computation and Power Control [virtual]</i> Haibo Yang (The Ohio State University, USA), Peiwen Qiu (The Ohio State University, USA), Jia Liu (The Ohio State University, USA), Aylin Yener (The Ohio State University, USA)	1259
<i>Over-The-Air Ensemble Inference With Model Privacy</i> Selim F. Yilmaz (Imperial College London, United Kingdom (Great Britain)), Burak Hasircioğlu (Imperial College London, United Kingdom (Great Britain)), Deniz Gündüz (Imperial College London, United Kingdom (Great Britain))	1265
<i>Bandwidth Expansion for Over-The-Air Computation With One-Sided CSI</i> Nitish Mital (Imperial College London, United Kingdom (Great Britain)), Deniz Gündüz (Imperial College London, United Kingdom (Great Britain))	1271

<i>Optimizing Federated Averaging Over Fading Channels [virtual]</i>	
Yujia Mu (University of Virginia, USA), Cong Shen (University of Virginia, USA), Yonina C. Eldar (Weizmann Institute of Science, Israel)	1277

Estimation III

<i>Generalized Probability Density Function Estimation via Convex Optimization</i>	
Arian Eamaz (University of Illinois at Chicago, USA), Farhang Yeganegi (University of Illinois at Chicago, USA), Mojtaba Soltanalian (University of Illinois at Chicago, USA), Natasha Devroye (University of Illinois at Chicago, USA)	1282
<i>Mismatched Estimation of Non-Symmetric Rank-One Matrices Under Gaussian Noise</i>	
Farzad Pourkamali (EPFL, Switzerland), Nicolas Macris (EPFL, Switzerland)	1288
<i>Data-Driven Parameter Estimation</i>	
George V. Moustakides (University of Patras, Greece)	1294

Topics in Coded Caching II

<i>A Novel Framework for Coded Caching via Cartesian Product With Reduced Subpacketization</i>	
Jinyu Wang (Guangxi Normal University, Guilin, China), Minquan Cheng (Guangxi Normal University, China), Kai Wan (Technische Universität Berlin, Germany), Giuseppe Caire (Technische Universität Berlin, Germany)	1300
<i>Design of Coded Caching Schemes Through Proper Orthogonal Arrays [virtual]</i>	
Xianzhang Wu (Sun Yat-sen University, China), Minquan Cheng (Guangxi Normal University, China), Congduan Li (Sun Yat-sen University, China), Li Chen (Sun Yat-sen University, China)	1306
<i>Coded Caching in Satellite Networks [virtual]</i>	
Xinyu Xie (Sun Yat-sen University, China), Kai Huang (Sun Yat-sen University, China), Jinbei Zhang (Sun Yat-sen University, China), Shushi Gu (Harbin Institute of Technology, Shenzhen, China), Qinyu Zhang (Shenzhen Graduate School, Harbin Institute of Technology, China)	1312

Capacity, Error Exponents and Reliability I

<i>Error Exponent and Strong Converse for Quantum Soft Covering</i>	
Hao-Chung Cheng (National Taiwan University, Taiwan), Li Gao (University of Houston, USA)	1318
<i>Lower Bounds on List Decoding Capacity Using Error Exponents</i>	
Yihan Zhang (IST Austria, Austria), Shashank Vatedka (Indian Institute of Technology Hyderabad, India)	1324
<i>Upper Bounds on the Feedback Error Exponent of Channels With States and With Memory</i>	
Mohsen Heidari (Purdue University, USA), Achilleas Anastasopoulos (University of Michigan, USA), S. Sandeep Sandeep Pradhan (University of Michigan, USA)	1330
<i>Achievable Error Exponents for Almost Fixed-Length Binary Classification [virtual]</i>	
Lin Bai (Beihang University, China), Jun Diao (Beihang University, China), Lin Zhou (Beihang University, China)	1336

Constrained Coding

<i>Coding Schemes for Locally Balanced Constraints [virtual]</i>	
Chen Wang (Shandong University, China), Ziyang Lu (Shandong University, China), Zhaojun Lan (Capital Normal University, China), Gennian Ge (Capital Normal University, China), Yiwei Zhang (Shandong University, China)	1342
<i>Evaluating the Gilbert-Varshamov Bound for Constrained Systems</i>	
Keshav Goyal (Nanyang Technological University, Singapore), Han Mao Kiah (Nanyang Technological University, Singapore)	1348

<i>Rate-Constrained Shaping Codes for Finite-State Channels With Cost</i>	
Yi Liu (University of California, San Diego, USA), Yonglong Li (National University of Singapore, Singapore), Pengfei Huang (Western Digital Corporation, USA), Paul H. Siegel (University of California, San Diego, USA)	1354
<i>An Asymptotically Optimal Two-Part Coding Scheme for Networked Control Under Fixed-Rate Constraints</i>	
Jonathan Keeler (Queen's University, Canada), Tamas Linder (Queen's University, Canada), Serdar Yüksel (Queen's University, Canada)	1360

Message Passing II

<i>On the Convergence of Orthogonal/Vector AMP: Long-Memory Message-Passing Strategy</i>	
Keigo Takeuchi (Toyoashi University of Technology, Japan)	1366
<i>Sparse Superposition Codes Under VAMP Decoding With Generic Rotational Invariant Coding Matrices</i>	
Hou Tianqi (Hong Kong University of Science and Technology, Hong Kong), Jean Barbier (The Abdus Salam International Center for Theoretical Physics, Italy), YuHao Liu (Tsinghua University, China), Teng Fu (Tsinghua University, China)	1372
<i>Sufficient Statistic Memory Approximate Message Passing</i>	
Lei Liu (Japan Advanced Institute of Science and Technology, Japan), Shunqi Huang (Japan Advanced Institute of Science and Technology, Japan), Brian Kurkoski (Japan Advanced Institute of Science and Technology (JAIST), Japan)	1378
<i>Capacity Optimality of OAMP in Coded Large Unitarily Invariant Systems</i>	
Lei Liu (Japan Advanced Institute of Science and Technology, Japan), Shansuo Liang (City University of Hong Kong, Hong Kong), Li Ping (City University of Hong Kong, Hong Kong)	1384

Private or Secure Coded Caching

<i>Multiaccess Coded Caching With Private Demands</i>	
Kai Wan (Technische Universität Berlin, Germany), Minquan Cheng (Guangxi Normal University, China), Dequan Liang (Guangxi Normal University, China), Giuseppe Caire (Technische Universität Berlin, Germany)	1390
<i>Coded Caching With Private Demands and Caches</i>	
Ali Gholami (Technical University of Berlin, Germany), Kai Wan (Technische Universität Berlin, Germany), Hua Sun (University of North Texas, USA), Mingyue Ji (University of Utah, USA), Giuseppe Caire (Technische Universität Berlin, Germany)	1396
<i>A Secretive Coded Caching for Shared Cache Systems Using Placement Delivery Arrays</i>	
Elizabeth Peter (Indian Institute of Science, India), K. K. Krishnan Nambodiri (Indian Institute of Science, India), B. Sundar Rajan (Indian Institute of Science, India)	1402
<i>Secure Communication Over 2-User Gaussian Interference Channel With Caching</i>	
Parthajit Mohapatra (Indian Institute of Technology Tirupati, India)	1408

Multi-User Source Coding

<i>Shannon Bounds on Lossy Gray-Wyner Networks</i>	
Erixhen Sula (Massachusetts Institute of Technology, USA), Michael Gastpar (EPFL, Switzerland)	1414
<i>Two-Terminal Source Coding With Common Sum Reconstruction</i>	
Tharindu Adikari (University of Toronto, Canada), Stark Draper (University of Toronto, Canada)	1420
<i>Multi-User Random Coding Techniques for Mismatched Rate-Distortion Theory</i>	
Millen Kanabar (Indian Institute of Technology, Bombay, India), Jonathan Scarlett (National University of Singapore, Singapore)	1425
<i>Locally Decodable Slepian-Wolf Compression [virtual]</i>	
Shashank Vatedka (Indian Institute of Technology Hyderabad, India), Venkat Chandar (D. E. Shaw, USA), Aslan Tchamkerten (Telecom ParisTech, France)	1430

Cryptography II

<i>Partial Key Exposure Attacks on RSA With Moduli $N=p^r Q^s$ [virtual]</i>	
Simeng Yuan (Institute of Information Engineering, CAS, China), Wei Yu (Institute of Information Engineering, Chinese Academy of Science, China), Kunpeng Wang (Institute of Information Engineering, CAS, China), XiuXiu Li (Institute of Information Engineering, CAS, China)	1436
<i>A Novel Attack to the Permuted Kernel Problem</i>	
Paolo Santini (Polytechnic University of Marche, Italy), Marco Baldi (Università Politecnica delle Marche, Italy), Franco Chiaraluce (Università Politecnica delle Marche, Italy)	1441
<i>On the Security Properties of Combinatorial All-Or-Nothing Transforms</i>	
Yujie Gu (Kyushu University, Japan), Sonata Akao (Kyushu University, Japan), Navid Nasr Esfahani (University of Waterloo, Canada), Ying Miao (University of Tsukuba, Japan), Kouichi Sakurai (Kyushu University, Japan)	1447
<i>Breaking Fair Binary Classification With Optimal Flipping Attacks</i>	
Changhun Jo (University of Wisconsin-Madison, USA), Jy-yong Sohn (University of Wisconsin-Madison, USA), Kangwook Lee (University of Wisconsin, USA)	1453
<i>Quasi-Cyclic Stern Proof of Knowledge</i>	
Loic Bidoux (Technology Innovation Institute, United Arab Emirates), Philippe Gaborit (Universite de Limoges, France), Mukul R. Kulkarni (TII, United Arab Emirates), Nicolas Sendrier (INRIA, France)	1459

Distributed Learning II

<i>Improved Information Theoretic Generalization Bounds for Distributed and Federated Learning</i>	
Leighton Barnes (Princeton University, USA), Alex Dytso (New Jersey Institute of Technology, USA), H. Vincent Poor (Princeton University, USA)	1465
<i>Semi-Decentralized Federated Learning With Collaborative Relaying</i>	
Michal Yemini (Princeton University, USA), Rajarshi Saha (Stanford University, USA), Mehmet Emre Ozfatura (Imperial College London, United Kingdom (Great Britain)), Deniz Gündüz (Imperial College London, United Kingdom (Great Britain)), Andrea Goldsmith (Princeton University, USA)	1471
<i>Communication-Efficient Distributed Multiple Testing for Large-Scale Inference [virtual]</i>	
Mehrdad Pournaderi (University of Utah, USA), Yu Xiang (University of Utah, USA)	1477
<i>A Generalized Worker-Task Specialization Model for Crowdsourcing: Optimal Limits and Algorithm</i>	
Doyeon Kim (KAIST, Korea (South)), Jeonghwan Lee (Korea Advanced Institute of Science and Technology (KAIST), Korea (South)), Hye Won Chung (KAIST, Korea (South))	1483

Fundamentals of Machine Learning III

<i>A Mathematical Framework to Characterize the Dependency Structures in Multimodal Learning With Minimax Principle [virtual]</i>	
Tianren Peng (Tsinghua-Berkeley Shenzhen Institute, China, China), Weida Wang (Tsinghua-Berkeley Shenzhen Institute, China), Shao-Lun Huang (Tsinghua-Berkeley Shenzhen Institute, China)	1489
<i>Observational Learning With Negative Externalities</i>	
Pawan Poojary (Northwestern University, USA), Randall A Berry (Northwestern University, USA)	1495
<i>Another Look at Universal Individual Learning</i>	
Yaniv Fogel (Tel-Aviv University, Israel), Meir Feder (Tel-Aviv University, Israel)	1501
<i>Generalizing Nesterov's Acceleration Framework by Embedding Momentum Into Estimating Sequences: New Algorithm and Bounds</i>	
Endrit Dosti (Aalto University, Finland), Sergiy A. Vorobyov (Aalto University, Finland), Themistoklis Charalambous (Aalto University, Finland)	1506

Multi-Antenna Coded Caching

<i>Space Time Codes in Multi-Antenna Coded Caching Systems</i>	
Arjana Ambika Mahesh (Indian Institute of Science, Bangalore, India), B. Sundar Rajan (Indian Institute of Science, India)	1512

<i>Extended Placement Delivery Arrays for Multi-Antenna Coded Caching Scheme</i> K. K. Krishnan Nambodiri (Indian Institute of Science, India), Elizabeth Peter (Indian Institute of Science, India), B. Sundar Rajan (Indian Institute of Science, India)	1518
<i>Multiple-Antenna Placement Delivery Array for Cache-Aided MISO Systems</i> Ting Yang (Guangxi Normal University, China), Kai Wan (Technische Universität Berlin, Germany), Minquan Cheng (Guangxi Normal University, China), Giuseppe Caire (Technische Universität Berlin, Germany)	1524

Capacity, Error Exponents and Reliability II

<i>Computability of the Channel Reliability Function and Related Bounds</i> Holger Boche (Technical University Munich, Germany), Christian Deppe (Technical University of Munich, Germany)	1530
<i>First-Order Theory of Probabilistic Independence and Single-Letter Characterizations of Capacity Regions [virtual]</i> Cheuk Ting Li (The Chinese University of Hong Kong, Hong Kong)	1536
<i>Sequential Channel Synthesis [virtual]</i> Lei Yu (Nankai University, China), Venkatacham Anantharam (Berkeley, USA)	1542
<i>Common Randomness Generation From Gaussian Sources</i> Wafa Labidi (Technical University of Munich, Germany), Rami Ezzine (Technical University of Munich, Germany), Christian Deppe (Technical University of Munich, Germany), Holger Boche (Technical University Munich, Germany)	1548

Codes, Graphs and Curves

<i>Graph-Based Codes for Hierarchical Recovery</i> Allison Beemer (University of Wisconsin-Eau Claire, USA), Rutuja Kshirsagar (Zapata Computing, Inc., USA), Gretchen Matthews (Virginia Tech, USA)	1554
<i>Interior-Point Regenerating Codes on Graphs</i> Adway Patra (University of Maryland, USA), Alexander Barg (University of Maryland, USA)	1560
<i>On an Extremal Problem of Regular Graphs Related to Fractional Repetition Codes [virtual]</i> Hongna Yang (Shandong University, China), Yiwei Zhang (Shandong University, China)	1566
<i>Deterministic Encoding Into Generalized Huff Curves [virtual]</i> Luying Li (University of Chinese Academy of Sciences & Institute of Information Engineering, Chinese Academy of Science, China), Wei Yu (Institute of Information Engineering, Chinese Academy of Sciences. & University of Chinese Academy of Sciences, China., China), MinZhong Luo (Institute of Information Engineering, Chinese Academy of Sciences & School of Cyber Security, University of Chinese Academy of Sciences, China)	1572

Network Coding II

<i>On Information-Debt-Optimal Streaming Codes With Small Memory</i> Vinayak Ramkumar (Indian Institute of Science, India), Nikhil Krishnan Muralee Krishnan (International Institute of Information Technology Bangalore, India), Myna Vajha (Indian Institute of Science, India), P Vijay Kumar (Indian Institute of Science & University of Southern California, India)	1578
<i>Packet Size Optimization for Batched Network Coding [virtual]</i> Hoover H. F. Yin (The Chinese University of Hong Kong, Hong Kong), Harry W. H. Wong (The Chinese University of Hong Kong, Hong Kong), Mehrdad Tahernia (Hong Kong), Jiaxin Qing (The Chinese University of Hong Kong, Hong Kong)	1584
<i>Coding Size of Traffic Partition in Switch Memories [virtual]</i> Yaniv Sadeh (Tel Aviv University, Israel), Ori Rottenstreich (Technion - Israel Institute of Technology, Israel), Haim Kaplan (Tel-Aviv University, Israel)	1590
<i>Improved Batch Code Lower Bounds</i> Ray Li (Stanford University, USA), Mary Wootters (Stanford University, USA)	1596

Signal Processing I

<i>Computing Upper and Lower Bounds for the Bandwidth of Bandlimited Signals</i> Holger Boche (Technical University Munich, Germany), Ullrich J Mönich (Technische Universität München, Germany), Yannik Böck (Technical University Munich, Germany)	1600
<i>Unlimited Sampling via Generalized Thresholding</i> Dorian Florescu (Imperial College London, United Kingdom (Great Britain)), Ayush Bhandari (Imperial College London, United Kingdom (Great Britain))	1606
<i>Time-Data Tradeoffs in Structured Signals Recovery via the Proximal-Gradient Homotopy Method [virtual]</i> Xiao Lv (Beijing Institute of Technology, China), Wei Cui (Beijing Institute of Technology, China), Yulong Liu (Beijing Institute of Technology, China)	1612
<i>A Perturbation Bound on the Subspace Estimator From Canonical Projections</i> Karan Srivastava (University of Wisconsin-Madison, USA), Daniel Pimentel-Alarcón (University of Wisconsin-Madison, USA)	1617

Privacy II

<i>Heterogeneous Differential Privacy via Graphs</i> Sahel Torkamani (Sharif University of Technology, Iran), Javad Ebrahimi (Sharif University of Technology, Iran), Parastoo Sadeghi (University of New South Wales, Australia), Rafael D'Oliveira (Clemson University, USA), Muriel Médard (MIT, USA)	1623
<i>Robust Optimization for Local Differential Privacy</i> Milan Lopuhaä-Zwakenberg (University of Twente, The Netherlands), Jasper Goseling (University of Twente, The Netherlands)	1629
<i>Calibration With Privacy in Peer Review [virtual]</i> Wenxin Ding (University of Chicago, USA), Gautam Kamath (MIT, USA), Weina Wang (Carnegie Mellon University, USA), Nihar B Shah (Carnegie Mellon University, USA)	1635
<i>Information Theoretic Private Inference in Quantized Models</i> Netanel Raviv (Washington University in Saint Louis, USA), Rawad Bitar (Technical University of Munich, Germany), Eitan Yaakobi (Technion, Israel)	1641

Bandits I

<i>Upper Confidence Interval Strategies for Multi-Armed Bandits With Entropy Rewards</i> Nir Weinberger (Technion, Israel), Michal Yemini (Princeton University, USA)	1647
<i>Efficient Distributed Machine Learning via Combinatorial Multi-Armed Bandits</i> Maximilian Egger (Technical University of Munich, Germany), Rawad Bitar (Technical University of Munich, Germany), Antonia Wachter-Zeh (Technical University of Munich (TUM), Germany), Deniz Gündüz (Imperial College London, United Kingdom (Great Britain))	1653
<i>Multi-Environment Meta-Learning in Stochastic Linear Bandits</i> Ahmadreza Moradipari (University of California, Santa Barbara, USA), Mohammad Ghavamzadeh (Facebook AI Research, USA), Taha Rajabzadeh (Stanford University, USA), Christos Thrampoulidis (University of British Columbia (UBC), Canada), Mahnoosh Alizadeh (University of California, Santa Barbara, USA)	1659
<i>Remote Contextual Bandits</i> Francesco Pase (University of Padova, Italy), Deniz Gündüz (Imperial College London, United Kingdom (Great Britain)), Michele Zorzi (University of Padova, Italy)	1665

Statistics and Machine Learning III

<i>Local Limit Theorems for Approximate Maximum Likelihood Estimation of Network Information Spreading Models</i> Abram Magner (University at Albany, SUNY, USA), Amith Singh (University at Albany, SUNY, USA)	1671
<i>Hide and Seek on a Budget</i> Christopher Rose (Brown University, USA)	1677
<i>Challenging the Deployment of Fiducial Points in Minimum Error Entropy</i> Sajjad Bahrami (University of California, Riverside, USA), Ertem Tuncel (UC Riverside, USA)	1683

<i>AutoVAE: Mismatched Variational Autoencoder With Irregular Posterior-Prior Pairing [virtual]</i>	
Toshiaki Koike-Akino (Mitsubishi Electric Research Laboratories (MERL), USA), Ye Wang (Mitsubishi Electric Research Laboratories, USA)	1689
<i>On Information-Theoretic Determination of Misspecified Rates of Convergence</i>	
Nir Weinberger (Technion, Israel), Meir Feder (Tel-Aviv University, Israel)	1695

Multi-Access Coded Caching

<i>The Exact Load-Memory Tradeoff of Multi-Access Coded Caching With Combinatorial Topology</i>	
Federico Brunero (EURECOM, France), Petros Elia (EURECOM, France)	1701
<i>Coded Caching for Two-Dimensional Multi-Access Networks</i>	
Mingming Zhang (Guangxi Normal University, China), Kai Wan (Technische Universität Berlin, Germany), Minquan Cheng (Guangxi Normal University, China), Giuseppe Caire (Technische Universität Berlin, Germany)	1707
<i>An Improved Lower Bound for Multi-Access Coded Caching</i>	
K. K. Krishnan Nambodiri (Indian Institute of Science, India), B. Sundar Rajan (Indian Institute of Science, India)	1713
<i>Multi-Access Coded Caching Schemes From Maximal Cross Resolvable Designs</i>	
Niladri Das (Indian Institute of Science, India), B. Sundar Rajan (Indian Institute of Science, India)	1719

Boolean Functions

<i>A Novel Construction of Optimal Cross Z-Complementary Sets Based on Generalized Boolean Functions</i>	
Zhen-Ming Huang (National Cheng Kung University, Taiwan), Cheng-Yu Pai (National Cheng Kung University, Taiwan), Chao-Yu Chen (National Cheng Kung University, Taiwan)	1725
<i>Binary Classification Under ℓ_1 Attacks for General Noise Distribution</i>	
Payam Delgosha (University of Illinois at Urbana Champaign, USA), Hamed Hassani (University of Pennsylvania, USA), Ramtin Pedarsani (University of California, Santa Barbara, USA)	1731
<i>On the Stability of Super-Resolution and a Beurling-Selberg Type Extremal Problem</i>	
Maxime Ferreira Da Costa (University of Southern California, USA), Urbashi Mitra (University of Southern California, USA)	1737
<i>Three New Constructions of 5-Valued Spectrum Functions With Totally Disjoint Spectra Duals [virtual]</i>	
Jiaxin Wang (Nankai University, China), Fang-Wei Fu (Nankai University, China)	1743

Reed-Muller Codes

<i>On the Generalized Covering Radii of Reed-Muller Codes</i>	
Dor Elimelech (Ben-Gurion University of the Negev, Israel), Hengjia Wei (Ben Gurion University of the Negev, Israel), Moshe Schwartz (Ben-Gurion University of the Negev, Israel)	1749
<i>On the Performance of Reed-Muller Codes Over ℓ_1-RLL Input-Constrained BMS Channels</i>	
V. Arvind Rameshwar (Indian Institute of Science, Bengaluru, India), Navin Kashyap (Indian Institute of Science, India)	1755
<i>Berman Codes: A Generalization of Reed-Muller Codes That Achieve BEC Capacity [virtual]</i>	
Lakshmi Prasad Natarajan (Indian Institute of Technology Hyderabad, India), Prasad Krishnan (IIT Hyderabad, India)	1761

GRAND

<i>Constrained Error Pattern Generation for GRAND [virtual]</i>	
Mohammad Rowshan (University of New South Wales, Australia), Jinhong Yuan (University of New South Wales, Australia)	1767

<i>Transversal GRAND for Network Coded Data</i> Ioannis Chatzigeorgiou (Lancaster University, United Kingdom (Great Britain))	1773
<i>Partial Encryption After Encoding for Security and Reliability in Data Systems</i> Alejandro Cohen (Technion, Israel), Rafael D'Oliveira (Clemson University, USA), Ken R. Duffy (Hamilton Institute, Maynooth University, Ireland), Muriel Médard (MIT, USA)	1779

DNA and Data Storage III

<i>The Secure Storage Capacity of a DNA Wiretap Channel Model</i> Praneeth Kumar Vippathalla (Indian Institute of Science, India), Navin Kashyap (Indian Institute of Science, India)	1785
<i>Optimal Chromosome-Inversion Correcting Codes for Data Storage in Live DNA</i> Thanh Tuan Nguyen (Singapore University of Technology and Design, Singapore), Kui Cai (Singapore University of Technology and Design, Singapore), Wentu Song (Singapore University of Technology and Design, Singapore), Kees A. Schouhamer Immink (Turing Machines Inc., The Netherlands)	1791
<i>Correcting Multiple Short Duplication and Substitution Errors</i> Yuanyuan Tang (University of Virginia, USA), Shuche Wang (National University of Singapore, Singapore), Ryan Gabrys (University of California, San Diego, USA), Farzad Farnoud (University of Virginia, USA)	1797
<i>The DNA Storage Channel: Capacity and Error Probability Bounds</i> Nir Weinberger (Technion, Israel), Neri Merhav (Technion, Israel)	1803
<i>Perfect Codes Correcting a Single Burst of Limited-Magnitude Errors</i> Hengjia Wei (Ben-Gurion University of the Negev, Israel), Moshe Schwartz (Ben-Gurion University of the Negev, Israel)	1809

Signal Processing II

<i>On $(1+\epsilon)$-Approximate Block Sparse Recovery</i> Baris Can Esmer (Saarland University & CISPA, Germany), Vasileios Nakos (Relational AI, USA)	1815
<i>Group-Theoretic Wideband Radar Waveform Design</i> Kumar Vijay Mishra (United States DEVCOM Army Research Laboratory, USA), Samuel Pinilla (University of Manchester, United Kingdom (Great Britain)), Ali Pezeshki (Colorado State University, USA), Robert Calderbank (Duke University, USA)	1821
<i>Blind Super-Resolution via Projected Gradient Descent [virtual]</i> Sihan Mao (Fudan University, China), Jinchu Chen (Fudan University, China)	1826
<i>3D Orientation Estimation With Configurable Backscatter Arrays</i> Mohamad Rida Rammal (University of California, Los Angeles, USA), Suhas Diggavi (University of California, Los Angeles, USA), Ashutosh Sabharwal (Rice University, USA)	1832

Privacy III

<i>Cactus Mechanisms: Optimal Differential Privacy Mechanisms in the Large-Composition Regime</i> Wael Alghamdi (Harvard University, USA), Shahab Asoodeh (McMaster University, Canada), Flavio P. Calmon (Harvard University, USA), Oliver Kosut (Arizona State University, USA), Lalitha Sankar (Arizona State University, USA), Fei Wei (Arizona State University, USA)	1838
<i>Learning Under Storage and Privacy Constraints</i> Berivan Isik (Stanford University, USA), Tsachy Weissman (Stanford University, USA)	1844
<i>Perfect Subset Privacy for Data Sharing and Learning [virtual]</i> Netanel Raviv (Washington University in Saint Louis, USA), Ziv Goldfeld (Cornell University, USA)	1850
<i>Differentially Private (ℓ_1)-Norm Linear Regression With Heavy-Tailed Data</i> Di Wang (KAUST, Saudi Arabia), Jinhui Xu (State University of New York at Buffalo, USA)	1856

Quantum IV

<i>Exponents in Smoothing the Max-Relative Entropy and of Randomness Extraction Against Quantum Side Information (JKW Award Finalist) [virtual]</i> Yongsheng Yao (Institute for Advanced Study in Mathematics, Harbin Institute of Technology, China), Ke Li (Harbin Institute of Technology, China), Masahito Hayashi (Southern University of Science and Technology, China)	1862
<i>Unified Approach for Computing Sum of Sources Over CQ-MAC</i> Mohammad Aamir Sohail (University of Michigan, USA), Touheed Anwar Atif (University of Michigan, USA, USA), S. Sandeep Sandeep Pradhan (University of Michigan, USA)	1868
<i>High-Dimensional Quantum Conference Key Agreement [virtual]</i> Omar Amer (University of Connecticut, USA), Walter O Krawec (University of Connecticut, USA)	1874
<i>Strong Converse for Privacy Amplification Against Quantum Side Information</i> Yu-Chen Shen (National Taiwan University, Taiwan), Li Gao (University of Houston, USA), Hao-Chung Cheng (National Taiwan University, Taiwan)	1880

Bandits II

<i>Fast Beam Alignment via Pure Exploration in Multi-Armed Bandits</i> Yi Wei (Zhejiang University, China), Zixin Zhong (National University of Singapore, Singapore), Vincent Y. F. Tan (National University of Singapore, Singapore), Chan Wang (Zhejiang University, China)	1886
<i>Cascading Bandits With Two-Level Feedback [virtual]</i> Duo Cheng (Virginia Tech, USA), Ruiquan Huang (PSU, USA), Cong Shen (University of Virginia, USA), Jing Yang (The Pennsylvania State University, USA)	1892
<i>SPRT-Based Best Arm Identification in Stochastic Bandits</i> Arpan Mukherjee (RPI, USA), Ali Tajer (Rensselaer Polytechnic Institute, USA)	1897

Quickest (Sequential) Change Detection

<i>Quickest Detection of the Change of Community via Stochastic Block Models [virtual]</i> Fei Sha (University of Nebraska-Lincoln, USA), Ruizhi Zhang (University of Nebraska-Lincoln, USA)	1903
<i>Minimax Robust Quickest Change Detection Using Wasserstein Ambiguity Sets [virtual]</i> Liyun Xie (The Chinese University of Hong Kong, Shenzhen, China)	1909
<i>Active Quickest Detection When Monitoring Multi-Streams With Two Affected Streams</i> Qunzhi Xu (Georgia Institute of Technology, USA), Yajun Mei (Georgia Institute of Technology, USA)	1915
<i>Quickest Change Detection With Controlled Sensing</i> Venugopal Veeravalli (University of Illinois at Urbana-Champaign, USA), Georgios Fellouris (University of Illinois at Urbana-Champaign, USA)	1921

Optical Communications

<i>Optimal Shaping Gains for Continuous Spectrum Nonlinear Frequency Signalling Over Long Fibers</i> Yu Chen (University of Edinburgh, United Kingdom (Great Britain)), Mohammadamin Baniassadi (The University of Edinburgh, United Kingdom (Great Britain)), Majid Safari (University of Edinburgh, United Kingdom (Great Britain))	1927
<i>On the Capacity of b-Modulated Nonlinear Frequency Division Multiplexing</i> Mohammadamin Baniassadi (The University of Edinburgh, United Kingdom (Great Britain)), Yu Chen (University of Edinburgh, United Kingdom (Great Britain)), Majid Safari (University of Edinburgh, United Kingdom (Great Britain))	1933
<i>Diversity-Multiplexing Tradeoff Analysis on Block Fading Optical Wireless Channels [virtual]</i> Sufang Yang (Tsinghua University, China), Longguang Li (East China Normal University, Shanghai, China), Jintao Wang (Tsinghua University, China)	1939

Relay Channels

On the Benefit of Cooperation in Relay Networks

Oliver Kosut (Arizona State University, USA), Michelle Effros (California Institute of Technology, USA), Michael Langberg (State University of New York at Buffalo, USA) 1945

On State-Dependent Streaming Erasure Codes Over the Three-Node Relay Network

Gustavo Facenda (University of Toronto, Canada), Elad Domanovitz (Tel Aviv University, Israel), Nikhil Krishnan Muralee Krishnan (International Institute of Information Technology Bangalore, India), Ashish Khisti (University of Toronto, Canada), Silas L. Fong (Qualcomm, USA), Wai-Tian Tan (Cisco Systems, USA), John Apostolopoulos (Cisco Systems, USA) 1951

Rate-Optimal Streaming Codes Over the Three-Node Decode-And-Forward Relay Network

Shubhransh Singhvi (International Institute of Information Technology, Hyderabad, India), Gayathri Raju (Indian Institute of Science, Bangalore, India), P Vijay Kumar (Indian Institute of Science & University of Southern California, India) 1957

Coding Theory I

New Bounds on the Size of Binary Codes With Large Minimum Distance

James (Chin-Jen) Pang (University of Michigan, USA), Hessam Mahdaviyar (University of Michigan, USA), S. Sandeep Sandeep Pradhan (University of Michigan, USA) 1963

Minimal Length of Nontrivial Solutions of the Isometry Equation and MacWilliams Extension Property With Respect to Weighted Poset Metric [virtual]

Yang Xu (Fudan University, China), Haibin Kan (Fudan University, China), Guangyue Han (The University of Hong Kong, Hong Kong) 1969

Fourier-Reflexive Partitions and Group of Linear Isometries With Respect to Weighted Poset Metric [virtual]

Yang Xu (Fudan University, China), Haibin Kan (Fudan University, China), Guangyue Han (The University of Hong Kong, Hong Kong) 1975

Non-Standard Linear Recurring Sequence Subgroups and Automorphisms of Irreducible Cyclic Codes

Henk D.L. Hollmann (University of Tartu, The Netherlands) 1981

Permutation Channels and Codes

Capacity of Noisy Permutation Channels (JKW Award Finalist)

Jennifer Tang (MIT, USA), Yury Polyanskiy (MIT, USA) 1987

On the Ranking Recovery From Noisy Observations Up to a Distortion

Minoh Jeong (University of Minnesota, USA), Martina Cardone (University of Minnesota, USA), Alex Dytso (New Jersey Institute of Technology, USA) 1993

Privacy IV

A Generalization of the Stratonovich's Value of Information and Application to Privacy-Utility Trade-Off

Akira Kamatsuka (Shonan Institute of Technology, Japan), Takahiro Yoshida (Nihon University, Japan), Toshiyasu Matsushima (Waseda University, Japan) 1999

An Information-Theoretic Characterization of Pufferfish Privacy

Theshani Nuradha (Cornell University, USA), Ziv Goldfeld (Cornell University, USA) 2005

Private Information Delivery With Coded Storage

Kanishk Vaidya (Indian Institute of Science Bangalore, India), B. Sundar Rajan (Indian Institute of Science, India) 2011

Differentially Private Distributed Matrix Multiplication: Fundamental Accuracy-Privacy Trade-Off Limits

Ateet Devulapalli (Penn State University, USA), Viveck Cadambe (Pennsylvania State University, USA), Flavio P. Calmon (Harvard University, USA), Haewon Jeong (Carnegie Mellon University, USA) 2016

Fairness and Privacy in Federated Learning

Proportional Fair Clustered Federated Learning [virtual]

Mohamed Nafea (University of Detroit Mercy, USA), Eugene Shin (Ohio State University, USA), Aylin Yener (The Ohio State University, USA) 2022

Stochastic Coded Federated Learning With Convergence and Privacy Guarantees [virtual]

Yuchang Sun (The Hong Kong University of Science and Technology, Hong Kong), Jiawei Shao (The Hong Kong University of Science and Technology, Hong Kong), Songze Li (The Hong Kong University of Science and Technology, China), Yuyi Mao (The Hong Kong Polytechnic University, Hong Kong), Jun Zhang (The Hong Kong University of Science and Technology, Hong Kong) 2028

Computational Code-Based Privacy in Coded Federated Learning

Marvin Xhemrishi (Technical University of Munich, Germany), Alexandre Graell i Amat (Chalmers University of Technology, Sweden), Eirik Rosnes (Simula UiB, Norway), Antonia Wachter-Zeh (Technical University of Munich (TUM), Germany) 2034

Joint Privacy Enhancement and Quantization in Federated Learning

Natalie Lang (Ben-Gurion University of the Negev, Israel), Nir Shlezinger (Ben-Gurion University of the Negev, Israel) 2040

Detection I

Uncertainty-Based Non-Parametric Active Peak Detection

Praneeth Narayanamurthy (University of Southern California, USA), Urbashi Mitra (University of Southern California, USA) 2046

Rare and Weak Detection Models Under Moderate Deviations Analysis and Log-Chisquared P-Values

Alon Kipnis (Stanford University, USA) 2052

Aspis: Robust Detection for Distributed Learning [virtual]

Konstantinos Konstantinidis (Iowa State University, USA), Aditya Ramamoorthy (Iowa State University, USA) 2058

Detecting Correlated Gaussian Databases

Zeynep Kahraman (Boston University, USA), Bobak Nazer (Boston University, USA) 2064

Age of Information II

Game Theoretic Analysis of an Adversarial Status Updating System [virtual]

Subhankar Banerjee (University of Maryland, USA), Sennur Ulukus (University of Maryland, USA) 2070

Privacy Leakage in Discrete-Time Updating Systems

Nitya Sathyavageswaran (Rutgers University, USA), Roy Yates (Rutgers University, USA), Anand D. Sarwate (Rutgers University, USA), Narayan Mandayam (WINLAB, Rutgers University, USA) 2076

Age-Optimal Causal Labeling of Memoryless Processes

Yunus Inan (EPFL, Switzerland), Emre Telatar (EPFL, Switzerland) 2082

Age of Information in Reservation Multi-Access Networks With Stochastic Arrivals [virtual]

Qian Wang (The Chinese University of Hong Kong, Hong Kong), He Chen (The Chinese University of Hong Kong, Hong Kong) 2088

Finite Blocklengths

Efficiently Computable Converses for Finite-Blocklength Communication

Felipe Areces (University of California Los Angeles, USA), Dan Song (University of California, Los Angeles, USA), Richard Wesel (University of California, Los Angeles, USA), Aaron Wagner (Cornell University, USA) 2094

Dirty Paper Coding for Consecutive Messages With Heterogeneous Decoding Deadlines in the Finite Blocklength Regime

Homa Nikbakht (Inria, France), Malcolm Egan (INRIA, France), Jean-Marie Gorce (INSA-Lyon & CITI, Inria, France) 2100

Achievable Information-Energy Region in the Finite Block-Length Regime With Finite Constellations

Sadaf Ul Zuhra (INRIA, France), Samir M. Perlaza (INRIA, France), H. Vincent Poor (Princeton University, USA), Eitan Altman (INRIA, France) 2106

<i>Statistical Delay and Error-Rate Bounded QoS Control for URLLC in the Non-Asymptotic Regime [virtual]</i>	
Xi Zhang (Texas A&M University, USA), Jingqing Wang (Texas A&M University, USA), H. Vincent Poor (Princeton University, USA)	2112

Coding Theory II

<i>Minimum Distance and Other Properties of Quasi-Dyadic Parity Check Codes [virtual]</i>	
Meraiah Martinez (University of Nebraska-Lincoln, USA), Christine Kelley (University of Nebraska-Lincoln, USA)	2118
<i>Sub-Block Rearranged Staircase Codes for Optical Transport Networks [virtual]</i>	
Min Qiu (University of New South Wales, Australia), Jinhong Yuan (University of New South Wales, Australia)	2124
<i>Preserving the Minimum Distance of Polar-Like Codes While Increasing the Information Length</i>	
Samet Gelinck (INSA Rennes, France), Philippe Mary (Univ Rennes, INSA Rennes, CNRS, IETR, France), Anne Savard (IMT Nord Europe - IRCICA, France), Jean-Yves Baudais (Univ Rennes, INSA Rennes, CNRS, IETR, France)	2130
<i>A Generalization of the ASR Search Algorithm to 2-Generator Quasi-Twisted Codes</i>	
Saurav Pandey (Kenyon College, USA), Nuh Aydin (Kenyon College, USA), Matthew Harrington (Kenyon College, USA), Dev Akre (Kenyon College, USA)	2136

Polar Coding I

<i>Adjacent-Bits-Swapped Polar Codes: A New Code Construction to Speed Up Polarization [virtual]</i>	
Guodong Li (Shandong University, China), Min Ye (Tsinghua University, China), Sihuang Hu (Shandong University, China)	2142
<i>Binary Polar Codes Based on Bit Error Probability</i>	
Jun Muramatsu (NTT Corporation, Japan)	2148
<i>Polar Coded Computing: The Role of the Scaling Exponent</i>	
Dorsa Fathollahi (Stanford University, USA), Marco Mondelli (IST Austria, Austria)	2154
<i>Design of Multilevel Polar Codes With Shaping [virtual]</i>	
Peter Trifonov (ITMO University, Russia)	2160

MDS Codes and Distributed Storage I

<i>Higher-Order MDS Codes [virtual]</i>	
Ron M. Roth (Technion, Israel)	2166
<i>PMDS Array Codes With Small Sub-Packetization Level and Small Repair Bandwidth [virtual]</i>	
Jie Li (Huawei Technologies Co., Ltd., Hong Kong), Xiaohu Tang (Southwest Jiaotong University (SWJTU), China), Hanxu Hou (Huawei Technology Limited Company, Hong Kong), Yungshiang Sam Han (University of Electronic Science and Technology of China, China), Bo Bai (Huawei Technologies Co., Ltd., Hong Kong), Gong Zhang (Huawei Technologies Co., Ltd., China)	2172
<i>Maximum-Length Low-Density MDS Codes and Near Resolvable Designs</i>	
Odaei Al Aboud (Carleton University, Canada), Daniel Panario (Carleton University, Canada), Brett Stevens (Carleton University, Canada)	2178
<i>New Constructions of Binary MDS Array Codes and Locally Repairable Array Codes [virtual]</i>	
Jingjie Lv (Tsinghua Shenzhen International Graduate School, Tsinghua University, China), Weijun Fang (Shandong University, China), Bin Chen (Harbin Institute of Technology, Shenzhen, China), Shutao Xia (Tsinghua University, China), Xiangyu Chen (HUAWEI Technologies Co., Ltd., China)	2184

Privacy V

<i>Distances Release With Differential Privacy in Tree and Grid Graph [virtual]</i>	
Chenglin Fan (Baidu Research, China), Ping Li (Baidu Research, USA)	2190

<i>Distributed User-Level Private Mean Estimation</i> Antonious M. Girgis (University of California, Los Angeles, USA), Deepesh Data (University of California, Los Angeles, USA), Suhas Diggavi (University of California, Los Angeles, USA)	2196
<i>Maximum Mutual Information Under Local Differential Privacy Constraint [virtual]</i> Jiangnan Cheng (Cornell University, USA), Kevin Tang (Cornell University, USA)	2202
<i>Private Balance-Checking on Blockchain Accounts Using Private Integer Addition</i> Birenjith Padmakumari Sasidharan (Indian Institute of Science, India), Emanuele Viterbo (Monash University, Australia)	2207

Quantum V

<i>Learning Quantum Circuits of T-Depth One</i> Ching-Yi Lai (National Yang Ming Chiao Tung University, Taiwan), Hao-Chung Cheng (National Taiwan University, Taiwan)	2213
<i>Bounding Quantum Capacities via Partial Orders and Complementarity</i> Christoph Hirche (National University of Singapore, Singapore & Technical University Munich, Germany), Felix Leditzky (University of Illinois at Urbana-Champaign, USA)	2219
<i>Quantum Message-Passing Algorithm for Optimal and Efficient Decoding</i> Christophe Piveteau (ETH Zürich, Switzerland), Joseph M. Renes (ETH Zurich, Switzerland)	2225
<i>Communication With Unreliable Entanglement Assistance</i> Uzi Pereg (Technical University of Munich, Germany), Christian Deppe (Technical University of Munich, Germany), Holger Boche (Technical University Munich, Germany)	2231

New Directions in Group Testing

<i>Approximate Set Identification: PAC Analysis for Group Testing [virtual]</i> Sameera Bharadwaja Hayavadana (Indian Institute of Science, India), Monika Bansal (Qualcomm Inc., India), Chandra R Murthy (Indian Institute of Science, India)	2237
<i>Improving Group Testing via Gradient Descent</i> Sundara Srinivasavaradhan (UCLA, USA), Pavlos Nikolopoulos (EPFL, Switzerland), Christina Fragouli (UCLA, USA), Suhas Diggavi (University of California, Los Angeles, USA)	2243
<i>Group Testing With a Dynamic Infection Spread [virtual]</i> Batuhan Arasli (University of Maryland, USA), Sennur Ulukus (University of Maryland, USA)	2249
<i>Dynamic Group Testing to Control and Monitor Disease Progression in a Population</i> Sundara Rajan Srinivasavaradhan (UCLA, USA), Pavlos Nikolopoulos (EPFL, Switzerland), Christina Fragouli (UCLA, USA), Suhas Diggavi (University of California, Los Angeles, USA)	2255

Detection II

<i>On Distributed Sampling for Detection of Poisson Sources [virtual]</i> Rathe Vanlaluata (IIT Kharagpur, India), Sharma Praveen (IIT Kharagpur, India), Amitalok J. Budkuley (Indian Institute of Technology Kharagpur, India), Stefano Rini (National Yangming Jiaotong University, Taiwan)	2261
<i>Sensitivity of Under-Determined Linear System [virtual]</i> Yunfeng Cai (Baidu Research, China), Guanhua Fang (Baidu Research, USA), Ping Li (Baidu Research, USA)	2267
<i>Asymptotic Mean Squared Error of Noisy Periodical Successive Over-Relaxation</i> Tadashi Wadayama (Nagoya Institute of Technology, Japan), Satoshi Takabe (Tokyo Institute of Technology, Japan)	2273
<i>Mitigating Noise in Ensemble Classification With Real-Valued Base Functions</i> Yuval Ben-Hur (Technion - Israel Institute of Technology, Israel), Asaf Goren (Technion - Israel Institute of Technology, Israel), Da-Ei Klang (Technion - Israel Institute of Technology, Israel), Yongjune Kim (DGIST, Korea (South)), Yuval Cassuto (Technion, Israel)	2279

MIMO I

<i>Designing Two-Dimensional Complete Complementary Codes for Omnidirectional Transmission in Massive MIMO Systems</i> Cheng-Yu Pai (National Cheng Kung University, Taiwan), Zilong Liu (University of Essex, United Kingdom (Great Britain)), You-Qi Zhao (National Cheng Kung University, Taiwan), Zhen-Ming Huang (National Cheng Kung University, Taiwan), Chao-Yu Chen (National Cheng Kung University, Taiwan)	2285
<i>Capacity Optimal Coded Generalized MU-MIMO</i> Yuhao Chi (Xidian University, China), Lei Liu (Japan Advanced Institute of Science and Technology, Japan), Guanghui Song (Xidian University, China), Ying Li (University of Xidian, China), Yong Liang Guan (Nanyang Technological University, Singapore), Chau Yuen (Singapore University of Technology and Design, Singapore)	2291
<i>Optimal Order of Encoding for Gaussian MIMO Multi-Receiver Wiretap Channel [virtual]</i> Yue Qi (Villanova University, USA), Mojtaba Vaezi (Villanova University, USA)	2297
<i>Quantized MIMO: Channel Capacity and Spectrospatial Power Distribution</i> Abbas Khalili (New York University, USA), Elza Erkip (New York University, USA), Sundeeep Rangan (New York University, USA)	2303

Second and Third Order Asymptotics

<i>Third-Order Analysis of Channel Coding in the Moderate Deviations Regime</i> Recep Can Yavas (California Institute of Technology, USA), Victoria Kostina (California Institute of Technology, USA), Michelle Effros (California Institute of Technology, USA)	2309
<i>Second-Order Converse for Rate-Limited Common Randomness Generation</i> Henri Hentilä (Aalto University, Finland), Yanina Y. Shkel (Ecole Polytechnique Fédérale, Lausanne, Switzerland), Visa Koivunen (Aalto University, Finland)	2315
<i>Sequentially Mixing Randomly Arriving Packets Improves Channel Dispersion Over Block-Based Designs</i> Pin-Wen Su (Purdue University, USA), Yu-Chih Huang (National Yang Ming Chiao Tung University, Taiwan), Shih-Chun Lin (National Taiwan University, Taiwan), I-Hsiang Wang (National Taiwan University, Taiwan), Chih-Chun Wang (Purdue University, USA)	2321
<i>Variable-Length Stop-Feedback Codes With Finite Optimal Decoding Times for BI-AWGN Channels</i> Hengjie Yang (University of California, Los Angeles, USA), Recep Can Yavas (California Institute of Technology, USA), Victoria Kostina (California Institute of Technology, USA), Richard Wesel (University of California, Los Angeles, USA)	2327

List Decoding I

<i>List Decoding of Quaternary Codes in the Lee Metric</i> Marcus Greferath (Aalto University, Finland), Jens Zumbärgel (University of Passau, Germany)	2333
<i>List Decoding of 2-Interleaved Binary Alternant Codes</i> Chih-Chiang Huang (Technical University of Munich, Germany), Hedongliang Liu (Technical University of Munich, Germany), Lukas Holzbaur (Technical University of Munich, Germany), Sven Puchinger (Technical University of Munich, Germany), Antonia Wachter-Zeh (Technical University of Munich (TUM), Germany)	2338
<i>Improving the List Decoding Version of the Cyclically Equivariant Neural Decoder [virtual]</i> Xiangyu Chen (Tsinghua University, China), Min Ye (Tsinghua University, China)	2344
<i>Secure Codes With List Decoding</i> Yujie Gu (Kyushu University, Japan), Ilya Vorobyev (Skolkovo Institute of Science and Technology, Russia), Ying Miao (University of Tsukuba, Japan)	2350

Polar Coding II

<i>Joint Source-Channel Polar-Coded Modulation [virtual]</i> Bolin Wu (Beijing University of Posts and Telecommunications, China), Jincheng Dai (Beijing University of Posts and Telecommunications, China), Kai Niu (Beijing University of Posts and Telecommunications, China)	2356
<i>Distributed Joint Source-Channel Polar Coding [virtual]</i> Yanfei Dong (Beijing University of Posts and Telecommunications, China), Kai Niu (Beijing University of Posts and Telecommunications, China), Jincheng Dai (Beijing University of Posts and Telecommunications, China)	2362

The Complete SC-Invariant Affine Automorphisms of Polar Codes

Zicheng Ye (University of Chinese Academy of Sciences & Academy of Mathematics and Systems Science, CAS, China), Yuan Li (University of Chinese Academy of Sciences & Academy of Mathematics and Systems Sciences, CAS, China), Huazi Zhang (Huawei Technologies, Co. Ltd., China), Rong Li (Huawei Technologies, Co. Ltd., China), Jun Wang (Huawei Technologies Co. Ltd, China), Guiying Yan (Chinese Academy of Sciences, China), Zhiming Ma (Chinese Academy of Sciences, China) 2368

Polar Codes Do Not Have Many Affine Automorphisms

Kirill Ivanov (EPFL, Switzerland), Ruediger L Urbanke (EPFL, Switzerland) 2374

MDS Codes and Distributed Storage II

Optimal-Repair-Cost MDS Array Codes for a Class of Heterogeneous Distributed Storage Systems [virtual]

Zhengrui Li (Hong Kong University of Science and Technology, China), Wai Ho Mow (Hong Kong University of Science and Technology & HKUST, Hong Kong), Lei Deng (Huawei Technologies Co., Ltd, Hong Kong), Ting-Yi Wu (Huawei Technologies Co., Ltd., Hong Kong) 2379

Balanced and Swap-Robust Trades for Dynamical Distributed Storage

Chao Pan (University of Illinois at Urbana-Champaign, USA), Ryan Gabrys (University of California, San Diego, USA), Xujun Liu (Xi'an Jiaotong-Liverpool University, China), Charles Colbourn (ASU, USA), Olgica Milenkovic (University of Illinois at Urbana-Champaign (UIUC), USA) 2385

Private Read Update Write (PRUW) With Storage Constrained Databases

Sajani Vithana (University of Maryland, USA), Sennur Ulukus (University of Maryland, USA) 2391

Data Integrity Check in Distributed Storage Systems [virtual]

Zhiqian Tan (Tsinghua University, China), Sian-Jheng Lin (Huawei Technology Co. Ltd., Hong Kong), Yungxiang Sam Han (Dongguan University of Technology, China), Zhongyi Huang (Tsinghua University, China), Bo Bai (Huawei Technologies Co., Ltd., Hong Kong), Gong Zhang (Huawei Technologies Co., Ltd., China) 2397

Signal Processing III

Fundamental Limits of Multi-Sample Flow Graph Decomposition

Kayvon Mazooji (University of Illinois at Urbana-Champaign, USA), Ilan Shomorony (University of Illinois at Urbana-Champaign, USA), William Noble (University of Washington, USA), Sreeram Kannan (University of Washington Seattle, USA) 2403

The Optimal Sample Complexity of Matrix Completion With Hierarchical Similarity Graphs

Adel Elmahdy (University of Minnesota, USA), Junhyung Ahn (KAIST, Korea (South)), Soheil Mohajer (University of Minnesota, USA), Changho Suh (KAIST, Korea (South)) 2409

Partial Extraction From Invertible Bloom Filters

Ivo Kubjas (ConsenSys, Spain), Vitaly Skachek (University of Tartu, Estonia) 2415

Composite Anomaly Detection via Hierarchical Dynamic Search

Benjamin Wolff (ETH Zürich, Switzerland), Tomer Gafni (Ben-Gurion University of the Negev, Israel), Guy Revach (ETH Zürich, Switzerland), Nir Shlezinger (Ben-Gurion University, Israel), Kobi Cohen (Ben-Gurion University of the Negev, Israel) 2421

Quantum VI

Chain Rules for Quantum Channels

Mario Berta (Imperial College London, United Kingdom (Great Britain)), Marco Tomamichel (National University of Singapore, Singapore) 2427

The Platypus of the Quantum Channel Zoo [virtual]

Felix Leditzky (University of Illinois at Urbana-Champaign, USA), Debbie Leung (University of Waterloo, Canada), Vikesh Siddhu (JILA, University of Colorado/NIST, Boulder, USA), Graeme Smith (University of Colorado Boulder, USA), John Smolin (IBM Quantum, USA) 2433

A Smallest Computable Entanglement Monotone [virtual]

Jens Eisert (Freie Universität Berlin, Germany), Mark M Wilde (Louisiana State University, USA) 2439

Communicating Over Classical-Quantum MAC With State Information Distributed at Senders [virtual]

Arun Padakandla (University of Tennessee, USA) 2445

Machine Learning for Communications and Coding I

AirNet: Neural Network Transmission Over the Air

Mikolaj Jankowski (Imperial College London, United Kingdom (Great Britain)), Deniz Gündüz (Imperial College London, United Kingdom (Great Britain)), Krystian Mikołajczyk (Imperial College London, United Kingdom (Great Britain)) 2451

Interpreting Deep-Learned Error-Correcting Codes

Natasha Devroye (University of Illinois at Chicago, USA), Neshat Mohammadi (University of Illinois Chicago, USA), Abhijeet Mulgund (University of Illinois Chicago, USA), Harish Naik (University of Illinois Chicago, USA), Raj Shekhar (University of Illinois Chicago, USA), Gyuri Turan (University of Illinois Chicago, USA), Yeqi Wei (University of Illinois Chicago, USA), Milos Zefran (University of Illinois at Chicago, USA) 2457

Learning Neural Codes for Perceptual Uncertainty

Mehrdad Salmasi (University College London, United Kingdom (Great Britain)), Maneesh Sahani (University College London, United Kingdom (Great Britain)) 2463

Learning Maximum Margin Channel Decoders for Non-Linear Gaussian Channels

Amit Tsvieli (Technion - Israel Institute of Technology, Israel), Nir Weinberger (Technion, Israel) 2469

Bottleneck, Generalization and Leakage

The Compound Information Bottleneck Program

Michael Dikshtein (Technion - Israel Institute of Technology, Israel), Nir Weinberger (Technion, Israel), Shlomo (Shitz) Shamai (The Technion, Israel) 2475

Tighter Expected Generalization Error Bounds via Convexity of Information Measures

Gholamali Aminian (University College London (UCL), United Kingdom (Great Britain)), Yuheng Bu (Massachusetts Institute of Technology, USA), Gregory Wornell (MIT, USA), Miguel Rodrigues (University College London, United Kingdom (Great Britain)) 2481

Understanding Generalization via Leave-One-Out Conditional Mutual Information

Mahdi Haghifam (University of Toronto, Canada), Shay Moran (Technion, Google Research, Israel), Daniel Roy (University of Toronto, Canada), Gintare Karolina Dziugaite (Google Research, Canada) 2487

A Variational Formula for Infinity-Rényi Divergence With Applications to Information Leakage

Gowtham R. Kurri (Arizona State University, USA), Oliver Kosut (Arizona State University, USA), Lalitha Sankar (Arizona State University, USA) 2493

MIMO II

Canonical Training is Bad for Reconfigurable Intelligent Surfaces [virtual]

Bharath Shamasundar (University of Texas at Dallas, USA), Aria Nosratinia (University of Texas, Dallas, USA) 2499

Channel State Acquisition in FDD Massive MIMO: Rate-Distortion Bound and Effectiveness of "Analog" Feedback

Mahdi Barzegar Khalilsarai (Technische Universität Berlin, Germany), Yi Song (Technische Universität Berlin, Germany), Tianyu Yang (Technical University of Berlin, Germany), Giuseppe Caire (Technische Universität Berlin, Germany) 2505

MIMO Systems With One-Bit ADCs: Capacity Gains Using Nonlinear Analog Operations

Farhad Shirani (Florida International University, USA), Hamidreza Aghasi (University of California, Irvine, USA) 2511

A Partition-Based Scheme for IRS-Aided MIMO Fading Channels: Outage and DMT Analysis

Andreas Nicolaides (University of Cyprus, Cyprus), Constantinos Psomas (University of Cyprus, Cyprus), Ghassan M. Kraidy (University of Cyprus, Cyprus & Notre Dame University - Louaize, Lebanon), Ioannis Krikidis (University of Cyprus, Cyprus) 2517

Capacity I

The Capacity of Causal Adversarial Channels

Yihan Zhang (IST Austria, Austria), Sidharth Jaggi (University of Bristol, United Kingdom (Great Britain)), Michael Langberg (State University of New York at Buffalo, USA), Anand D. Sarwate (Rutgers University, USA) 2523

Channel Capacity for Adversaries With Computationally Bounded Observations

Eric Ruzomberka (Purdue University, USA), Chih-Chun Wang (Purdue University, USA), David Love (Purdue University, USA) 2529

<i>New Results on AVCs With Omniscient and Myopic Adversaries</i>	
Anuj Kumar Yadav (Indian Institute of Technology Patna, India), Mohammadreza Alimohammadi (Sharif University of Technology, Iran), Yihan Zhang (IST Austria, Austria), Amitalok J. Budkuley (Indian Institute of Technology Kharagpur, India), Sidharth Jaggi (University of Bristol, United Kingdom (Great Britain))	2535
<i>Noisy Sorting Capacity</i>	
Ziao Wang (University of British Columbia, Canada), Nadim Ghaddar (University of California San Diego, USA), Lele Wang (University of British Columbia, Canada)	2541
<i>Feedback Capacity of Gaussian Channels With Memory</i>	
Oron Sabag (Caltech, USA), Victoria Kostina (California Institute of Technology, USA), Babak Hassibi (California Institute of Technology, USA)	2547

List Decoding II

<i>List-Decodable Zero-Rate Codes for the Z-Channel</i>	
Nikita Polyanski (IOTA Foundation, Germany), Yihan Zhang (IST Austria, Austria)	2553
<i>List-Decodability of Poisson Point Processes</i>	
Yihan Zhang (IST Austria, Austria), Shashank Vatedka (Indian Institute of Technology Hyderabad, India)	2559
<i>Singleton-Type Bounds for List-Decoding and List-Recovery, and Related Results [virtual]</i>	
Eitan Goldberg (Tel Aviv University, Israel), Itzhak Tamo (Tel Aviv University, Israel), Chong Shangguan (Tel Aviv University, Israel)	2565
<i>Improving Belief Propagation List Decoding of Polar Codes by Post-Processing</i>	
Yonatan Urman (Tel-Aviv University, Israel), Guy Mogilevsky (Tel Aviv University, Israel), David Burshtein (Tel Aviv University, Israel)	2571

Polar Coding III

<i>Approximate Weight Distribution of Polarization-Adjusted Convolutional (PAC) Codes [virtual]</i>	
Sadra Seyedmasoumian (Bilkent University, Turkey), Tolga M. Duman (Bilkent University, Turkey)	2577
<i>Polar Coded Merkle Tree: Improved Detection of Data Availability Attacks in Blockchain Systems</i>	
Debarbab Mitra (University of California, Los Angeles, USA), Lev Taus (University of California, Los Angeles, USA), Lara Dolecek (UCLA, USA)	2583
<i>On the Bit-Channels for Channel Polarization</i>	
Wen-Yao Chen (National Tsing Hua University, Taiwan), Chung-Chin Lu (National Tsing Hua University, Taiwan)	2589
<i>Multilevel Binary Polar-Coded Modulation Achieving the Capacity of Asymmetric Channels</i>	
Constantin Runge (Technical University of Munich, Germany), Thomas Wiegart (Technical University of Munich, Germany), Diego Lentner (Technical University of Munich, Germany), Tobias Prinz (Technische Universität München, Germany)	2595

MDS Codes and Distributed Storage III

<i>New Piggybacking Codes With Lower Repair Bandwidth for Any Single-Node Failure [virtual]</i>	
Hao Shi (Jilin University, China), Hanxu Hou (Huawei Technology Limited Company, Hong Kong), Yungshiang Sam Han (Dongguan University of Technology, China), Patrick Pak-Ching Lee (The Chinese University of Hong Kong, Hong Kong), Zhengyi Jiang (Tsinghua, China), Zhongyi Huang (Tsinghua University, China), Bo Bai (Huawei Technologies Co., Ltd., Hong Kong)	2601
<i>Practical Considerations in Repairing Reed-Solomon Codes</i>	
Thi Xinh Dinh (RMIT University, Australia), Luu Y Nhi Nguyen (RMIT University, Australia), Lakshmi J Mohan (RMIT University, Australia), Serdar Boztas (RMIT University, Australia), Tran Luong (Academy of Cryptography Techniques, Vietnam), Hoang Dau (RMIT University, Australia)	2607
<i>Dual-Code Bounds on Multiple Concurrent (Local) Data Recovery</i>	
Gianira Nicoletta Alfaro (University of Zurich, Switzerland), Alberto Ravagnani (University of Toronto, Canada), Emina Soljanin (Rutgers University, USA)	2613
<i>A New Approach to Compute Information Theoretic Outer Bounds and Its Application to Regenerating Codes</i>	
Wenjing Chen (Texas A&M University, USA), Chao Tian (Texas A&M University, USA)	2619
<i>A Bound on the Minimal Field Size of LRCs, and Cyclic MR Codes That Attain It</i>	
Han Cai (Southwest Jiaotong University, China), Moshe Schwartz (Ben-Gurion University of the Negev, Israel)	2625

Signal Processing IV

Uniqueness and Robustness of TEM-Based FRI Sampling

Hila Naaman (Weizmann Institute of Science, Israel), Satish Mulleti (Weizmann Institute of Science, Israel), Yonina C. Eldar (Weizmann Institute of Science, Israel) 2631

Recoverable Systems on Lines and Grids

Alexander Barg (University of Maryland, USA), Ohad Elishco (Ben-Gurion University of the Negev, Israel), Ryan Gabrys (University of California, San Diego, USA), Eitan Yaakobi (Technion, Israel) 2637

A Computational Design of Aperiodic Mismatched Filtering Sequences [virtual]

Zhi Gu (Southwest Jiaotong University, China), Avik Ranjan Adhikary (Southwest Jiaotong University, China), Zhengchun Zhou (Southwest Jiaotong University, China), Pingzhi Fan (Southwest Jiaotong University, China, China) 2643

Signaling for MISO Channels Under First- and Second-Moment Constraints

Shuai Ma (LTCI, Telecom Paris, IP Paris, France), Stefan M. Moser (ETH Zurich, Switzerland & National Yang Ming Chiao Tung University (NYCU), Taiwan), Ligong Wang (ETIS Laboratory, France), Michele A. Wigger (Telecom Paris, France) 2648

Secret Key

Distillation of Secret Key and GHZ States From Multipartite Mixed States

Farzin Salek (Technical University of Munich, Germany), Andreas Winter (Universitat Autònoma de Barcelona & ICREA, Spain) 2654

Protecting Semantic Information Using an Efficient Secret Key [virtual]

Tao Guo (Huawei Technologies Co. Ltd., Hong Kong), Jie Han (Huawei Technologies Co. Ltd., Hong Kong, Hong Kong), Huihui Wu (Huawei Technologies Co., Ltd., China), Yizhu Wang (Huawei Technologies Co., Ltd., China), Bo Bai (Huawei Technologies Co., Ltd., Hong Kong), Wei Han (Huawei Technologies Co Ltd, Hong Kong) 2660

Secret Key-Based Authentication With Passive Eavesdropper for Scalar Gaussian Sources

Vamoua Yachongka (Yokohama National University, Japan), Hideki Yagi (University of Electro-Communications, Japan), Yasutada Oohama (University of Electro-Communications, Japan) 2666

Secret Keys From Parity Bits in the Satellite Setting

Jari Lietzen (Aalto University, Finland), Olav Tirkkonen (Aalto University, Finland), Roope Vehlahti (University of Jyväskylä, Finland) 2672

Improved Bound on the Local Leakage-Resilience of Shamir's Secret Sharing [virtual]

Hemanta K. Maji (Purdue University, USA), Hai H. Nguyen (Purdue University, USA), Anat Paskin-Cherniavsky (Ariel University, Israel), Mingyuan Wang (UC Berkeley, USA) 2678

Machine Learning for Communications and Coding II

Simultaneous Sensing and Channel Access Based on Partial Observations via Deep Reinforcement Learning

Yoel Bokobza (Ben-Gurion University of the Negev, Israel), Ron Dabora (Ben-Gurion University, Israel), Kobi Cohen (Ben-Gurion University of the Negev, Israel) 2684

DeepNP: Deep Learning-Based Noise Prediction for Ultra-Reliable Low-Latency Communications

Alejandro Cohen (Technion, Israel), Amit Solomon (Massachusetts Institute of Technology, USA), Nir Shlezinger (Ben-Gurion University of the Negev, Israel) 2690

Learning to Broadcast With Layered Division Multiplexing

Roy Karasik (Technion - Israel Institute of Technology, Israel), Osvaldo Simeone (King's College London, United Kingdom (Great Britain)), Shlomo (Shitz) Shamai (The Technion, Israel) 2696

Distributed Detection and Estimation

Information Structures for State-Dependent Decentralized Detection

Joni Shaska (University of Southern California, USA), Urbashi Mitra (University of Southern California, USA) 2702

On Sub-Optimality of Random Binning for Distributed Hypothesis Testing

Shun Watanabe (Tokyo University of Agriculture and Technology, Japan) 2708

<i>Benefits of Rate-Sharing for Distributed Hypothesis Testing</i>	Mustapha Hamad (Télécom Paris, France), Mireille Sarkiss (Telecom SudParis, France), Michele A Wigger (Telecom Paris, France)	2714
<i>Can We Break the Dependency in Distributed Detection?</i>	Osama Hanna (UCLA, USA), Xinlin Li (UCLA, USA), Christina Fragouli (UCLA, USA), Suhas Diggavi (University of California, Los Angeles, USA)	2720
<i>Consistent Bayesian Community Recovery in Multilayer Networks</i>	Kalle Alaluusua (Aalto University, Finland), Lasse Leskelä (Aalto University, Finland)	2726

MIMO III

<i>A Rigorous Proof of the Capacity of MIMO Gauss-Markov Rayleigh Fading Channels</i>	Rami Ezzine (Technical University of Munich, Germany), Moritz Wiese (Technical University of Munich, Germany), Christian Deppe (Technical University of Munich, Germany), Holger Boche (Technical University Munich, Germany)	2732
<i>On Broadcast Approach to MIMO Fading Channels [virtual]</i>	Kangning Ma (Shanghai Jiao Tong University, China), Yinfei Xu (Southeast University, China), Shuo Shao (Shanghai Jiao Tong University, China)	2738
<i>MIMO Gaussain Cognitive Interference Channels With Confidential Messages [virtual]</i>	Yinfei Xu (Southeast University, China), Tong Zhang (Southern University of Science and Technology, China), Yong Dong (Southeast University, China), Xia Yili (Southeast University, China), Jian Lu (SiPaiLou 2, China)	2744

Capacity II

<i>Beating the Sum-Rate Capacity of the Binary Adder Channel With Non-Signaling Correlations</i>	Paul Fermé (ENS Lyon, Inria, France), Omar Fawzi (ENS de Lyon, France)	2750
<i>On the Separation of Correlation-Assisted Sum Capacities of Multiple Access Channels</i>	Akshay Seshadri (University of Colorado Boulder, USA), Felix Leditzky (University of Illinois at Urbana-Champaign, USA), Vikesh Siddhu (JILA, University of Colorado/NIST, Boulder, USA), Graeme Smith (University of Colorado Bolder, USA)	2756
<i>Zero-Error Capacity of Binary Channels With Two Memories [virtual]</i>	Qi Chen (Xidian University, China), Qi Cao (Xidian University, China)	2762
<i>A New Framework for Proving Coding Theorems for Linear Codes [virtual]</i>	Xiao Ma (Sun Yat-sen University, China), Yixin Wang (Sun Yat-sen University, China), Tingting Zhu (Sun Yat-sen University, China)	2768
<i>Capacity-Achieving Input Distributions: Algorithmic Computability and Approximability [virtual]</i>	Holger Boche (Technical University Munich, Germany), Rafael F. Schaefer (University of Siegen, Germany), H. Vincent Poor (Princeton University, USA)	2774

Coding Theory, Decoding III

<i>On Multibasis Information Set Decoding</i>	Sebastian Bitzer (Ulm University, Germany), Martin Bossert (Ulm University, Germany)	2780
<i>Decoding of Generalized Concatenated Codes Over the One-Lee Error Channel for the McEliece Cryptosystem</i>	Johann-Philipp Thiers (HTWG Konstanz, University of Applied Sciences, Germany), Juergen Freudenberger (University of Applied Sciences, Konstanz & Institute for System Dynamics (ISD), Germany)	2785
<i>Generalized Inverse Based Decoding</i>	Ferucio Tiplea (Alexandru Ioan Cuza University of Iasi, Romania), Vlad-Florin Dragoi (University of Arad (UAV), Romania & Normandy University, France)	2791
<i>TinyTurbo: Efficient Turbo Decoders on Edge</i>	Ashwin S Hebbar (University of Illinois, Urbana-Champaign, USA), Rajesh K Mishra (The University of Texas at Austin, USA), Sravan Kumar Anikireddy (University of Texas, Austin, USA), Ashok Makkuva (University of Illinois at Urbana-Champaign, USA), Hyeji Kim (University of Texas at Austin, USA), Pramod Viswanath (University of Illinois, Urbana-Champaign, USA)	2797

Network Coding III

<i>A Linear Physical-Layer Network Coding Based Multiple Access Approach [virtual]</i> Qiuzhuo Chen (Beihang University, China), Fangtao Yu (Beihang University, China), Tao Yang (Beihang University, China), Jingge Zhu (University of Melbourne, Australia), Rong Ke Liu (Beihang University, China)	2803
<i>Endurance Network Coding for Multi-Hop Wireless Communications [virtual]</i> Zhuolin Bian (Xidian University, China), Wangmei Guo (Xidian University, China), Minhan Tian (Xidian University, China)	2809
<i>Base Station-Assisted Cooperative Network Coding for Cellular Systems With Link Constraints</i> Suayb S. Arslan (Massachusetts Institute of Technology & TUBITAK, USA), Massoud Pourmandi (Boğaziçi University, Turkey), Elif Haytaoglu (Pamukkale University, Turkey)	2815
<i>An Achievable Rate Region for a $\\$3$-$\\$User$ Classical-Quantum Broadcast Channel [virtual]</i> Arun Padakandla (University of Tennessee, USA)	2821

Private Information Retrieval II

<i>Improved Weakly Private Information Retrieval Codes</i> Chengyuan Qian (Texas A&M University, USA), Ruida Zhou (Texas A&M University, USA, USA), Chao Tian (Texas A&M University, USA), Tie Liu (Texas A&M University, USA)	2827
<i>The Linear Capacity of Single-Server Individually-Private Information Retrieval With Side Information</i> Anoosheh Heidarzadeh (Texas A&M University, USA), Alex Sprintson (Texas A&M University, USA)	2833
<i>Private Information Retrieval From Colluding and Byzantine Servers With Binary Reed-Muller Codes</i> Perttu Saarela (Aalto University, Finland), Matteo Allaix (Aalto University, Finland), Ragnar Freij-Hollanti (Aalto University, Finland), Camilla Hollanti (Aalto University, Finland)	2839

Privacy VI

<i>Distributed Information Bottleneck for a Primitive Gaussian Diamond Channel With Rayleigh Fading</i> Hao Xu (University College London, United Kingdom (Great Britain)), Kai Kit Wong (University College London, United Kingdom (Great Britain)), Giuseppe Caire (Technische Universität Berlin, Germany), Shlomo (Shitz) Shamai (The Technion, Israel)	2845
<i>An Adaptive Composition Theorem for Maximal Leakage</i> Ibrahim Issa (American University of Beirut, Lebanon), Aaron Wagner (Cornell University, USA)	2851
<i>Distributed Attribute-Based Private Access Control</i> Amir Masoud Jafarpisheh (Sharif University of Technology, Iran), Mahtab Mirmohseni (Sharif University of Technology, United Kingdom (Great Britain)), Mohammad Ali Ali Maddah-Ali (Nokia Bell Labs, USA)	2856
<i>Privacy Limits in Power-Law Bipartite Networks Under Active Fingerprinting Attacks</i> Mahshad Shariatnasab (1340 Administration Ave & North Dakota State University, USA), Farhad Shirani (Florida International University, USA), Zahid Anwar (North Dakota State University, USA)	2862

Multiple Access I

<i>Coded Categorization in Massive Random Access</i> Ryan Song (University of Toronto, Canada), Kareem M. Attiah (University of Toronto & Faculty of Engineering, Canada), Wei Yu (University of Toronto, Canada)	2868
<i>Improved Bounds for the Many-User MAC [virtual]</i> Suhas S Kowshik (Massachusetts Institute of Technology, USA)	2874
<i>Unsourced Random Access With a Massive MIMO Receiver Using Multiple Stages of Orthogonal Pilots [virtual]</i> Mohammad Javad Ahmadi (Bilkent University, Turkey), Tolga M. Duman (Bilkent University, Turkey)	2880

<i>Energy Efficiency Analysis of a Feedback-Aided IRSA Scheme [virtual]</i>	
Javad Haghighat (Bilkent University, Turkey), Tolga M. Duman (Bilkent University, Turkey)	2886

Information Measures I

<i>Partial Information Decomposition via Deficiency for Multivariate Gaussians</i>	
Praveen Venkatesh (Allen Institute & University of Washington, Seattle, USA), Gabriel Schamberg (Massachusetts Institute of Technology, USA)	2892
<i>Optimizing Estimated Directed Information Over Discrete Alphabets</i>	
Dor Tsur (Ben-Gurion University of the Negev, Israel), Ziv Aharoni (Ben-Gurion University of the Negev, Israel), Ziv Goldfeld (Cornell University, USA), Haim H Permuter (Ben-Gurion University of the Negev, Israel)	2898
<i>On Sibson's Alpha-Mutual Information</i>	
Amedeo R Esposito (EPFL, Switzerland), Adrien Vandenbroucq (& Entropica Labs, Switzerland), Michael Gastpar (EPFL, Switzerland)	2904
<i>On Finite-Time Mutual Information [virtual]</i>	
Jieao Zhu (Tsinghua University, China), Zijian Zhang (Tsinghua University, China), Zhongzhichao Wan (Tsinghua University, China), Linglong Dai (Tsinghua University, China)	2910

Coding Theory, Decoding IV

<i>Ternary Message Passing Decoding of RS-SPC Product Codes [virtual]</i>	
Mingyang Zhu (Southeast University, China), Ming Jiang (Southeast University, China), Chunming Zhao (National Mobile Communications Research Laboratory, Southeast University, China)	2916
<i>Look-Ahead Bit-Flipping Decoding of MDPC Code</i>	
Haruhiko Kaneko (Tokyo Institute of Technology, Japan)	2922
<i>A Semi Linear State Space Model for Error Floor Estimation of LDPC Codes Over the AWGN Channel [virtual]</i>	
Ali Farsiabi (Carleton University, Canada), Amir Banihashemi (Carleton University, Canada)	2928

Adversarial Systems

<i>Adversarial Torn-Paper Codes</i>	
Eitan Yaakobi (Technion, Israel), Daniella Bar-Lev (Technion, Israel), Yonatan Yehezkeally (Technical University of Munich, Germany), Sagi Marcovich (Technion - Israel Institute of Technology, Israel)	2934
<i>Reed Solomon Codes Against Adversarial Insertions and Deletions</i>	
Roni Con (Tel Aviv University, Israel), Amir Shpilka (Tel Aviv University, Israel), Itzhak Tamo (Tel Aviv University, Israel)	2940
<i>Asymptotic Nash Equilibrium for the Sequential Adversarial Hypothesis Testing Game</i>	
Jiachun Pan (National University of Singapore, Singapore), Yonglong Li (National University of Singapore, Singapore), Vincent Y. F. Tan (National University of Singapore, Singapore)	2946
<i>Improved Adversarial Robustness by Hardened Prediction [virtual]</i>	
Qihang Liang (City University of Hong Kong, Hong Kong), Chung Chan (City University of Hong Kong, Hong Kong)	2952

Quantum VII

<i>Equivalence of Quantum Single Insertion and Single Deletion Error-Correctabilities, and Construction of Codes and Decoders</i>	
Taro Shibayama (Chiba University, Japan), Manabu Hagiwara (Chiba University, Japan)	2957
<i>Learning Quantum Graph States With Product Measurements</i>	
Yingkai Ouyang (National University of Singapore, Singapore), Marco Tomamichel (National University of Singapore, Singapore)	2963

<i>Stabilizer Codes and Symbol-Pair Metric are Related</i>	2969
Vatsal Pramod Jha (IIT Kanpur, India), Udaya Parampalli (The University of Melbourne, Australia), Abhay Kumar Singh (IIT(ISM) Dhanbad, India)	
<i>Multi-Party Quantum Purity Distillation With Bounded Classical Communication</i>	2974
,Touheed Anwar Atif (University of Michigan, USA, USA), S. Sandeep Sandeep Pradhan (University of Michigan, USA)	

Testing and Estimation

<i>Sparse Group Quantitative PCR Testing by Belief Propagation [virtual]</i>	2980
Yoshiki Hara (Tokyo Institute of Technology, Japan), Kenta Kasai (Tokyo Institute of Technology, Japan)	
<i>Asymptotically Optimal Multistage Tests for IID Data</i>	2985
,Yiming Xing (University of Illinois at Urbana-Champaign, China), Georgios Fellouris (University of Illinois at Urbana-Champaign, USA)	
<i>A Data-Driven Missing Mass Estimation Framework</i>	2991
Amichai Painsky (Tel Aviv University, Israel)	

Fundamentals of Machine Learning IV

<i>Adaptive Worker Grouping for Communication-Efficient and Straggler-Tolerant Distributed SGD</i>	2996
Feng Zhu (Fudan University, China), Jingjing Zhang (King's College London, United Kingdom (Great Britain)), Osvaldo Simeone (King's College London, United Kingdom (Great Britain)), Xin Wang (Fudan University, China)	
<i>On Fisher Information Matrix for Simple Neural Networks With Softplus Activation</i>	3001
Masazumi Iida (Kyushu University, Japan), Yoshinari Takeishi (Kyushu University, Japan), Junichi Takeuchi (Kyushu University, Japan)	
<i>On Algebraic Constructions of Neural Networks With Small Weights</i>	3007
Kordag Mehmet Kilic (California Institute of Technology, USA), Jin Sima (California Institute of Technology, USA), Jehoshua Bruck (California Institute of Technology, USA)	
<i>On Multiple and Hierarchical Universality</i>	3013
,Yaniv Fogel (Tel-Aviv University, Israel), Meir Feder (Tel-Aviv University, Israel)	

Multiple Access II

<i>Irregular Repetition Slotted ALOHA in an Information-Theoretic Setting</i>	3019
Enrico Paolini (University of Bologna, Italy), Lorenzo Valentini (University of Bologna, Italy), Vello Tralli (University of Ferrara - Italy, Italy), Marco Chiani (University of Bologna, Italy)	
<i>Coding for Sensing: An Improved Scheme for Integrated Sensing and Communication Over MACs</i>	3025
Mehrasa Ahmadi-pour (Telecom Paris, France), Michele A Wigger (Telecom Paris, France), Mari Kobayashi (CentraleSupélec, France)	
<i>Bounds on the Capacity of the Multiple Access Diamond Channel With Cooperating Base-Stations</i>	3031
Michael Dikshtein (Technion - Israel Institute of Technology, Israel), Shirin Saeedi Bidokhti (University of Pennsylvania, USA), Shlomo (Shitz) Shamai (The Technion, Israel)	
<i>Continuous-Time Noisy Average Consensus System as Gaussian Multiple Access Channel</i>	3037
Tadashi Wadayama (Nagoya Institute of Technology, Japan), Ayano Nakai-Kasai (Nagoya Institute of Technology, Japan)	
<i>Iterative Water-Filling Power and Subcarrier Allocation for Multicarrier Non-Orthogonal Multiple Access Uplink [virtual]</i>	3043
Chin Choy Chai (Ryerson University, Canada), Xiao-Ping Zhang (Ryerson University, Canada)	

Information Measures II

<i>Shared Information for a Markov Chain on a Tree</i> Sagnik Bhattacharya (University of Maryland, USA), Prakash Narayan (University of Maryland, USA)	3049
<i>Finite Littlestone Dimension Implies Finite Information Complexity</i> Aditya Pradeep (EPFL, Switzerland), Ido Nachum (EPFL, Switzerland), Michael Gastpar (EPFL, Switzerland)	3055
<i>Augustin Information Measures on Fading Channels Under Certain Symmetry Hypothesis</i> Furkan Yildiz (Middle East Technical University, Turkey), Baris Nakiboglu (Middle East Technical University, Turkey)	3061
<i>The Generalized Degrees-Of-Freedom of the Asymmetric Interference Channel With Delayed CSIT [virtual]</i> Tong Zhang (Southern University of Science and Technology, China), Yufan Zhuang (Southern University of Science and Technology, China), Yinfei Xu (Southeast University, China)	3067

Coding Theory III

<i>Improved Semidefinite Programming Bounds for Binary Codes by Split Distance Enumerations</i> Pin-Chieh Tseng (National Yang Ming Chiao Tung University, Taiwan), Ching-Yi Lai (National Yang Ming Chiao Tung University, Taiwan), Wei-Hsuan Yu (National Central University, Taiwan)	3073
<i>Norm-Trace-Lifted Codes Over Binary Fields</i> Gretchen Matthews (Virginia Tech, USA), Aidan Murphy (Virginia Tech, USA)	3079
<i>Lower Bounds for Multiple Packing</i> Yihan Zhang (IST Austria, Austria), Shashank Vatedka (Indian Institute of Technology Hyderabad, India)	3085
<i>Using One Redundant Bit to Construct Two-Dimensional Almost-Balanced Codes</i> Thanh Tuan Nguyen (Singapore University of Technology and Design, Singapore), Kui Cai (Singapore University of Technology and Design, Singapore), Han Mao Kiah (Nanyang Technological University, Singapore), Kees A. Schouhamer Immink (Turing Machines Inc., The Netherlands), Yeow Meng Chee (National University of Singapore, Singapore)	3091

Coding for Communications

<i>Efficient Capacity-Achieving Codes for General Repeat Channels</i> Francisco Pernice (Stanford University, USA), Ray Li (Stanford University, USA), Mary Wootters (Stanford University, USA)	3097
<i>Weighted Parity-Check Codes for Channels With State and Asymmetric Channels [virtual]</i> Chih Wei Ling (Chinese University of Hong Kong, Hong Kong), Yanxiao Liu (The Chinese University of Hong Kong, Hong Kong), Cheuk Ting Li (The Chinese University of Hong Kong, Hong Kong)	3103
<i>Converting a $1 \times K$ Static Rayleigh Channel to K Parallel AWGN Using Media-Based Modulation</i> Ehsan Seifi (Ciena & University of Waterloo, Canada), Amir K. Khandani (University of Waterloo, Canada)	3109
<i>Reduction of Delay for Delayed Bit-Interleaved Coded Modulation</i> Gou Hosoya (Waseda University, Japan)	3114

MDS Codes and Distributed Storage IV

<i>Constructing MSR Codes With Subpacketization $\lfloor 2^{\lfloor n/3 \rfloor} \rfloor$ for $(k+1)$ Helper Nodes [virtual]</i> Guodong Li (Shandong University, China), Ningning Wang (Shandong University, China), Sihuang Hu (Shandong University, China), Min Ye (Tsinghua University, China)	3120
<i>Optimal and Almost Optimal Cyclic $\lfloor (r, \delta) \rfloor$-LRCs With Large Code Lengths [virtual]</i> Jing Qiu (Nankai University, China), Weijun Fang (Shandong University, China), Fang-Wei Fu (Nankai University, China)	3126
<i>Towards Efficient Repair and Coding of Binary MDS Array Codes With Small Sub-Packetization [virtual]</i> Hanxu Hou (Huawei Technology Limited Company, Hong Kong), Yungshiang S. Han (University of Electronic Science and Technology of China, China), Bo Bai (Huawei Technologies Co., Ltd., Hong Kong), Gong Zhang (Huawei Technologies Co., Ltd., China)	3132

Sparsity

<i>Sketching Sparse Low-Rank Matrices With Near-Optimal Sample- and Time-Complexity</i> Xiaoqi Liu (University of Cambridge, United Kingdom (Great Britain)), Ramji Venkataramanan (University of Cambridge, United Kingdom (Great Britain))	3138
<i>Estimating Sparse Distributions Under Joint Communication and Privacy Constraints [virtual]</i> Surin Ahn (Stanford University, USA), Wei-Ning Chen (Stanford University, USA), Ayfer Özgür (Stanford University, USA)	3144
<i>Efficient and Robust Classification for Sparse Attacks</i> Mark Beliaev (University of California Santa Barbara, USA), Payam Delgosha (University of Illinois at Urbana Champaign, USA), Hamed Hassani (University of Pennsylvania, USA), Ramtin Pedarsani (University of California, Santa Barbara, USA)	3150
<i>Graph-Assisted Matrix Completion in a Multi-Clustered Graph Model [virtual]</i> Geewon Suh (KAIST, Korea (South)), Changho Suh (KAIST, Korea (South))	3156

Statistics and Machine Learning IV

<i>On Meta-Bound for Lower Bounds of Bayes Risk</i> Shota Saito (Gunma University, Japan)	3162
<i>No Rose for MLE: Inadmissibility of MLE for Evaluation Aggregation Under Levels of Expertise</i> Charvi Rastogi (Carnegie Mellon University, USA), Ivan Stelmakh (Carnegie Mellon University, USA), Nihar B Shah (Carnegie Mellon University, USA), Sivaraman Balakrishnan (CMU, USA)	3168
<i>On the Fundamental Limits of Exact Inference in Structured Prediction</i> Hanbyul Lee (Purdue University, USA), Kevin Bello (Purdue University, USA), Jean Honorio (Purdue University, USA)	3174
<i>Geometry of the Minimum Volume Confidence Sets [virtual]</i> Heguang Lin (University of Wisconsin-Madison, USA), Matthew Malloy (University of Wisconsin-Madison, USA), Daniel Pimentel-Alarcón (University of Wisconsin-Madison, USA), Mengze Li (University of Wisconsin-Madison, USA)	3180

Age of Information III

<i>Decentralized Updates Scheduling for Data Freshness in Mobile Edge Computing [virtual]</i> Junyi He (Beijing Jiaotong University, China), Di Zhang (Beijing Jiaotong University, China), Shumeng Liu (Beijing Jiaotong University, China), Yuezhi Zhou (Tsinghua University, China), Yaoxue Zhang (Tsinghua University, China)	3186
<i>How Useful is Delayed Feedback in AoI Minimization - A Study on Systems With Queues in Both Forward and Backward Directions</i> Chih-Chun Wang (Purdue University, USA)	3192
<i>Age Distribution in Arbitrary Preemptive Memoryless Networks</i> Rajai Nasser (ETH Zurich, Switzerland), Ibrahim Issa (American University of Beirut, Lebanon), Ibrahim Abou-Faycal (American University of Beirut, Lebanon)	3198

Capacity, Error Exponents and Reliability III

<i>Reliability Function for Streaming Over a DMC With Feedback</i> Nian Guo (California Institute of Technology, USA), Victoria Kostina (California Institute of Technology, USA)	3204
<i>Typical Random Coding Exponent for Finite-State Channels</i> Giuseppe Cocco (Universitat Pompeu Fabra, Spain), Albert Guillén i Fàbregas (ICREA and Universitat Pompeu Fabra & University of Cambridge, Spain), Josep Font-Segura (Universitat Pompeu Fabra, Spain)	3210
<i>A Simple Coding Scheme Attaining Positive Information Velocity</i> Yan Hao Ling (National University of Singapore, Singapore), Jonathan Scarlett (National University of Singapore, Singapore)	3215
<i>Proactive Resilience in 1-2-1 Networks</i> Mine Gokce Dogan (University of California, Los Angeles, USA), Martina Cardone (University of Minnesota, USA), Christina Fragouli (UCLA, USA)	3220

Lattice Codes

<i>On the Secrecy Gain of Formally Unimodular Construction $\setminus(A_4)$ Lattices</i>	
Maiara Francine Bollauf (Simula UiB, Norway), Hsuan-Yin Lin (Simula UiB, Norway), Øyvind Ytrehus (University of Bergen, Norway)	3226
<i>Lower Bound on the Error Rate of Genie-Aided Lattice Decoding</i>	
Jiajie Xue (Japan Advanced Institute of Science and Technology, Japan), Brian Kurkoski (Japan Advanced Institute of Science and Technology (JAIST), Japan)	3232
<i>Lattices From Linear Codes: Source and Channel Networks</i>	
Farhad Shirani (Florida International University, USA), S. Sandeep Sandeep Pradhan (University of Michigan, USA)	3238

Index Coding

<i>Very Pliable Index Coding [virtual]</i>	
Lawrence Ong (The University of Newcastle, Australia), Badri N Vellambi (University of Cincinnati, USA)	3244
<i>On the Optimality of Linear Index Coding Over the Fields With Characteristic Three</i>	
Arman Sharififar (University of New South Wales, Australia), Parastoo Sadeghi (University of New South Wales, Australia), Neda Aboutorab (University of New South Wales, Australia)	3250
<i>Information Leakage in Index Coding With Sensitive and Non-Sensitive Messages</i>	
Yucheng Liu (The University of Newcastle, Australia), Lawrence Ong (The University of Newcastle, Australia), Phee Lep Yeoh (University of Sydney, Australia), Parastoo Sadeghi (University of New South Wales, Australia), Joerg Kliewer (New Jersey Institute of Technology, USA), Sarah J Johnson (University of Newcastle, Australia)	3256

MDS Codes and Distributed Storage V

<i>Bandwidth Cost of Code Conversions in the Split Regime</i>	
Francisco Maturana (Carnegie Mellon University, USA), Rashmi Vinayak (Carnegie Mellon University, USA)	3262
<i>Update and Repair Efficient Storage Codes With Availability via Finite Projective Planes</i>	
Junming Ke (University of Tartu, Estonia, Estonia), Ago-Erik Riet (University of Tartu, Estonia)	3268
<i>Quantifying the Cost of Privately Storing Data in Distributed Storage Systems</i>	
Remi A Chou (Wichita State University, USA)	3274

Compressive Sensing

<i>Universal 1-Bit Compressive Sensing for Bounded Dynamic Range Signals</i>	
Sidhant Bansal (National University of Singapore, Singapore), Anamay Chaturvedi (Northeastern University, USA), Jonathan Scarlett (National University of Singapore, Singapore), Arnab Bhattacharyya (National University of Singapore, Singapore)	3280
<i>Fast Low Rank Column-Wise Compressive Sensing [virtual]</i>	
Syedehsara Nayer (Iowa State University, USA), Namrata Vaswani (Iowa State University, USA)	3285
<i>Data-Time Tradeoffs for Optimal k-Thresholding Algorithms in Compressed Sensing [virtual]</i>	
Jialiang Xu (Chinese Academy of Sciences, China), Xu Zhang (Chinese Academy of Sciences, China)	3291

Hypothesis Testing

<i>Simple Binary Hypothesis Testing Under Communication Constraints [virtual]</i>	
Ankit Pensia (University of Wisconsin-Madison, USA), Varun Jog (University of Cambridge, United Kingdom (Great Britain)), Po-Ling Loh (University of Cambridge, United Kingdom (Great Britain))	3297

<i>Asymptotics for Outlier Hypothesis Testing [virtual]</i>	
Lin Zhou (Beihang University, China), Yun Wei (Duke University, USA), Alfred Hero III (University of Michigan, USA)	3303
<i>Robust Hypothesis Testing With Kernel Uncertainty Sets [virtual]</i>	
Zhongchang Sun (University at Buffalo, USA), Shaofeng Zou (University at Buffalo, USA)	3309
<i>A Data-Driven Approach to Robust Hypothesis Testing Using Sinkhorn Uncertainty Sets</i>	
Jie Wang (Georgia Institute of Technology, USA), Yao Xie (Georgia Institute of Technology, USA)	3315

Joint Coding, Communication and Processing

<i>On Joint Communication and Channel Discrimination</i>	
Han Wu (Eindhoven University of Technology, The Netherlands), Hamdi Joudeh (Eindhoven University of Technology, The Netherlands)	3321
<i>Joint Coding for Discrete Sources and Finite-State Noiseless Channels</i>	
Ken-ichi Iwata (University of Fukui, Japan), Hirotsuke Yamamoto (The University of Tokyo, Japan)	3327
<i>Joint Beamforming and Trajectory Optimizations for Statistical Delay and Error-Rate Bounded QoS in UAV/IRS-Based 6G Wireless Networks Using FBC [virtual]</i>	
Xi Zhang (Texas A&M University, USA), Jingqing Wang (Texas A&M University, USA), H. Vincent Poor (Princeton University, USA)	3333

Guessing

<i>A Unified Framework for Problems on Guessing, Source Coding, and Tasks Partitioning [virtual]</i>	
Ashok Kumar M. (Indian Institute of Technology Palakkad, India), Albert Sunny (Indian Institute of Technology, Palakkad, India), Ashish Thakre (Indian Institute of Technology Indore, India), Ashisha Kumar (Indian Institute of Technology Indore, India), Dinesh Manohar Gandhinathan (Robert Bosch Engineering and Business Solutions Ltd., India)	3339
<i>Universal Randomized Guessing Subject to Distortion</i>	
Asaf Cohen (Ben-Gurion University of the Negev, Israel), Neri Merhav (Technion, Israel)	3345
<i>Improved Bounds on the Moments of Guessing Cost</i>	
Suayb S. Arslan (Massachusetts Institute of Technology & TUBITAK, USA), Elif Haytaoglu (Pamukkale University, Turkey)	3351