Curriculum Vitae

Giuseppe Caire, Ph.D.
Professor
Faculty IV (Electrical Engineering and Computer Science)
Department of Communication Systems
Technische Universität Berlin

August 2022

1 Education

1. *Politecnico di Torino*, Turin (Italy),
   Doctorate of Philosophy, Electrical Engineering (September, 1994)

2. *Princeton University*, Princeton NJ (USA),
   Master of Science, Electrical Engineering (May, 1992)

3. *Politecnico di Torino*, Turin (Italy),
   Bachelor of Science, Electrical Engineering (*summa cum laude*) (February, 1990)

2 Employment History

1. Full Professor (W3)
   Chair of Communications and Information Theory
   Technische Universität Berlin, Germany (April 2014 – present)

2. Adjunct Research Professor
   University of Southern California, Los Angeles, CA (June 2016 – present)

3. Full Professor (tenure)
   University of Southern California, Los Angeles, CA (August 2005 – May 2016)

4. Professor
   Eurecom Institute, Sophia-Antipolis (France) (August 1998 – July 2005)

5. Associate Professor,
   University of Parma, Parma (Italy) (1997 – 1998)

6. Assistant Professor
   Politecnico di Torino, Turin (Italy) (1995 – 1997)

7. Young Graduate Trainee (Post-Doc)
   European Space Agency ESTEC, Noordwijk (The Netherlands) (1994 – 1995)

8. Research and Teaching Assistant
   Politecnico di Torino, Turin (Italy) (1992 – 1994)

3 Visiting Appointments

1. Visiting Professor, University of Parma, Information Technology Department, (October 2017 – July 2021)

2. Visiting *Directeur de Recherche*, LSS Laboratory
   CNRS, Gif-sur-Yvette, France, (September 2011 – August 2012)

3. Visiting Professor, EE Department
   University of Sydney, Sydney (Australia) (July – September, 2000)

4. Visiting Research Fellow, EE Department
   Princeton University, Princeton NJ (USA) (July - December 1997)

5. Visiting Research Fellow, Mobile Communications Department
   Eurecom Institute, Sophia-Antipolis (France) (September – December 1996)

4 Major Honors, and Awards

1. 2022, **Elected member of the Berlin Brandenburg Akademie der Wissenschaften (BBAW)**.
2. 2021, **Gottfried Wilhelm Leibniz-Preis of the DFG (Deutsche Forschungsgemeinschaft)**.
3. 2020, **IEEE Communications Society Edwin Howard Armstrong Achievement Award**.
4. 2019, **Leonard G. Abraham Prize for best IEEE JSAC paper**, for the paper

   • Ji, M., Caire, G. and Molisch, A.F., "Wireless device-to-device caching networks: Basic principles and system performance," *IEEE Journal on Selected Areas in Communications*, 34(1), pp.176-189, 2015.
5. 2018, **ERC Advanced Grant** (start date: October 1st, 2018).
6. 2015, **Vodafone Innovation Prize** (awarded by the Vodafone-Stiftung für Forschung in der Mobilkommunikation, Germany).
7. 2015, *Best paper award* of the Ad Hoc and Sensor Networking symposium at ICC 2015 for the paper

   • Sang-Woon Jeon, Song-Nam Hong, Mingyue Ji and Giuseppe Caire, "Caching in Wireless Multihop Device-to-Device Networks," *IEEE Int. Conf. on Commun.* ICC 2015, London, UK.
8. 2013, **Alexander von Humboldt Professorship** (Research Grant of 3.5 Millions of Euros, awarded by the Alexander von Humboldt Foundation, to develop a 5-years research program in Germany).
9. 2011, *Joint IEEE Information Theory and IEEE Communications Society Best Paper Award*, for the paper

   • Caire, G.; Jindal, N.; Kobayashi, M.; Ravindran, N.; "Multiuser MIMO Achievable Rates With Downlink Training and Channel State Feedback," *IEEE Transactions on Information Theory,* Volume: 56 , Issue: 6, Page(s): 2845 - 2866, Year: 2010.
10. 2011, recipient of the **Marie Curie Fellowship** of the EU, FP7-PEOPLE-2010-International Incoming Fellows.
11. 2006, recipient of the **Okawa Foundation Research Award**.
12. 2005 Elected IEEE Fellow.
13. 2004 *Young Authors Award,* at EUSIPCO with Ph.D. student Albert Guillen i Fabregas, for the paper

    • A. Guillen i Fabregas and G. Caire "Impact of Signal Constellation Expansion on Achievable Diversity in Quasistatic Multiple Antenna Channels," EUSIPCO 2004, Vienna, Austria.
14. 2004 *Joint IEEE Information Theory and IEEE Communications Society Best Paper Award*, for the paper

    • G. Caire and S. Shamai, "On the achievable throughput of a multi-antenna Gaussian broadcast channel," *IEEE Trans. on Inform. Theory,* Vol. 49, No. 7, pp. 1691-1706, July 2003.
15. 2003 IEEE Vehicular Technology Society *Jack Neubauer Best System Paper Award*, for the paper

    • D. Boudreau, G. Caire, G. E. Corazza, R. De Gaudenzi, G. Gallinaro, M. Luglio, R. Lyons, J. Romero-Garcia, A. Vernucci, H. Widmer, "Wideband-CDMA for the UMTS/IMT-2000 satellite component," *IEEE Trans. on Vehic. Tech.*, vol. 51, No. 2, pp. 306-331, March 2002.

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16. **William Girling Watson** fellowship of the University of Sydney, 1999.

17. *Young Graduate Trainee Scholarship* of the **European Space Agency**, 1994.

5 Main Research Achievements

G. Caire's research focuses on Information Theory, Communication Theory, and Coding Theory, with special emphasis on wireless communication systems. His major scientific achievements are summarized in chronological order as follows.

1st breakthrough: *Bit-Interleaved Coded Modulation* (*Trans. on IT* 1998, 3189 citations). This modulation scheme has become the de-facto standard for spectrally efficient modulation in fading wireless channels and it is used in WiFi and LTE. Its acronym, BICM, is now a standard term in many textbooks and technical standard document.

2nd breakthrough: *Information theory of power control in fading channels* within the framework of "channels with state information" (*Trans on IT* 1999 with Biglieri and Taricco, and 1999 with Shamai, 879 and 584 citations, respectively).

3rd breakthrough: *Solution of the "diversity–multiplexing tradeoff" problem* of space-time coding by discovering the first constructive family of tradeoff-optimal space-time codes and their efficient lattice decoding (*Trans. on IT* 2004, and *Trans. on IT* 2003, 353 and 1331 citations, respectively).

4th breakthrough: *Fundamental understanding of the capacity of the MIMO vector broadcast channel* (*Trans. on IT* 2003, and *Trans. on IT* 2011, 2998 and 634 citations, respectively, both recipient of the **Joint best paper award of the IEEE ITsoc and Comsoc**). This theory lays the foundation of multiuser MIMO, including CoMP, C-RAN, and massive MIMO.

5th breakthrough: *Joint Space-Division and Multiplexing (JSDM)* (*Trans. on IT 2014*, 1117 citations). JSDM represents the theoretical foundation of hybrid digital-analog beamforming, and it is widely referenced now in the context of mmWave system design for 5G.

6th breakthrough: *Pioneering work on wireless caching* (aka, "FemtoCaching") and the characterization of scaling laws of wireless networks with caching at the nodes (sequence of papers starting with *INFOCOM* 2012 to present, collecting more than 5000 citations). Wireless edge caching has recently gained enormous traction, and the PI's recent results (since 2012) are at the basis of his ERC Advacnced Grant Project. Recently, his JSAC paper on device-to-device wireless caching received the 2019 Leonard G. Abraham Prize for best IEEE JSAC paper.

7th breakthrough: *Pioneering work on information theoretic privacy in coded caching systems* (*Trans. on IT* 2020 and 2022. These pioneering works open a very rich research field that now counts hundreds of publications from several groups around the world.

6 Mentoring of junior scientists

6.1 Ph.D. Students (selected list)

1. **Daniela Tuninetti (F)**, (now: full professor at the University of Illinois, Chicago);

2. **Albert Guillen i Fabregas**, (now: professor at Cambridge University, Cambridge, UK);

3. **Alessandro Nordio**, (now: research director at the National Research Council (CNR), Torino Italy);

4. **Mari Kobayashi (F)**, (now: full professor at Centrale-Supelec, Paris, France);

5. **Raj K. Kumar**, (now: Qualcomm India, Bangalore);
6. **Stefania Sesia (F)**, (now: Ericsson, Sophia Antipolis, France);
7. **Ozgun Bursalioglu (F)**, (now: Google-X research , Mountain View, CA);
8. **Hooman Shirani-Mehr**, (now: Intel Wireless Networks, Oregon);
9. **Hoon Huh**, (now: Samsung, Korea).
10. **Song-Nam Hong** (now: assistant professor at Andong National University, Korea);
11. **Ansuman Adhikary** (now: Qualcomm, Bangalore).
12. **Mingyue Ji** (now: assistant professor at the University of Utah).
13. **Vasileios Ntranos** (now: assistant professor in the Pathology and Laboratory Medicine, University of Pennsylvania Perelman School of Medicine, University of Pennsylvania).
14. **Andreas Benzin** (now: Post-Doc at Technische Universität Berlin).
15. **Xiaoshen Song (F)** (now: Qualcomm Sweden).
16. **Alexander Fengler** (now: recipient of a DAAD postdoctoral fellowship and research fellow at MIT with Prof. Yuri Polyanskiy)
17. **Mahdi Barzegar Khalilsarai** (now: Post-Doc at Technische Universität Berlin).

6.2 Recently supervised post-doctoral researchers

1. **Yinping Li** (now: assistant professor at Liverpool University, Liverpool, UK);
2. **Hamdi Joudeh** (now: assistant professor at the Technical University of Eindhoven, NL);
3. **Kai Wan** (now: associate professor at the department of Electronic information and Communications, Huazhong University of Science and Technology, PR China).
4. **Hao Xu** Humboldt Research Fellow at TU Berlin.

7 Major Grants and Funded Projects in the past 5 years

1. 6G Research Hub "6G-RIC", funded by the Bundesministerium für Bildung und Forschung (BMBF) with a total of 70 Millions of Euros for 5 years. The total funding for the CommIT group led by G. Caire in the 6G-RIC is 1.3 Millions.
2. Huawei – TU Berlin Joint Innovation Center, endowed by Huawei with 2.8 Millions of Euros over 5 years.
3. Leibniz Research Grant (connected with the Leibniz Preis, DFG): 2.5 Millions of Euros of unrestricted research funds.
4. ERC Advanced Grant CARENET, 2.5 Million of Euros over 5 years for research on coded caching.
5. DFG Project *SENCOM: Sensing und Kommunikation in Netzwerken mit hoher Mobilität und hoher Richtwirkung* (international collaboration program with University of Luxembourg). The funding for G. Caire amounts to ≈ 300 Keuros in 3 years.
6. DFG Project *Informationstheorie und Wellenformen für die gemeinsame Kanalschätzung und Kommunikation in mobilitätsorientierten Netzwerken.* Single PI grant, with funding of $\approx 300,000$ Euros in 3 years.

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7. DFG Project *Koordinierte optische Drahtlosnetze.* Single PI grant, with funding of $\approx 300,000$ Euros in 3 years.

8. DFG Schwerpunkt Program CoSIP: *Compressive Covariance Estimation for Massive MIMO (CoCoMiMo).* Single PI grant, with funding of $\approx 300,000$ Euros in 3 years.

9. DFG Schwerpunkt Program CoSIP: *Strukturiertes Compressive Sensing mittels gelernten neuronalen Netzen (SCoSNeL).* Single PI grant, with funding of $\approx 300,000$ Euros in 3 years.

10. DFG Schwerpunkt Program CoSIP: *Compressed Sensing Algorithmen für große, strukturierte MIMO Systeme – Phase II: Von massiven MIMO zu massiven drahtlosen Netzwerken.* Single PI grant, with funding of $\approx 300,000$ Euros in 3 years.

8 Professional Societies and Service to the Scientific Community

8.1 Membership and Governance

- IEEE (Student Member, 1992, Member, 1994, Senior Member, 2003, IEEE Fellow 2005).
- IEEE Information Theory Society governance: Member of the Board of Governors (2005 – 2008), second Vice President (2009), first Vice President (2010), **President of the IEEE Information Theory Society** (2011).
- Member of the Berlin-Brandenburg Akademie der Wissenschaften BBAW (2022).

8.2 Associate and Guest Editorship

1. Guest co-Editor for the Special Issue on *Integrating Sensing into Communications in Multifunctional Networks* of the IEEE Communications Magazine, 2022.

2. Member of the Editorial Advisory Board of the *IEEE Journal on Selected Areas in Information Theory* (2019–present)

3. Guest co-Editor for the Special Issue on *Caching for Communication Systems and Networks* of the Journal on Selected Areas in Communications (JSAC), 2018.

4. Guest co-Editor for the Special Issue on *Physical layer security for 5G wireless networks* of the Journal on Selected Areas in Communications (JSAC), 2017.

5. Chair of the Appeals Committee of the IEEE Transactions on Information Theory (2013).

6. Guest co-Editor for the Special Issue on *Bit-Interleaved Coded Modulation* of the *Journal on Selected Areas in Communications* JSAC, 2013.

7. Guest co-Editor for the Special Issue on *Massive MIMO* of the *Journal of Communication Networks* (JCN), 2012.

8. Guest co-Editor for the Special Issue on *New Directions in Information Theory* of the European Transactions on Telecommunications (2008).

9. Associate editor of *IEEE Transactions on Information Theory,* for the area of *Communications* (2001–2003)

10. Guest co-Editor for the Special Issue on *Space-Time Transmission, Reception, Coding and Signal Processing,* IEEE Transactions on Information Theory, October 2003.

11. Associate editor of *Foundations and Trends in Communications and Information Technology,* NOW (the essence of knowledge). (2003–present)

12. Associate editor of *JCN, Journal of Communications and Networks,* (Journal of the Korean Institute for Communication Sciences), for the area of *Modulation and Coding* (1998–2001)

13. Associate editor of *IEEE Transactions on Communications,* for the area of *CDMA Systems and Multiuser Detection* (1998–2001)

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8.3 Conference Organization (selected list)

1. General co-chair, 2020 IEEE Int. Symp. on Inform. Theory (ISIT), Los Angeles, 2020.
2. Technical Program co-chair, 2019 IEEE Int. Symp. on Inform. Theory (ISIT), Paris, 2019.
3. General chair, 2017 ITG-VDE Workshop on Smart Antennas (WSA), Berlin, March 2017.
4. Technical Program co-chair, IEEE Communication Theory Workshop (CTW) 2016.
5. Technical Program co-chair, IEEE Ad-Hoc and Sensor Network Symposium in Globecom 2016.
6. General co-chair, Compressed Sensing and Applications (CSA) workshop, Berlin 2015.
7. General co-chair, 2015 IEEE Information Theory Workshop, Jeju Island, Korea, 2015.
8. Technical Program co-chair, 2012 IEEE Int. Symp. on Inform. Theory (ISIT 2012), Cambridge MA, USA.
9. Workshop co-chair, 2012 - 2013 - 2014 - 2015 ICC, Workshop on Small Cell Wireless Networks (SmallNets).
10. Symposia co-chair, International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt) 2011.
11. Technical Program co-chair, IEEE SMARTGRIDCOMM 2010, 1st IEEE International Conference on Smart Grid Communications.
12. Technical Program co-chair, IEEE Communication Theory Workshop (CTW), 2009.
13. Technical Program co-chair, International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt), 2008.
14. General co-chair, 2007 IEEE Int. Symp. on Inform. Theory (ISIT 2007), Nice, France.
15. Publication chair, 2000 IEEE Int. Symp. on Inform. Theory (ISIT 2000), Sorrento, Italy.

9 Managing Responsibilities and Technology Leadership

9.1 Managing Responsibilities

- G. Caire is the director of the CommIT Chair at TUB, presently including 5 post-doctoral researchers, 10 PhD students, and several international visitors funded by EU, by German Mobility Programs (German Academic Exchange Service (DAAD)), German Research Foundation (DFG), and the Alexander von Humboldt Foundation. Research at the CommIT Chair is funded by structural funds from TUB, by grants from DFG, BMBF, EU H2020, EU-ERC, and the Alexander von Humboldt Foundation, as well as by corporate research projects with Huawei, DoCoMo, and Intel.
- Starting in April 2021, G. Caire is the director of the Huawei – TU Berlin Joint Innovation Center focused on fundamental research in wireless technology and in particular on 6G, i.e., the next generation of wireless systems. The center is endowed by Huawei with 2.8 Millions of Euros over 5 years.
- Starting in August 2021, G. Caire is one of the PIs of the 6G Research Hub "6G-RIC", funded by the Bundesministerium für Bildung und Forschung (BMBF) with a total of 70 Millions of Euros for 5 years. The total funding for the CommIT group led by G. Caire in the 6G-RIC is 1.3 Millions.
- G. Caire is also one of the founding PIs in BIFOLD https://bifold.berlin/, The Berlin Institute for the Foundations of Learning and Data, founded in 2019. BIFOLD conducts foundational research in big data management and machine learning, as well as its intersection, to educate future talent, and create high-impact knowledge exchange.

9.2 Leadership in Industrial Innovation

1. G. Caire is the co-founder of SpaceMUX (2013-2014), developing original technology for distributed multiuser MIMO in last generation WiFi networks ("Airsync: enabling distributed multiuser MIMO with full multiplexing gain." U.S. Patent No. 8,995,410. 31 Mar. 2015; "Composite beamforming to coordinate concurrent WLAN links." U.S. Patent No. 9,479,240. 25 Oct. 2016).

2. G. Caire is a scientific advisor for Artemis Networks, a Silicon Valley startup developing distributed multiuser MIMO for LTE.

3. Co-inventor of 24 patents, including "System and method for lossy source-channel coding at the application layer," U.S. Patent No. 9,131,238. 8 Sep. 2015, and "Predictive network system and method," U.S. Patent No. 9,680,766 B2. Jun. 13, 2017.

4. G. Caire is a co-founder of Massive Beams GmbH (founded in 2022), a spinoff of TU Berlin dedicated to the implementation of Open-RAN advanced multiantenna radio units for 5G and 6G. Massive Beams GmbH has collected so far about 500kEuros of venture capital investments.

5. G. Caire is the academic advisor of MOXZ, a spinoff of TU Berlin that obtained in 2022 an EXIST-Forschungstransfer Projekt of the Bunderministerium für Bildung und Forschung (BMBF), and is presently hosted in the CommIT group at TU Berlin while preparing to incorporate in 2023. The topic of the spinoff is a new type of ultra-wideband modulation for extremely low delay communications, and high resolution radar ranging.

Publications

Giuseppe Caire, Ph.D.
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Department of Communication Systems
Technische Universität Berlin

August 2022

1 Bibliometric Quantitative Summary

G. Caire to date has co-authored 227 peer-reviewed journal papers and 395 peer-reviewed conference papers.

According to Google Scholar (August 2022):

`http://scholar.google.com/citations?hl=en&user=g66ErTcAAAAJ`

Giuseppe Caire has 40236 total citations and h-index equal to 82. Since 2017 he has 16945 citations and h-index equal to 58.

He was listed as a highly cited author of ISI Thompson-Reuters web of science and included in the list of World's Most Influential Scientific Minds in 2014, and in the Clarivate Web of Science highly cited authors list in 2017-2022.

Giuseppe Caire's ORCID is:

`https://orcid.org/0000-0002-7749-1333`

2 Peer-Reviewed Journal Articles

Presentation is in reverse chronological order.

1. Mehrasa Ahmadipour; Mari Kobayashi; Michale Wigger; Giuseppe Caire "An Information-Theoretic Approach to Joint Sensing and Communication," IEEE Transactions on Information Theory, Year: 2022 — Early Access Article

2. Meysam Goodarzi; Vladica Sark; Nebojsa Maletic; Jesus Gutierrez Teran; Giuseppe Caire; Eckhard Grass, "DNN-Assisted Particle-Based Bayesian Joint Synchronization and Localization," IEEE Transactions on Communications, Vol. 70, No. 7, 2022

3. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti, Giuseppe Caire, "On the Fundamental Limits of Device-to-Device Private Caching Under Uncoded Cache Placement and User Collusion," IEEE Transactions on Information Theory, Vol. 68, No. 9, 2022

4. Kai Wan, Minquan Cheng, Mari Kobayashi, Giuseppe Caire, "On the Optimal Memory-Load Tradeoff of Coded Caching for Location-Based Content," IEEE Transactions on Communications, Vol. 70, No. 5, 2022

5. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti, Giuseppe Caire, "Cache-Aided Matrix Multiplication Retrieval," IEEE Transactions on Information Theory, Vol. 86, No. 7, 2022

6. Han Yu, Xinping Yi, Giuseppe Caire, "Downlink Precoding for DP-UPA FDD Massive MIMO via Multi-Dimensional Active Channel Sparsification," IEEE Transactions on Wireless Communications, Vol. 21, No. 8, 2022

7. Han Yu, Xinping Yi, Giuseppe Caire, "Topological Pilot Assignment in Large-Scale Distributed MIMO Networks," IEEE Transactions on Wireless Communications, Vol. 21, No. 8, 2022

8. Hao Xu, Tianyu Yang, Kai-Kit Wong, Giuseppe Caire, "Achievable Regions and Precoder Designs for the Multiple Access Wiretap Channels with Confidential and Open Messages," IEEE Journal on Selected Areas in Communications, Vol. 40, No. 5, 2022

9. Alexander Fengler, Osman Musa, Peter Jung, Giuseppe Caire, "Pilot-Based Unsourced Random Access with a Massive MIMO Receiver, Interference Cancellation, and Power Control," IEEE Journal on Selected Areas in Communications, Vol. 40, No. 5, 2022

10. Kai Wan, Hua Sun, Mingyue Ji, Giuseppe Caire "On Secure Distributed Linearly Separable Computation," IEEE Journal on Selected Areas in Communications, Vol. 40, No. 3, 2022

11. Won Joon Yun, Dohyun Kwon, Minseok Choi, Joongheon Kim, Giuseppe Caire, Andreas F. Molisch, "Quality-Aware Deep Reinforcement Learning for Streaming in Infrastructure-Assisted Connected Vehicles," IEEE Transactions on Vehicular Technology, Vol. 71, No. 2, 2022

12. Kai Wan, Hua Sun, Mingyue Ji, Giuseppe Caire, "Distributed Linearly Separable Computation," IEEE Transactions on Information Theory, Vol. 68, No. 2, 2022

13. Mahdi Barzegar Khalilsarai, Tianyu Yang, Saeid Haghighatshoar, Xinping Yi, Giuseppe Caire, "Dual-Polarized FDD Massive MIMO: A Comprehensive Framework," IEEE Transactions on Wireless Communications, Vol. 21, No. 2, 2022

14. Lorenzo Gaudio, Giulio Colavolpe, Giuseppe Caire, "OTFS vs. OFDM in the Presence of Sparsity: A Fair Comparison," IEEE Transactions on Wireless Communications, Vol. 21, No. 6, 2022

15. Kai Wan;Hua Sun;Mingyue Ji;Giuseppe Caire "On the Tradeoff Between Computation and Communication Costs for Distributed Linearly Separable Computation," IEEE Transactions on Communications, Vol. 69, No. 11, 2021

16. Bruno Clerckx, Yijie Mao, Robert Schober, Eduard A. Jorswieck, David J. Love, Jinhong Yuan, Lajos Hanzo, Geoffrey Ye Li, Erik G. Larsson, Giuseppe Caire, "Is NOMA Efficient in Multi-Antenna Networks? A Critical Look at Next Generation Multiple Access Techniques," IEEE Open Journal of the Communications Society, Year: 2021, Vol. 2.

17. Minquan Cheng; Kai Wan;Dequan Liang; Mingming Zhang; Giuseppe Caire "A Novel Transformation Approach of Shared-link Coded Caching Schemes for Multiaccess Networks," IEEE Transactions on Communications, Year: 2021, Vol. 69, No. 11.

18. Hamdi Joudeh; Giuseppe Caire "Cellular Networks With Finite Precision CSIT: GDoF Optimality of Multi-Cell TIN and Extremal Gains of Multi-Cell Cooperation," IEEE Transactions on Information Theory, Year: 2021, Vol. 67, No. 10.

19. Xiang Zhang; Kai Wan; Hua Sun; Mingyue Ji; Giuseppe Caire "On the Fundamental Limits of Cache-aided Multiuser Private Information Retrieval," IEEE Transactions on Communications, Year: 2021, Vol. 69, No. 9.

20. Xiaoshen Song; Yahya H. Ezzeldin; Giuseppe Caire; Christina Fragouli "Efficient Beam Scheduling for Half-Duplex mmWave Relay Networks," IEEE Transactions on Communications, Year: 2021, Vol. 69, No. 9.

21. Alexander Fengler; Peter Jung; Giuseppe Caire "SPARCs for Unsourced Random Access," IEEE Transactions on Information Theory, Year: 2021, Vol. 67, No. 10.

22. Hamdi Joudeh; Eleftherios Lampiris; Petros Elia; Giuseppe Caire "Fundamental Limits of Wireless Caching Under Mixed Cacheable and Uncacheable Traffic," IEEE Transactions on Information Theory Year: 2021 – Volume: 67, Issue: 7

23. Elnaz Alizadeh Jarchlo, Elizabeth Eso, Hossein Doroud, Anatolij Zubow, Falko Dressler, Zabih Ghassemlooy, Bernhard Siessegger, Giuseppe Caire, "FDLA: A Novel Frequency Diversity and Link Aggregation Solution for Handover in an Indoor Vehicular VLC Network," IEEE Transactions on Network and Service Management, Year: 2021, Vol. 18, No. 3.

24. Kai Wan; Hua Sun; Mingyue Ji; Daniela Tuninetti; Giuseppe Caire "On the Optimal Load-Memory Tradeoff of Cache-Aided Scalar Linear Function Retrieval," IEEE Transactions on Information Theory Year: 2021 – Volume: 67, Issue: 6

25. Alexander Fengler; Saeid Haghighatshoar; Peter Jung; Giuseppe Caire "Non-Bayesian Activity Detection, Large-Scale Fading Coefficient Estimation, and Unsourced Random Access With a Massive MIMO Receiver," IEEE Transactions on Information Theory Year: 2021 – Volume: 67, Issue: 5

26. Mozhgan Bayat; Kai Wan;Giuseppe Caire "Coded Caching Over Multicast Routing Networks," IEEE Transactions on Communications Year: 2021 – Volume: 69, Issue: 6

27. Samim Ahmadi; Gregor Thummerer; Stefan Breitwieser; Günther Mayr; Julien Lecompagnon; Peter Burgholzer; Peter Jung; Giuseppe Caire; Mathias Ziegler "Multidimensional Reconstruction of Internal Defects in Additively Manufactured Steel Using Photothermal Super Resolution Combined With Virtual Wave-Based Image Processing," IEEE Transactions on Industrial Informatics Year: 2021 – Volume: 17, Issue: 11

28. Ron Levie; Cagkan Yapar; Gitta Kutyniok; Giuseppe Caire "RadioUNet: Fast Radio Map Estimation With Convolutional Neural Networks," IEEE Transactions on Wireless Communications Year: 2021 – Volume: 20, Issue: 6

29. Kai Wan; Daniela Tuninetti; Mingyue Ji; Giuseppe Caire "On the Fundamental Limits of Fog-RAN Cache-Aided Networks With Downlink and Sidelink Communications," IEEE Transactions on Information Theory Year: 2021 – Volume: 67, Issue: 4

30. Kai Wan and Giuseppe Caire "On Coded Caching With Private Demands," IEEE Transactions on Information Theory, Year: 2021 – Volume: 67, Issue: 1.

31. Yahya H. Ezzeldin, Martina Cardone, Christina Fragouli, and Giuseppe Caire, "Gaussian 1-2-1 Networks: Capacity Results for mmWave Communications." IEEE Transactions on Information Theory, Year: 2021, Volume: 67, Issue: 2.

32. Yahya H. Ezzeldin, Martina Cardone, Christina Fragouli, and Giuseppe Caire, "Gaussian 1-2-1 Networks: Capacity Results for mmWave Communications." IEEE Transactions on Information Theory. Year: 2020, early access article.

33. Hamdi Joudeh, Xinping Yi, Bruno Clerckx, and Giuseppe Caire, "On the Optimality of Treating Inter-Cell Interference as Noise: Downlink Cellular Networks and Uplink-Downlink Duality," IEEE Transactions on Information Theory, Year: 2020 — Volume: 66, Issue: 11.

34. Lorenzo Gaudio, Mari Kobayashi, Giuseppe Caire, and Giulio Colavolpe, "On the Effectiveness of OTFS for Joint Radar Parameter Estimation and Communication," IEEE Transactions on Wireless Communications Year: 2020 — Volume: 19, Issue: 9.

35. Chang Tian, An Liu, Mahdi Barzegar Khalilsarai, Giuseppe Caire, Wu Luo, and Min-Jian Zhao, "Randomized Channel Sparsifying Hybrid Precoding for FDD Massive MIMO Systems," IEEE Transactions on Wireless Communications, Year: 2020 — Volume: 19, Issue: 8.

36. Soheil Mohajer ; Itsik Bergel ; Giuseppe Caire, "Cooperative Wireless Mobile Caching: A Signal Processing Perspective," IEEE Signal Processing Magazine, Year: 2020, Volume: 37, Issue: 2.

37. Yongpeng Wu ; Xiqi Gao ; Shidong Zhou ; Wei Yang ; Yury Polyanskiy ; Giuseppe Caire, "Massive Access for Future Wireless Communication Systems," *IEEE Wireless Communications*, Year: 2020.

38. Kai Wan ; Daniela Tuninetti ; Mingyue Ji ; Giuseppe Caire ; Pablo Piantanida, "Fundamental Limits of Decentralized Data Shuffling," *IEEE Transactions on Information Theory,* Year: 2020.

39. Junyoung Nam ; Giuseppe Caire ; Mérouane Debbah ; H. Vincent Poor, "Capacity Scaling of Massive MIMO in Strong Spatial Correlation Regimes," *IEEE Transactions on Information Theory,* Year: 2020, Volume: 66, Issue: 5.

40. Xiaoshen Song ; Thomas K uhne ; Giuseppe Caire, "Fully-/Partially-Connected Hybrid Beamforming Architectures for mmWave MU-MIMO," *IEEE Transactions on Wireless Communications,* Year: 2020, Volume: 19, Issue: 3.

41. Hao Xu ; Giuseppe Caire ; Wei Xu ; Ming Chen, "Weighted Sum Secrecy Rate Maximization for D2D Underlaid Cellular Networks," *IEEE Transactions on Communications,* Year: 2020, Volume: 68, Issue: 1.

42. Jiwook Choi ; Namyoon Lee ; Song-Nam Hong ; Giuseppe Caire, "Joint User Selection, Power Allocation, and Precoding Design With Imperfect CSIT for Multi-Cell MU-MIMO Downlink Systems," *IEEE Transactions on Wireless Communications,* Year: 2020, Volume: 19, Issue: 1.

43. Jiwook Choi ; Namyoon Lee ; Song-Nam Hong ; Giuseppe Caire, "Joint User Selection, Power Allocation, and Precoding Design with Imperfect CSIT for Multi-Cell MU-MIMO Downlink Systems," *IEEE Transactions on Wireless Communications*, Year: 2019, Early Access Article.

44. Cagkan Yapar ; Kai Wan ; Rafael F. Schaefer ; Giuseppe Caire, "On the Optimality of D2D Coded Caching with Uncoded Cache Placement and One-shot Delivery," *IEEE Transactions on Communications,* Year: 2019, Early Access Article.

45. Ibrahim Rashdan ; Fabian De Ponte Müller ; Thomas Jost ; Stephan Sand ; Giuseppe Caire, "Large-Scale Fading Characteristics and Models for Vehicle-to-Pedestrian Channel at 5-GHz," *IEEE Access,* Year: 2019, Volume: 7.

46. Sian Jin ; Ying Cui ; Hui Liu ; Giuseppe Caire, "A New Order-Optimal Decentralized Coded Caching Scheme With Good Performance in the Finite File Size Regime," *IEEE Transactions on Communications,* Year: 2019, Volume: 67, Issue: 8.

47. Yongpeng Wu, Chao-Kai Wen, Wen Chen, Shi Jin, Robert Schober, and Giuseppe Caire "Data-Aided Secure Massive MIMO Transmission Under the Pilot Contamination Attack," *IEEE Transactions on Communications,* Volume: 67, Issue: 7, pp. 4765 - 4781, 2019.

48. Iñaki Estella Aguerri, Abdellatif Zaidi, Giuseppe Caire, and Shlomo Shamai Shitz "On the Capacity of Cloud Radio Access Networks With Oblivious Relaying," *IEEE Transactions on Information Theory*, Volume: 65, Issue: 7, pp. 4575 - 4596, 2019.

49. Gerhard Wunder ; Stelios Stefanatos ; Axel Flinth ; Ingo Roth ; Giuseppe Caire "Low-Overhead Hierarchically-Sparse Channel Estimation for Multiuser Wideband Massive MIMO," *IEEE Transactions on Wireless Communications* Volume: 18 , Issue: 4, pp. 2186 - 2199, 2019.

50. Sebastian Schiessl ; James Gross ; Mikael Skoglund ; Giuseppe Caire "Delay Performance of the Multiuser MISO Downlink Under Imperfect CSI and Finite-Length Coding," *IEEE Journal on Selected Areas in Communications,* Volume: 37 , Issue: 4, pp. 765 - 779, 2019.

51. Xiaoshen Song ; Saeid Haghighatshoar ; Giuseppe Caire "Efficient Beam Alignment for Millimeter Wave Single-Carrier Systems With Hybrid MIMO Transceivers," *IEEE Transactions on Wireless Communications*, Volume: 18 , Issue: 3, pp. 1518 - 1533, 2019

52. Andreas Benzin ; Giuseppe Caire ; Yonatan Shadmi ; Antonia M. Tulino "Low-Complexity Truncated Polynomial Expansion DL Precoders and UL Receivers for Massive MIMO in Correlated Channels," *IEEE Transactions on Wireless Communications,* Volume: 18 , Issue: 2, pp. 1069 - 1084, 2019.

53. Ozgun Y. Bursalioglu ; Giuseppe Caire ; Ratheesh K. Mungara ; Haralabos C. Papadopoulos ; Chenwei Wang "Fog Massive MIMO: A User-Centric Seamless Hot-Spot Architecture," *IEEE Transactions on Wireless Communications*, Year: 2019 , Volume: 18 , Issue: 1 Pages: 559 - 574

54. Mahdi Barzegar Khalilsarai ; Saeid Haghighatshoar ; Xinping Yi ; Giuseppe Caire "FDD Massive MIMO via UL/DL Channel Covariance Extrapolation and Active Channel Sparsification," *IEEE Transactions on Wireless Communications*, Volume: 18 , Issue: 1, pp. 121 - 135, 2019.

55. Behrooz Makki ; Tommy Svensson ; Giuseppe Caire ; Michele Zorzi "Fast HARQ Over Finite Blocklength Codes: A Technique for Low-Latency Reliable Communication," *IEEE Transactions on Wireless Communications*, Volume: 18 , Issue: 1, 194 - 209, 2019.

56. Mozhgan Bayat ; Ratheesh K. Mungara ; Giuseppe Caire "Achieving Spatial Scalability for Coded Caching via Coded Multipoint Multicasting," *IEEE Transactions on Wireless Communications*, Volume: 18 , Issue: 1, pp. 227 - 240, 2019.

57. Song-Nam Hong ; Dennis Hui ; Ivana Maric ; Giuseppe Caire "On the Achievable Rates of Virtual Full-Duplex Relay Channel," *IEEE Transactions on Information Theory*, Volume: 65 , Issue: 1, pp. 354 - 367, 2019.

58. Georgios S. Paschos ; George Iosifidis ; Meixia Tao ; Don Towsley ; Giuseppe Caire "Guest Editorial Caching for Communication Systems and Networks – Part II," *IEEE Journal on Selected Areas in Communications*, Year: 2018 , Volume: 36 , Issue: 8 Pages: 1663 - 1665

59. Georgios S. Paschos ; George Iosifidis ; Meixia Tao ; Don Towsley ; Giuseppe Caire "The Role of Caching in Future Communication Systems and Networks," *IEEE Journal on Selected Areas in Communications*, Year: 2018 , Volume: 36 , Issue: 6 Pages: 1111 - 1125

60. Yilin Li ; Jian Luo ; Mario H. Castañeda Garcia ; Ronald Böhnke ; Richard A. Stirling-Gallacher ; Wen Xu ; Giuseppe Caire "On the Beamformed Broadcasting for Millimeter Wave Cell Discovery: Performance Analysis and Design Insight," *IEEE Transactions on Wireless Communications* Year: 2018 , Volume: 17 , Issue: 11 Pages: 7620 - 7634

61. Mahdi Nouri Boroujerdi ; Saeid Haghighatshoar ; Giuseppe Caire "Low-Complexity Statistically Robust Precoder/Detector Computation for Massive MIMO Systems," *IEEE Transactions on Wireless Communications*, Year: 2018 , Volume: 17 , Issue: 10 Pages: 6516 - 6530

62. Xinping Yi ; Giuseppe Caire "Topological Interference Management With Decoded Message Passing," *IEEE Transactions on Information Theory,* Year: 2018, Volume: 64, Issue: 5 Pages: 3842 - 3864

63. An Liu ; Vincent K. N. Lau ; Giuseppe Caire "Cache-Induced Hierarchical Cooperation in Wireless Device-to-Device Caching Networks," *IEEE Transactions on Information Theory,* Year: 2018, Volume: 64, Issue: 6 Pages: 4629 - 4652

64. Onur Günlü ; Kittipong Kittichokechai ; Rafael F. Schaefer ; Giuseppe Caire "Controllable Identifier Measurements for Private Authentication With Secret Keys," *IEEE Transactions on Information Forensics and Security,* Year: 2018, Volume: 13, Issue: 8 Pages: 1945 - 1959

65. Giuseppe Caire "On the Ergodic Rate Lower Bounds With Applications to Massive MIMO," *IEEE Transactions on Wireless Communications,* Year: 2018, Volume: 17, Issue: 5 Pages: 3258 - 3268

66. Yongpeng Wu ; Ashish Khisti ; Chengshan Xiao ; Giuseppe Caire ; Kai-Kit Wong ; Xiqi Gao "A Survey of Physical Layer Security Techniques for 5G Wireless Networks and Challenges Ahead," *IEEE Journal on Selected Areas in Communications,* Year: 2018, Volume: 36, Issue: 4 Pages: 679 - 695

67. Yongpeng Wu ; Ashish Khisti ; Chengshan Xiao ; Giuseppe Caire ; Kai-Kit Wong ; Xiqi Gao "Guest Editorial Physical Layer Security for 5G Wireless Networks, Part I," *IEEE Journal on Selected Areas in Communications,* Year: 2018, Volume: 36, Issue: 4 Pages: 675 - 678

68. Xiaoshen Song ; Saeid Haghighatshoar ; Giuseppe Caire "A Scalable and Statistically Robust Beam Alignment Technique for Millimeter-Wave Systems," *IEEE Transactions on Wireless Communications,* Year: 2018, Volume: 17, Issue: 7 Pages: 4792 - 4805

69. Zheng Chu; Huan X. Nguyen; Giuseppe Caire "Game Theory-Based Resource Allocation for Secure WPCN Multiantenna Multicasting Systems," *IEEE Transactions on Information Forensics and Security*, Volume: 13, Issue: 4, Pages: 926 - 939, Year: 2018.

70. Saeid Haghighatshoar; Giuseppe Caire, "Signal Recovery From Unlabeled Samples," *IEEE Transactions on Signal Processing*, Volume: 66, Issue: 5, Pages: 1242 - 1257, Year: 2018.

71. Saeid Haghighatshoar; Giuseppe Caire "Low-Complexity Massive MIMO Subspace Estimation and Tracking From Low-Dimensional Projections," *IEEE Transactions on Signal Processing,* Volume: 66, Issue: 7, Pages: 1832 - 1844, Year: 2018.

72. Saeid Haghighatshoar; Giuseppe Caire "Massive MIMO Pilot Decontamination and Channel Interpolation via Wideband Sparse Channel Estimation," *IEEE Transactions on Wireless Communications,* Volume: 16, Issue: 12, Pages: 8316 - 8332, Year: 2017.

73. Yongxiong Ren; Long Li; Guodong Xie; Yan Yan; Yinwen Cao; Hao Huang; Nisar Ahmed; Zhe Zhao; Peicheng Liao; Chongfu Zhang; Giuseppe Caire; Andreas F. Molisch; Moshe Tur; Alan E. Willner, "Line-of-Sight Millimeter-Wave Communications Using Orbital Angular Momentum Multiplexing Combined With Conventional Spatial Multiplexing," IEEE Transactions on Wireless Communications, Year: 2017, Volume: 16, Issue: 5 Pages: 3151 - 3161, DOI: 10.1109/TWC.2017.2675885

74. Mingyue Ji; Antonia M. Tulino; Jaime Llorca; Giuseppe Caire "Order-Optimal Rate of Caching and Coded Multicasting With Random Demands," IEEE Transactions on Information Theory Year: 2017, Volume: 63, Issue: 6 Pages: 3923 - 3949, DOI: 10.1109/TIT.2017.2695611

75. Yilin Li; Emmanouil Pateromichelakis; Nikola Vucic; Jian Luo; Wen Xu; Giuseppe Caire "Radio Resource Management Considerations for 5G Millimeter Wave Backhaul and Access Networks," IEEE Communications Magazine, Year: 2017, Volume: 55, Issue: 6, Pages: 86 - 92, DOI: 10.1109/MCOM.2017.1601118

76. Junyoung Nam; Giuseppe Caire; Jeongseok Ha "On the Role of Transmit Correlation Diversity in Multiuser MIMO Systems," IEEE Transactions on Information Theory Year: 2017, Volume: 63, Issue: 1, Pages: 336 - 354, DOI: 10.1109/TIT.2016.2615627

77. Kim Mahler; Wilhelm Keusgen; Fredrik Tufvesson; Thomas Zemen; Giuseppe Caire, "Measurement-Based Wideband Analysis of Dynamic Multipath Propagation in Vehicular Communication Scenarios," IEEE Transactions on Vehicular Technology, Year: 2017, Volume: 66, Issue: 6, Pages: 4657 - 4667, DOI: 10.1109/TVT.2016.2621239

78. Kim Mahler; Wilhelm Keusgen; Fredrik Tufvesson; Thomas Zemen; Giuseppe Caire, "Tracking of Wideband Multipath Components in a Vehicular Communication Scenario," IEEE Transactions on Vehicular Technology Year: 2017, Volume: 66, Issue: 1, Pages: 15 - 25, DOI: 10.1109/TVT.2016.2536999

79. Sang-Woon Jeon; Song-Nam Hong; Mingyue Ji; Giuseppe Caire; Andreas F. Molisch, "Wireless Multihop Device-to-Device Caching Networks," IEEE Transactions on Information Theory,Year: 2017, Volume: 63, Issue: 3, Pages: 1662 - 1676, DOI: 10.1109/TIT.2017.2654341

80. Saeid Haghighatshoar; Giuseppe Caire "Massive MIMO Channel Subspace Estimation From Low-Dimensional Projections," IEEE Transactions on Signal Processing, Year: 2017, Volume: 65, Issue: 2 Pages: 303 - 318

81. Bobak Nazer; Viveck R. Cadambe; Vasilis Ntranos; Giuseppe Caire "Expanding the Compute-and-Forward Framework: Unequal Powers, Signal Levels, and Multiple Linear Combinations," IEEE Transactions on Information Theory, Year: 2016, Volume: 62, Issue: 9 Pages: 4879 - 4909

82. Kittipong Kittichokechai; Giuseppe Caire "Secret Key-Based Identification and Authentication With a Privacy Constraint," IEEE Transactions on Information Theory, Year: 2016, Volume: 62, Issue: 11 Pages: 6189 - 6203

83. Xinping Yi; Giuseppe Caire "Optimality of Treating Interference as Noise: A Combinatorial Perspective," IEEE Transactions on Information Theory, Year: 2016, Volume: 62, Issue: 8 Pages: 4654 - 4673

84. Georgios Paschos; Ejder Bastug; Ingmar Land; Giuseppe Caire; Merouane Debbah "Wireless caching: technical misconceptions and business barriers," IEEE Communications Magazine, Year: 2016, Volume: 54, Issue: 8 Pages: 16 - 22

85. Vishnu V. Ratnam; Andreas F. Molisch; Giuseppe Caire, "Capacity Analysis of Interlaced Clustering in a Distributed Transmission System With/Without CSIT," *IEEE Transactions on Wireless Communications* Year: 2016, Volume: 15, Issue: 4, Pages: 2629 - 2641.

86. M. Ji; G. Caire; A. F. Molisch "Wireless Device-to-Device Caching Networks: Basic Principles and System Performance," IEEE Journal on Selected Areas in Communications Year: 2016, Volume: 34, Issue: 1, Pages: 176 - 189.

87. M. Ji; G. Caire; A. F. Molisch "Fundamental Limits of Caching in Wireless D2D Networks," IEEE Transactions on Information Theory Year: 2016, Volume: 62, Issue: 2, Pages: 849 - 869.

88. D. Bethanabhotla; G. Caire; M. Neely "WiFlix: Adaptive Video Streaming in Massive MU-MIMO Wireless Networks," IEEE Transactions on Wireless Communications Year: 2016, Volume: PP, Issue: 99, Pages: 1 - 1.

89. M. Dai; B. Clerckx; D. Gesbert; G. Caire "A Rate Splitting Strategy for Massive MIMO with Imperfect CSIT," IEEE Transactions on Wireless Communications Year: 2016, Volume: PP, Issue: 99, Pages: 1 - 1.

90. Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery Joongheon Kim; Giuseppe Caire; Andreas F. Molisch IEEE/ACM Transactions on Networking Year: 2016, Volume: 24, Issue: 4 Pages: 2319 - 2331

91. D. Bethanabhotla; O. Y. Bursalioglu; H. C. Papadopoulos; G. Caire "Optimal User-Cell Association for Massive MIMO Wireless Networks," IEEE Transactions on Wireless Communications, Year: 2016, Volume: 15, Issue: 3, Pages: 1835 - 1850.

92. K. Mahler; W. Keusgen; F. Tufvesson; T. Zemen; G. Caire "Tracking of Wideband Multipath Components in a Vehicular Communication Scenario," IEEE Transactions on Vehicular Technology, Year: 2016, Volume: PP, Issue: 99, Pages: 1 - 1.

93. Secure Massive MIMO Transmission With an Active Eavesdropper Yongpeng Wu; Robert Schober; Derrick Wing Kwan Ng; Chengshan Xiao; Giuseppe Caire IEEE Transactions on Information Theory Year: 2016, Volume: 62, Issue: 7 Pages: 3880 - 3900

94. Mingyue Ji; Giuseppe Caire; Andreas F. Molisch, "The Throughput-Outage Tradeoff of Wireless One-Hop Caching Networks," *IEEE Transactions on Information Theory* Year: 2015, Volume: 61, Issue: 12, Pages: 6833 - 6859.

95. V. Ntranos; M. A. Maddah-Ali; G. Caire "Cellular Interference Alignment: Omni-Directional Antennas and Asymmetric Configurations," IEEE Transactions on Information Theory, Year: 2015, Volume: 61, Issue: 12, Pages: 6663 - 6679.

96. Wei Yang; Caire, G.; Durisi, G.; Polyanskiy, Y. "Optimum Power Control at Finite Blocklength," IEEE Transactions on Information Theory, Year: 2015, Volume: 61, Issue: 9 Pages: 4598 - 4615

97. Song-Nam Hong; Caire, G. "Beyond Scaling Laws: On the Rate Performance of Dense Device-to-Device Wireless Networks," IEEE Transactions on Information Theory, Year: 2015, Volume: 61, Issue: 9 Pages: 4735 - 4750

98. Adhikary, A.; Dhillon, H.S.; Caire, G. "Massive-MIMO Meets HetNet: Interference Coordination Through Spatial Blanking," IEEE Journal on Selected Areas in Communications, Year: 2015, Volume: 33, Issue: 6 Pages: 1171 - 1186

99. Lim, Y.; Chae, C.; Caire, G. "Performance Analysis of Massive MIMO for Cell-Boundary Users," IEEE Transactions on Wireless Communications, Year: 2015, Volume: PP, Issue: 99 Pages: 1 - 1

100. Miller, K.; Bethanabhotla, D.; Caire, G.; Wolisz, A. "A Control-Theoretic Approach to Adaptive Video Streaming in Dense Wireless Networks," IEEE Transactions on Multimedia, Year: 2015, Volume: 17, Issue: 8 Pages: 1309 - 1322

101. Song-Nam Hong; Caire, G. "Virtual Full-Duplex Relaying With Half-Duplex Relays," IEEE Transactions on Information Theory, Year: 2015, Volume: 61, Issue: 9 Pages: 4700 - 4720

102. Kim, J.; Caire, G.; Molisch, A.F. "Quality-Aware Streaming and Scheduling for Device-to-Device Video Delivery," IEEE/ACM Transactions on Networking, Year: 2015, Volume: PP, Issue: 99 Pages: 1 - 1

103. Dhillon, H.S.; Caire, G. "Wireless Backhaul Networks: Capacity Bound, Scalability Analysis and Design Guidelines," IEEE Transactions on Wireless Communications, Year: 2015, Volume: PP, Issue: 99 Pages: 1 - 1

104. Song-Nam Hong; Caire, G. "Structured Lattice Codes for Some Two-User Gaussian Networks With Cognition, Coordination, and Two Hops," IEEE Transactions on Information Theory, Year: 2015, Volume: 61, Issue: 5 Pages: 2624 - 2646,

105. Jiang, Z. ; Molisch, A. ; Caire, G. ; Niu, Z., "Achievable Rates of FDD Massive MIMO Systems with Spatial Channel Correlation," *IEEE Transactions on Wireless Communications*, Volume: PP , Issue: 99, 2015.

106. Bethanabhotla, D. ; Caire, G. ; Neely, M.J., "Adaptive Video Streaming for Wireless Networks With Multiple Users and Helpers," *IEEE Transactions on Communications*, Vol. 63, No. 1, pp. 268–285, 2015.

107. Ntranos, V. ; Maddah-Ali, M.A. ; Caire, G., "Cellular Interference Alignment," *IEEE Transactions on Information Theory*, Vol. 61, No. 3, pp. 1194–1217, 2015.

108. Tchamkerten, A. ; Chandar, V. ; Caire, G, "Energy and Sampling Constrained Asynchronous Communication," *IEEE Transactions on Information Theory*, Vol. 60, No. 12, pp. 7686–7697, 2014.

109. Rogalin, R. ; Bursalioglu, O.Y. ; Papadopoulos, H. ; Caire, G. ; Molisch, A.F. ; Michaloliakos, A. ; Balan, V. ; Psounis, K. "Scalable Synchronization and Reciprocity Calibration for Distributed Multiuser MIMO," *IEEE Transactions on Wireless Communications,* Volume: 13 , Issue: 4 Page(s): 1815 - 1831, 2014.

110. Song-Nam Hong ; Caire, G. "On Interference Networks Over Finite Fields," *IEEE Transactions on Information Theory,* Volume: 60 , Issue: 8, Page(s): 4902 - 4921, 2014.

111. Shanmugam, K. ; Papailiopoulos, D.S. ; Dimakis, A.G. ; Caire, G. "A Repair Framework for Scalar MDS Codes," *IEEE Journal on Selected Areas in Communications,* Volume: 32 , Issue: 5, Page(s): 998 - 1007, 2014.

112. Junyoung Nam ; Adhikary, A. ; Jae-Young Ahn ; Caire, G. "Joint Spatial Division and Multiplexing: Opportunistic Beamforming, User Grouping and Simplified Downlink Scheduling," *IEEE Journal of Selected Topics in Signal Processing,* Volume: 8 , Issue: 5, Page(s): 876 - 890, 2014.

113. Adhikary, A. ; Al Safadi, E. ; Samimi, M.K. ; Rui Wang ; Caire, G. ; Rappaport, T.S. ; Molisch, A.F. "Joint Spatial Division and Multiplexing for mm-Wave Channels," *IEEE Journal on Selected Areas in Communications,* Volume: 32 , Issue: 6, Page(s): 1239 - 1255, 2014.

114. Al-Naffouri, T.Y. ; Quadeer, A.A. ; Caire, G. "Impulse Noise Estimation and Removal for OFDM Systems," *IEEE Transactions on Communications,* Volume: 62 , Issue: 3, Page(s): 976 - 989, 2014.

115. Tulino, A.M. ; Caire, G. ; Verdu, S. ; Shamai, S., "Support Recovery With Sparsely Sampled Free Random Matrices," *IEEE Trans. on Inform. Theory*, Vol. 59, No. 7, pp. 4243- 4271, 2013.

116. Song-Nam Hong ; Caire, G. "Compute-and-Forward Strategies for Cooperative Distributed Antenna Systems," *IEEE Trans. on Inform. Theory*, Vol. 59, No. 9, pp. 5227-5243, 2013.

117. Bursalioglu, O.Y. ; Caire, G. ; Divsalar, D. "Joint Source-Channel Coding for Deep-Space Image Transmission using Rateless Codes," *IEEE Trans. on Commun.*, Vol. 61, No. 8, pp. 3448-3461, 2013.

118. Adhikary, A. ; Junyoung Nam ; Jae-Young Ahn ; Caire, G. "Joint Spatial Division and Multiplexing – The Large-Scale Array Regime," *IEEE Trans. on Inform. Theory*, Vol. 59, No. 10, pp. 6441-6463, 2013.

119. Razaghi, P. ; Song-Nam Hong ; Lei Zhou ; Wei Yu ; Caire, G. "Two Birds and One Stone: Gaussian Interference Channel With a Shared Out-of-Band Relay of Limited Rate," *IEEE Trans. on Inform. Theory*, Vol. 59, No. 7, pp. 4192-4212, 2013.

120. Shanmugam, K. ; Golrezaei, N. ; Dimakis, A.G. ; Molisch, A.F. ; Caire, G. "FemtoCaching: Wireless Content Delivery Through Distributed Caching Helpers," *IEEE Trans. on Inform. Theory*, Vol. 59, No. 12, pp. 8402-8413, 2013.

121. Yong Sheng Soh ; Quek, T.Q.S. ; Kountouris, M. ; Caire, G. "Cognitive Hybrid Division Duplex for Two-Tier Femtocell Networks," *IEEE Trans. on Wireless Commun.*, Vol. 12, No. 10, pp. 4852-4865, 2013.

122. Golrezaei, N. ; Molisch, A.F. ; Dimakis, A.G. ; Caire, G. "Femtocaching and device-to-device collaboration: A new architecture for wireless video distribution," *IEEE Communications Magazine*, Vol. 51, No. 4, pp. 142-149, 2013.

123. Balan, H.V. ; Rogalin, R. ; Michaloliakos, A. ; Psounis, K. ; Caire, G. "AirSync: Enabling Distributed Multiuser MIMO With Full Spatial Multiplexing," *IEEE/ACM Transactions on Networking,* Vol. 21, No. 6, pp. 1681-1695, 2013.

124. Marzetta, Thomas L. ; Caire, Giuseppe ; Debbah, Merouane ; Chih-Lin, I ; Mohammed, Saif K. "Special issue on Massive MIMO (A note from the Guest Editors)," *Journal of Communications and Networks (JCN)*, Vol. 15, No. 4, pp. 333-337, 2013.

125. Rebeiz, E.; Caire, G.; Molisch, A.F. "Energy-Delay Tradeoff and Dynamic Sleep Switching for Bluetooth-Like Body-Area Sensor Networks," *IEEE Trans on Communications,* Volume: 60 , Issue: 9, Publication Year: 2012 , Page(s): 2733 - 2746

126. Huh, H.; Tulino, A. M.; Caire, G.; "Network MIMO with Linear Zero-Forcing Beamforming: Large System Analysis, Impact of Channel Estimation and Reduced-Complexity Scheduling," *IEEE Trans. on Inform. Theory*, Volume: 58 , Issue: 5 Publication Year: 2012 , Page(s): 2911 - 2934

127. Razaghi, P.; Caire, G. "Coarse Network Coding: A Simple Relay Strategy for Two-User Gaussian Interference Channels," *IEEE Trans. on Inform. Theory*, Volume: 58 , Issue: 10, Publication Year: 2012 , Page(s): 6515 - 6523

128. Hoon Huh; Caire, G.; Papadopoulos, H.C.; Ramprashad, S.A. "Achieving "Massive MIMO" Spectral Efficiency with a Not-so-Large Number of Antennas," *IEEE Trans. on Wireless Communications,* Volume: 11 , Issue: 9, Publication Year: 2012 , Page(s): 3226 - 3239

129. Kumar, K.R.; Caire, G.; "Channel State Feedback Over the MIMO-MAC," *IEEE Trans. on Inform. Theory*, Volume: 57 , Issue: 12 Digital Object Identifier: 10.1109/TIT.2011.2168896 Publication Year: 2011 , Page(s): 7787 - 7797

130. Hoon Huh; Sung-Hyun Moon; Young-Tae Kim; Inkyu Lee; Caire, G.; "Multi-Cell MIMO Downlink With Cell Cooperation and Fair Scheduling: A Large-System Limit Analysis," *IEEE Trans. on Inform. Theory*, Volume: 57 , Issue: 12 Digital Object Identifier: 10.1109/TIT.2011.2170123 Publication Year: 2011 , Page(s): 7771 - 7786

131. Bursalioglu, O.; Fresia, M.; Caire, G.; Poor, H.; "Lossy Multicasting over Binary Symmetric Broadcast Channels," *IEEE Trans. on Signal Processing,* Volume: 59, Issue: 8, Publication Year: 2011 , Page(s): 3915 - 3929

132. Kobayashi, M.; Jindal, N.; Caire, G.; "Training and Feedback Optimization for Multiuser MIMO Downlink," *IEEE Trans. on Comm.*, Volume: 59 , Issue: 8, Publication Year: 2011 , Page(s): 2228 - 2240.

133. Ramprashad, S.A.; Papadopoulos, H.C.; Benjebbour, A.; Kishiyama, Y.; Jindal, N.; Caire, G.; "Cooperative cellular networks using multi-user MIMO: trade-offs, overheads, and interference control across architectures," *IEEE Communications Magazine,* Volume: 49 , Issue: 5 Publication Year: 2011 , Page(s): 70 - 77

134. Kazakopoulos, P.; Mertikopoulos, P.; Moustakas, A.L.; Caire, G.; "Living at the Edge: A Large Deviations Approach to the Outage MIMO Capacity," *IEEE Transactions on Inform. Theory,* Vol. 57, No. 4, pp. 1984 - 2007, 2011.

135. Shirani-Mehr, H.; Papadopoulos, H.; Ramprashad, S.A.; Caire, G.; "Joint Scheduling and ARQ for MU-MIMO Downlink in the Presence of Inter-Cell Interference," *IEEE Trans. on Commun.*, Vol. 59, No. 2, pp. 578 - 589, 2011.

136. Wilson, M.P.; Narayanan, K.; Caire, G.; "Joint Source Channel Coding With Side Information Using Hybrid Digital Analog Codes," *IEEE Trans. on Inform. Theory,* Volume: 56 , Issue: 10, Page(s): 4922 - 4940, Year: 2010.

137. Kyoung-Jae Lee; Jin-Sung Kim; Caire, G.; Inkyu Lee; "Asymptotic Ergodic Capacity Analysis for MIMO Amplify-and-Forward Relay Networks," *IEEE Trans. on Wireless Communications*, Volume: 9 , Issue: 9, Page(s): 2712 - 2717, Year: 2010.

138. Huh, H.; Papadopoulos, H. C.; Caire, G.; "Multiuser MISO Transmitter Optimization for Intercell Interference Mitigation," *IEEE Transactions on Signal Processing*, Volume: 58 , Issue: 8, Page(s): 4272 - 4285, Year: 2010.

139. Shirani-Mehr, Hooman; Caire, Giuseppe; Neely, Michael J.; "MIMO Downlink Scheduling with Non-Perfect Channel State Knowledge," *IEEE Transactions on Communications,* Volume: 58 , Issue: 7, Page(s): 2055 - 2066, Year: 2010.

140. Caire, G.; Jindal, N.; Kobayashi, M.; Ravindran, N.; "Multiuser MIMO Achievable Rates With Downlink Training and Channel State Feedback," *IEEE Transactions on Information Theory,* Volume: 56 , Issue: 6, Page(s): 2845 - 2866, Year: 2010.

141. M. Fresia and G. Caire, "A Linear Encoding Approach to Index Assignment in Lossy Source-Channel Coding," *IEEE Trans. on Inform. Theory,* Vol. 56, No. 3, March 2010

142. A. Tulino, G. Caire, S. Shamai and S. Verdu, "Capacity of Channels With Frequency-Selective and Time-Selective Fading," *IEEE Trans. on Inform. Theory,* Vol. 56, No. 3, March 2010

143. Shirani-Mehr, H.; Caire, G.; "Channel state feedback schemes for multiuser MIMO-OFDM downlink," *IEEE Transactions on Communications* Volume: 57 , Issue: 9, 2009 , Page(s): 2713 - 2723

144. Kumar, K.R.; Caire, G.; Moustakas, A.L.; "Asymptotic Performance of Linear Receivers in MIMO Fading Channels," *IEEE Trans. on Inform. Theory* Volume: 55 , Issue: 10, October 2009 , Page(s): 4398 - 4418

145. K. R. Kumar and G. Caire, "Coding and Decoding for the Dynamic Decode and Forward Relay Protocol," *IEEE Trans. on Inform. Theory* Volume 55, Issue 7, July 2009 Page(s):3186 - 3205

146. Martinez, A.; i Fabregas, A. G.; Caire, G.; Willems, F. M. J.; "Bit-Interleaved Coded Modulation Revisited: A Mismatched Decoding Perspective," Information Theory, IEEE Transactions on Volume 55, Issue 6, June 2009 Page(s):2756 - 2765

147. Kim, T.T.; Caire, G.; "Diversity Gains of Power Control With Noisy CSIT in MIMO Channels," IEEE Transactions on Information Theory, Volume 55, Issue 4, April 2009 Page(s):1618 - 1626

148. Kim, T.T.; Skoglund, M.; Caire, G.; "Quantifying the Loss of Compress-Forward Relaying Without Wyner-Ziv Coding," IEEE Transactions on Information Theory, Volume 55, Issue 4, April 2009 Page(s):1529 - 1533

149. Kumar, K.R.; Caire, G.; "Space-Time Codes From Structured Lattices," Information Theory, IEEE Transactions on Volume 55, Issue 2, Feb. 2009 Page(s):547 - 556

150. Kim, T. T.; Skoglund, M.; Caire, G.; "On Source Transmission Over MIMO Channels With Limited Feedback," *IEEE Trans. on Signal Processing,* Volume 57, Issue 1, Jan. 2009 Page(s):324 - 341

151. Martinez, A.; Guillen i Fabregas, A.; Caire, G.; Willems, F.; "Bit-Interleaved Coded Modulation in the Wideband Regime," *IEEE Trans. Information Theory,* Volume 54, Issue 12, Dec. 2008 Page(s):5447 - 5455

152. Kim, T.T.; Skoglund, M.; Caire, G.; "On cooperative source transmission with partial rate and power control," *IEEE J. Sel. Areas on Comm.* JSAC Vol. 26, No. 8, October 2008 Page(s):1408 - 1418

153. Tung T. Kim, G. Caire and M. Skoglund, "Decode-and-Forward Relaying Channels with Quantized Channel State Feedback: An Outage Exponent Analysis," *IEEE Trans. on Inform. Theory,* Vol. 54, No. 10, Oct. 2008 Page(s):4548 - 4564

154. O. Y. Bursalioglu, M. Fresia, G. Caire, and H. V. Poor, "Lossy Joint Source-Channel Coding Using Raptor Codes," *International Journal of Digital Multimedia Broadcasting,* Volume 2008, Article ID 124685, Hindawi Publishing Corporation, June 2008.

155. Guillen i Fabregas, A.; Caire, G.; "Multidimensional Coded Modulation in Block-Fading Channels," IEEE Transactions on Information Theory, Volume 54, Issue 5, May 2008 Page(s):2367 - 2372

156. Bhattad, K.; Narayanan, K.R.; Caire, G.; "On the Distortion SNR Exponent of Some Layered Transmission Schemes," IEEE Transactions on Information Theory, Volume 54, Issue 7, July 2008 Page(s):2943 - 2958

157. Martinez, A.; Fabregas, A.G.; Caire, G.; "A Closed-Form Approximation for the Error Probability of BPSK Fading Channels," IEEE Transactions on Wireless Communications, Volume 6, Issue 6, June 2007 Page(s):2051 - 2054

158. Caire, G.; Kumar, K.R.; "Information Theoretic Foundations of Adaptive Coded Modulation," Proceedings of the IEEE, Volume 95, Issue 12, Dec. 2007 Page(s):2274 - 2298

159. M. Kobayashi and G. Caire, "Joint Beamforming and Scheduling for a Multi-Antenna Downlink with Imperfect Transmitter Channel Knowledge," *IEEE J. Sel. Areas in Comm.* Vol. 25, No. 7, pp. 1468 - 1477, Sept. 2007.

160. G. Caire and K. Narayanan, "On the Distortion SNR Exponent of Hybrid Digital-Analog Space Time Coding," *IEEE Trans. on Inform. Theory,* Vol. 53, No. 8, pp. Aug. 2867 - 2878, 2007.

161. G. Caire, R. Mueller and R. Knopp, "Hard Fairness versus Proportional Fairness in Wireless Communications: the Single-Cell Case," *IEEE Trans. on Inform. Theory,* Vol. 53, No. 4, pp. 1366 - 1385, April 2007.

162. M. Kobayashi, G. Caire and D. Gesbert, "Transmit Diversity vs. Opportunistic Beamforming in Data Packet Mobile Downlink Transmission," *IEEE Trans. on Commun.*, Vol. 55, No. 1, pp. 151 - 157, Jan. 2007.

163. A. Barbieri, G. Colavolpe, and G. Caire, "Joint iterative detection and decoding in the presence of phase noise and frequency offset," *IEEE Trans. on Commun.*, Vol. 55, No. 1, pp. 171 - 179, Jan. 2007.

164. F. Boccardi and G. Caire, "The p-Sphere Encoder: Peak-Power Reduction by Lattice Precoding for the MIMO Gaussian Broadcast Channel," *IEEE Trans. on Commun.,* Vol. 54, No. 11, pp. 2085-2091, Nov. 2006

165. G. Caire, P. Elia and K. Raj Kumar, "Space Time Coding: an Overview," *Journal of Communications, Software and Systems,* Vol. 2, No. 3, pp. 212-227, Sept. 2006. **(invited paper)**.

166. M. Kobayashi and G. Caire, "An Iterative Waterfilling Algorithm for Maximum Weighted Sum-Rate of Gaussian MIMO-BC," *IEEE J. on Sel. Areas on Commun.,* Vol. 24, No. 8, pp. 1640-1647, August 2006.

167. H. El Gamal, G. Caire and M. O. Damen, "The MIMO ARQ Channel: Diversity-Multiplexing-Delay Tradeoff," *IEEE Trans. on Inform. Theory,* Vol. 52, No. 8, pp. 3601-3621, Aug. 2006.

168. A. Guillen i Fabregas and G. Caire, "Impact of Signal Constellation Expansion on the Achievable Diversity in Quasistatic Multiple Antenna Channels," *IEEE Trans. on Wireless Comm.*, Vol. 5, No. 8, pp. 2032-2037, Aug. 2006.

169. A. D. Murugan, H. El-Gamal, M. O. Damen, G. Caire "A Unified Framework for Tree Search Decoding: Rediscovering the Sequential Decoder," *IEEE Trans. on Inform. Theory,* Vol. 52, No. 3, pp. 933-953, March 2006.

170. A. Bennatan, D. Burshtein, G. Caire and S. Shamai, "Superposition Coding for Side-Information Channels," *IEEE Trans. on Inform. Theory,* Vol. 52, No. 5, pp. 1872-1889, May 2006.

171. A. Guillén i Fàbregas M. Guillaud, D. Slock, G. Caire, K. Gosse, S. Rouquette, A. Ribeiro Dias, J.-M. Conrat, Y. Toutain, M. Ney and A. Peden, "A MIMO-OFDM Testbed for Wireless Local Area Networks," *EURASIP J. on Appl. Sig. Proc.*, Vol. 2006, Article ID 18083, Pages 1-20.

172. A. Guillen i Fabregas and G. Caire, "Coded modulation in the block fading channel: coding theorems and code construction," *IEEE Trans. on Inform Theory,* Vol. 52, No. 1, pp. 91–114, Jan. 2006.

173. A. Martinez, A. Guillen i Fabregas and G. Caire, "Error Probability Analysis of Bit-Interleaved Coded Modulation," *IEEE Trans. on Inform. Theory,* Vol. 52, No. 1, pp. 262–270, Jan. 2006.

174. G. Colavolpe, A. Barbieri and G. Caire, "Algorithms for iterative decoding in the presence of strong phase noise," *IEEE J. on Sel. Areas in Commun.*, Vol. 23, No. 9, pp. 1748–1757, Sept. 2005.

175. M. Kobayashi and G. Caire, "A Low-Complexity Approach to Space-Time Coding for Multipath Fading Channels," *EURASIP J. on Wireless. Comm. Networks*, No. 3, pp. 437-446, 2005.

176. D. Tuninetti, G. Caire and S. Verdu', "Variable rate coding for slowly-fading Gaussian multiple-access channels," *IEEE Trans. on Inform. Theory,* Vol. 50, No. 10, pp. 2271-2292, Oct. 2004.

177. G. Caire, R. Muller and T. Tanaka, "Iterative multiuser joint decoding: Optimal power allocation and low-complexity implementation," *IEEE Trans. on Inform. Theory,* Vol. 50, No. 9, pp. 1950-1973, Sept. 2004.

178. A. Roumy, S. Guemghar, G. Caire and S. Verdu', "Design methods for irregular repeat-accumulate codes," *IEEE Trans. on Inform. Theory,* Vol. 50, No. 8, pp. 1711-1727, Aug. 2004.

179. S. Sesia, G. Caire and G. Vivier, "Incremental redundancy Hybrid ARQ schemes based on low-density parity-check codes," *IEEE Trans. on Commun.,* Vol. 52, No. 8, pp. 1311-1321, Aug. 2004.

180. H. El Gamal, G. Caire and M. O. Damen, "Lattice coding and decoding achieve the optimal diversity-vs-multiplexing tradeoff of MIMO channels," *IEEE Trans. on Inform. Theory,* Vol. 50, No. 6, No. 968-985, June 2004.

181. C.-F. Leanderson and G. Caire, "The performance of incremental redundancy schemes based on convolutional codes in the block-fading Gaussian collision channel," *IEEE Trans. on Wireless Comm.,* Vol. 3, No. 3, pp. 843-854, May 2004.

182. G. Caire, D. Tuninetti, and S. Verdu', "Suboptimality of TDMA in the low-power regime," *IEEE Trans. on Inform. Theory,* Vol. 50, No. 4, pp. 608-620, April 2004.

183. A. Nordio, M. Hernandez and G. Caire, "Low-complexity Turbo Equalization and Multiuser Decoding for TD-CDMA" *IEEE Trans. on Wireless Comm.,* Vol. 3, No. 2, pp. 454-465, March 2004.

184. A. Roumy, S. Guemghar, G. Caire and S. Verdu', "Maximizing the spectral efficiency of coded CDMA under successive decoding," *IEEE Trans. on Inform. Theory,* Vol. 50, No. 1, pp. 152-164, Jan. 2004.

185. M. O. Damen, H. El Gamal and G. Caire, "On maximum likelihood detection and the search for the closest lattice point," *IEEE Trans. on Inform. Theory,* Vol. 49, No. 10, pp. 2389-2402, Oct. 2003.

186. G. Caire and S. Shamai, "On the achievable throughput of a multi-antenna Gaussian broadcast channel," *IEEE Trans. on Inform. Theory,* Vol. 49, No. 7, pp. 1691-1706, July 2003.

187. G. Caire and G. Colavolpe, "On low-complexity space-time coding for quasi-static channels," *IEEE Trans. on Inform. Theory,* Vol. 49, No. 6, pp. 1400-1416, June 2003.

188. D. Tuninetti and G. Caire, "The Long-term average capacity region per unit cost with application to protocol for sensor networks," *European Trans. on Telecomm., ETT,* Vol. 14, No. 1, Jan-Feb 2003.

189. D. Tuninetti and G. Caire, "The optimal throughput of some wireless multiaccess systems," *IEEE Trans. on Inform. Theory,* Vol. 48, No. 10, pp. 2773-2785, Oct. 2002.

190. D. Boudreau, G. Caire, G. E. Corazza, R. De Gaudenzi, G. Gallinaro, M. Luglio, R. Lyons, J. Romero-Garcia, A. Vernucci, H. Widmer, "Wideband-CDMA for the UMTS/IMT-2000 satellite component," *IEEE Trans. on Vehic. Tech.,* vol. 51, No. 2, pp. 306-331, March 2002.

191. G. Caire, P. Humblet, G. Montalbano and A. Nordio, "Initial synchronization of DS-CDMA via bursty pilot signals," *IEEE Trans. on Commun.,* Vol. 50, No. 4, April 2002.

192. J. Boutros and G. Caire, "Iterative multiuser joint decoding: Unified framework and asymptotic analysis," *IEEE Trans. on Inform. Theory,* Vol. 48, No. 7, pp. 1772-1793, July 2002.

193. R. Knopp and G. Caire, "Power control and beamforming for systems with multiple transmit and receive antennas," *IEEE Trans. on Wireless Commun.,* Vol. 1, No. 4, pp. 638-648, Oct. 2002.

194. G. Caire, U. Mitra, "Structured multiuser channel estimation for block-synchronous DS/CDMA," *IEEE Trans. on Commun.,* Vol. 49, No. 9, pp. 1605-1617, Sept. 2001.

195. M. Kobayashi, J. Boutros and G. Caire, "Successive interference cancellation with SISO decoding and EM channel estimation," *IEEE Journal on Selected Areas in Commun.*, Vol. 19, No. 8 , pp. 1450 -1460, Aug. 2001.

196. G. Caire and D. Tuninetti, "The throughput of hybrid-ARQ protocols for the Gaussian collision channel," *IEEE Trans. on Inform. Theory,* Vol. 47, No. 5 , pp. 1971 -1988, July 2001.

197. E. Biglieri, G. Caire and G. Taricco, "Limiting performance for block-fading channels with multiple antennas," *IEEE Trans. on Inform. Theory,* Vol. 47, No. 4 , pp. 1273 -1289, May 2001.

198. E. Biglieri, G. Caire, G. Taricco and E. Viterbo, "How fading affects CDMA: an asymptotic analysis with linear receivers," *IEEE Journal on Selected Areas in Commun.,* Vol. 19, No. 2 , pp. 191 -201, Feb. 2001.

199. G. Caire, E. Biglieri and G. Taricco, "CDMA system design through asymptotic analysis," *IEEE Trans. on Commun.,* Vol. 48, No. 11, Nov. 2000.

200. G. Caire, "Two-stage non-data aided adaptive linear receivers for DS/CDMA," *IEEE Trans. on Commun.,* Vol. 48, No. 10, Oct. 2000.

201. G. Caire, E. Leonardi and E. Viterbo, "Modulation and Coding for the Gaussian Collision Channel," *IEEE Trans. on Inform. Theory.,* Vol. 46, No. 6, pp. 3007-3026, Sept. 2000.

202. G. Taricco, E. Biglieri and G. Caire, "Impact of channel state information on coded transmission over fading channels with diversity reception," *IEEE Trans. on Commun.,* Vol. 47 No. 9, pp. 1284-1287, Sept. 1999.

203. G. Caire and S. Shamai, "On the Capacity of some Channels with Channel State Information," *IEEE Trans. on Inform. Theory,* Vol. 45 No. 6, pp. 2007-2020, Sept. 1999.

204. G. Caire, G. Taricco and E. Biglieri, "Optimum power control over fading channels," *IEEE Trans. on Inform. Theory,* Vol. 45, No. 5, pp. 1468 –1489, July 1999.

205. G. Caire, R. Knopp and P. Humblet, "System Capacity of F-TDMA Cellular Systems," *IEEE Trans. on Commun.,* Vol. 46, No. 12, pp. 1649 – 1661, Dec. 1998.

206. E. Biglieri, G. Caire, and G. Taricco, "Coding and modulation under power constraints," *IEEE Personal Communications Magazine,* Vol. 5, No. 3, 32-39, 1998.

207. G. Caire and E. Biglieri, "Parallel Concatenated Codes with Unequal Error Protection," *IEEE Trans. on Commun.,* Vol. 46, No. 5, pp. 565 – 567, May 1998.

208. G. Caire, G. Taricco, and E. Biglieri, "Bit-Interleaved coded modulation," *IEEE Trans. Inform. Theory,* Vol. 44, No. 3, pp.927–946, May 1998.

209. G. Caire and E. Viterbo, "Upper Bound on the Frame Error Probability of Terminated Trellis Codes," *IEEE Communication Letters,* Jan. 1998.

210. E. Biglieri, G. Caire, G. Taricco, and J. Ventura-Traveset, "Computing error probabilities over fading channels: A unified approach," *European Transactions on Telecommunications, ETT,* Vol. 9, No. 1, pp. 15–25, Jan.-Feb. 1998.

211. J. Ventura-Traveset, G. Caire, E. Biglieri and G. Taricco, "Co-channel interference in cellular mobile radio systems with coded PSK and diversity," *International Journal on Wireless Personal Communications,* special issue on interference in mobile wireless systems, Kluwer Academic Publisher, No. 6, pp. 39 – 68, 1998.

212. G. Caire and C. Elia, "A New Symbol Timing and Carrier Frequency Offset Estimation Algorithm for Non-coherent Orthogonal M-CPFSK," *IEEE Trans. on Commun.,* Vol. 45, No. 10, pp. 1314 – 1326, Oct. 1997.

213. J. Ventura-Traveset, G. Caire, E. Biglieri and G.Taricco, "Impact of diversity reception on fading channels with coded modulation. Part I: Coherent detection," *IEEE Trans. Commun.,* Vol. 45, No. 5, May 1997.

214. J. Ventura-Traveset, G. Caire, E. Biglieri and G.Taricco, "Impact of diversity reception on fading channels with coded modulation. Part II: Differential block detection," *IEEE Trans. Commun.,* Vol. 45, No. 6, June 1997.

215. J. Ventura-Traveset, G. Caire, E. Biglieri and G.Taricco, "Impact of Diversity Reception on Fading Channels with Coded Modulation. Part III: Cochannel Interference," *IEEE Trans. Commun.,* Vol. 45, No. 7, July 1997.

216. G. Caire, G. Taricco, J. Ventura-Traveset and E. Biglieri, "A multiuser approach to narrowband cellular communications," *IEEE Trans. on Inform. Theory,* Vol. 43, No. 5, September 1997.

217. E. Biglieri, G. Caire, G. Taricco, and J. Ventura-Traveset, "Simple method for evaluating error probabilities," *IEE Electronics Letters,* vol. 32, n. 3, Feb. 1996, pp. 191-192.

218. G. Caire, G. Taricco and E. Biglieri, "Capacity of Bit-interleaved Channels," *IEE Electronics Letters,* Vol. 32, No. 12, pp. 1060 – 1061, June 1996.

219. G. Caire and G. Lechner, "Turbo-codes with Unequal Error Protection," *IEE Electronics Letters,* Vol. 32 No. 7, pp. 629, March 1996.

220. G. Caire, C. Elia, L. Longo, R. Viola, "A study for interactive TV via satellite," *European Transactions on Communications, ETT,* Vol. 7, No. 4, pp. 335 – 347, July/August 1996.

221. E. Biglieri, G. Caire and G. Taricco "Approximating the pairwise error probability for fading channels," *IEE Electronics Letters,* Vol.31, No.19, pp. 1625-1626, Sept. 1995.

222. G. Caire and E. Biglieri, "Linear Block Codes over Cyclic Groups," *IEEE Trans. on Inform. Theory,* Vol. 41, No. 5, pp. 1246 – 1256, Sept. 1995.

223. G. Caire, G. Taricco and G. Battail, "Weight distribution and performance of the iterated product of single-parity check codes," *Annales de Telecommunications,* 50, No 9-10, pp. 752-762, 1995.

224. G. Caire, J. Ventura-Traveset, M. Hollreiser and E. Biglieri, "Systolic Architecture for the VLSI Implementation of High-Speed Decoders/Quantizers," *Journal of VLSI Signal Processing,* No. 10, pp. 153-168, 1995, Kluwer Academic Publisher.

225. E. Biglieri and G. Caire, "Symmetry Properties of Block-Coded Modulation," *IEEE Trans. on Inform. Theory,* Vol. 40, No. 5, pp. 1630-1634, Sept. 1994.

226. G. Caire, R. Grossman, and H.V. Poor, "Wavelet Transforms Associated with Finite Cyclic Groups," *IEEE Trans. on Inform. Theory,* Vol. 39, No. 4, pp. 1157-1166, July 1994.

227. E. Biglieri and G. Caire, "Power Spectrum of Block-Coded Modulation," *IEEE Trans. on Commun.,* Vol. 42, pp.1580-1586, Feb. 1994.

3 Peer-Reviewed Conference Papers

Presentation is in reverse chronological order.

1. Mingming Zhang;Kai Wan;Minquan Cheng;Giuseppe Caire "Coded Caching for Two-Dimensional Multi-Access Networks," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

2. Hao Xu;Kai-Kit Wong;Giuseppe Caire;Shlomo Shamai Shitz "Distributed Information Bottleneck for a Primitive Gaussian Diamond Channel with Rayleigh Fading," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

3. Ali Gholami;Kai Wan;Hua Sun;Mingyue Ji;Giuseppe Caire "Coded Caching With Private Demands and Caches," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

4. Tayyebeh Jahani-Nezhad;Mohammad Ali Maddah-Ali;Songze Li;Giuseppe Caire "SwiftAgg: Communication Efficient and Dropout-Resistant Secure Aggregation for Federated Learning with Worst-Case Security Guarantees," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

5. Jinyu Wang;Minquan Cheng;Kai Wan;Giuseppe Caire "A Novel Framework for Coded Caching via Cartesian Product with Reduced Subpacketization," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

6. Ting Yang;Kai Wan;Minquan Cheng;Giuseppe Caire "Multiple-antenna Placement Delivery Array for Cache-aided MISO Systems," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

7. Kai Wan;Minquan Cheng;Dequan Liang;Giuseppe Caire "Multiaccess Coded Caching with Private Demands," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

8. Xiang Zhang;Kai Wan;Hua Sun;Mingyue Ji;Giuseppe Caire "Fundamental Limits of Cache-aided Multiuser PIR: The Two-message Two-user Case," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

9. Mahdi Barzegar Khalilsarai;Yi Song;Tianyu Yang;Giuseppe Caire "Channel State Acquisition in FDD Massive MIMO: Rate-Distortion Bound and Effectiveness of "Analog" Feedback," 2022 IEEE International Symposium on Information Theory (ISIT) Year: 2022

10. Fabian Göttsch;Noboru Osawa;Takeo Ohseki;Kosuke Yamazaki;Giuseppe Caire "Robust PCA for Subspace Estimation in User-Centric Cell-Free Wireless Networks," 2022 IEEE 23rd International Workshop on Signal Processing Advances in Wireless Communication (SPAWC) Year: 2022

11. Kai Wan;Minquan Cheng;Giuseppe Caire "Multiple-antenna Placement Delivery Array with Cyclic Placement," 2022 IEEE 23rd International Workshop on Signal Processing Advances in Wireless Communication (SPAWC) Year: 2022

12. Fernando Pedraza;Saeid K. Dehkordi;Mari Kobayashi;Giuseppe Caire "Simultaneous Communication and Tracking in Arbitrary Trajectories via Beam-Space Processing," 2022 IEEE 12th Sensor Array and Multichannel Signal Processing Workshop (SAM) Year: 2022

13. Saeid K. Dehkordi;Lorenzo Gaudio;Mari Kobayashi;Giulio Colavolpe;Giuseppe Caire "Beam-Space MIMO Radar with OTFS Modulation for Integrated Sensing and Communications," 2022 IEEE International Conference on Communications Workshops (ICC Workshops) Year: 2022

14. Saeid K. Dehkordi;Oliver Schwanitz;Mostafa Khalili Marandi;Michael P. Kaiser;Thi Huyen Le;Ivan Ndip;Giuseppe Caire "Sub-TeraHertz Modular Array Layout Optimization Under Fabrication Constraints," 2022 Joint European Conference on Networks and Communications & 6G Summit (EuCNC/6G Summit) Year: 2022

15. Mohsen Amidzadeh;Hanan Al-Tous;Giuseppe Caire;Olav Tirkkonen "Cellular Traffic Offloading with Optimized Compound Single-point Unicast and Cache-based Multipoint Multicast," 2022 IEEE Wireless Communications and Networking Conference (WCNC) Year: 2022

16. Fabian Göttsch;Noboru Osawa;Takeo Ohseki;Kosuke Yamazaki;Giuseppe Caire "Uplink-Downlink Duality and Precoding Strategies with Partial CSI in Cell-Free Wireless Networks," 2022 IEEE Wireless Communications and Networking Conference (WCNC) Year: 2022

17. Shuangyang Li;Weijie Yuan;Jinhong Yuan;Giuseppe Caire "On the Potential of Spatially-Spread Orthogonal Time Frequency Space Modulation for ISAC Transmissions," ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) Year: 2022

18. Cagkan Yapar;Ron Levie;Gitta Kutyniok;Giuseppe Caire "LocUNet: Fast Urban Positioning Using Radio Maps and Deep Learning," ICASSP 2022 - 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) Year: 2022

19. Hui Zhao;Eleftherios Lampiris;Giuseppe Caire;Petros Elia "Multi-Antenna Coded Caching Analysis in Finite SNR and Finite Subpacketization," WSA 2021; 25th International ITG Workshop on Smart Antennas Year: 2021

20. Han Yu;Xinping Yi;Giuseppe Caire "Topological Pilot Assignment in Cell-Free Massive MIMO Networks," 2021 IEEE Global Communications Conference (GLOBECOM) Year: 2021

21. Erfan Khordad;Iain B. Collings;Stephen V. Hanly;Giuseppe Caire "Millimeter Wave Beam Alignment with Symbol Based Beam Switching for Wideband Time-varying Channels," 2021 15th International Conference on Signal Processing and Communication Systems (ICSPCS) Year: 2021

22. Michail Palaiologos;Mario H. Castãneda Garcia;Richard A. Stirling-Gallacher;Giuseppe Caire "Design of Robust LoS MIMO Systems with UCAs" 2021 IEEE 94th Vehicular Technology Conference (VTC2021-Fall) Year: 2021

23. Saeid K. Dehkordi;Mari Kobayashi;Giuseppe Caire "Adaptive Beam Tracking based on Recurrent Neural Networks for mmWave Channels," 2021 IEEE 22nd International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) Year: 2021

24. Fabian Göttsch;Noboru Osawa;Takeo Ohseki;Kosuke Yamazaki;Giuseppe Caire "The Impact of Subspace-Based Pilot Decontamination in User-Centric Scalable Cell-Free Wireless Networks," 2021 IEEE 22nd International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) Year: 2021

25. Fernando Pedraza;Mari Kobayashi;Giuseppe Caire "Beam Refinement and User State Acquisition via Integrated Sensing and Communication with OFDM," 2021 IEEE 22nd International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) Year: 2021

26. Alexander Fengler;Peter Jung;Giuseppe Caire "Pilot-Based Unsourced Random Access with a Massive MIMO Receiver in the Quasi-Static Fading Regime," 2021 IEEE 22nd International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) Year: 2021

27. Saeid K. Dehkordi;Giuseppe Caire "Reconfigurable Propagation Environment for Enhancing Vulnerable Road Users' Visibility to Automotive Radar," 2021 IEEE Intelligent Vehicles Symposium (IV) Year: 2021

28. Mohsen Amidzadeh;Hanan Al-Tous;Giuseppe Caire;Olav Tirkkonen "Orthogonal Multipoint Multicast Caching in OFDM Cellular Networks with ICI and IBI," 2021 IEEE 32nd Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) Year: 2021

29. Kai Wan;Hua Sun;Mingyue Ji;Giuseppe Caire "Secure Distributed Linearly Separable Computation," 2021 IEEE International Symposium on Information Theory (ISIT) Year: 2021

30. Hao Xu;Tianyu Yang;Giuseppe Caire;Shlomo Shamai Shitz "Information Bottleneck for an Oblivious Relay with Channel State Information: the Vector Case," 2021 IEEE International Symposium on Information Theory (ISIT) Year: 2021

31. Kai Wan;Hua Sun;Mingyue Ji;Daniela Tuninetti;Giuseppe Caire "Cache-Aided Matrix Multiplication Retrieval," 2021 IEEE International Symposium on Information Theory (ISIT) Year: 2021

32. Minquan Cheng;Dequan Liang;Kai Wan;Mingming Zhang;Giuseppe Caire "A Novel Transformation Approach of Shared-link Coded Caching Schemes for Multiaccess Networks," 2021 IEEE International Symposium on Information Theory (ISIT) Year: 2021

33. Xiang Zhang;Kai Wan;Hua Sun;Mingyue Ji;Giuseppe Caire "A New Design of Cache-aided Multiuser Private Information Retrieval with Uncoded Prefetching," 2021 IEEE International Symposium on Information Theory (ISIT) Year: 2021

34. Eleftherios Lampiris;Hamdi Joudeh;Giuseppe Caire;Petros Elia "Coded Caching under Asynchronous Demands," 2021 IEEE International Symposium on Information Theory (ISIT) Year: 2021

35. Lorenzo Gaudio; Giuseppe Caire; Giulio Colavolpe "On Achievable Rate of OFDM and OTFS in the Presence of Sparsity," 2021 IEEE International Conference on Communications Workshops (ICC Workshops) Year: 2021 – Conference Paper

36. Saeid K. Dehkordi; Giuseppe Caire "Making Vulnerable Road Users More Visible to Radar: A Communications Inspired Approach," 2021 21st International Radar Symposium (IRS) Year: 2021 – Conference Paper

37. Fernando Pedraza;Giuseppe Caire "Adaptive Two-Sided Beam Alignment in mmWave via Posterior Matching," 2020 IEEE Information Theory Workshop (ITW) Year: 2021 – Conference Paper

38. Hamdi Joudeh; Giuseppe Caire "On the Optimality of Treating Interference as Noise: General Message Sets Revisited," 2020 IEEE Information Theory Workshop (ITW) Year: 2021 – Conference Paper

39. Osman Musa; Peter Jung; Giuseppe Caire "Plug-And-Play Learned Gaussian-mixture Approximate Message Passing," ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) Year: 2021 – Conference Paper

40. Tianyu Yang; Omid Taghizadeh; Yulin Hu; Hao Xu; Giuseppe Caire "Robust Secure UAV Communication Systems with Full-Duplex Jamming," 2021 IEEE Wireless Communications and Networking Conference (WCNC) Year: 2021 – Conference Paper

41. Ibrahim Rashdan; Paul Unterhuber; Fabian de Ponte Müller; Stephan Sand; Giuseppe Caire "Diffuse Multipath Analysis of Vehicle-to-Vulnerable Road User Channel in Urban Environment," 2021 15th European Conference on Antennas and Propagation (EuCAP) Year: 2021 – Conference Paper

42. Kai Wan; Mingyue Ji; Giuseppe Caire "Topological Coded Distributed Computing," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

43. Mahdi Barzegar Khalilsarai; Saeid Haghighatshoar; Giuseppe Caire "Joint Approximate Covariance Diagonalization with Applications in MIMO Virtual Beam Design," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

44. Yi Song; Mahdi Barzegar Khalilsarai; Saeid Haghighatshoar; Giuseppe Caire "Deep Learning for Geometrically-Consistent Angular Power Spread Function Estimation in Massive MIMO," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

45. Hamdi Joudeh; Giuseppe Caire "Extremal Network Theory and Robust GDoF Gain of Multi-Cell Cooperation over Multi-Cell TIN," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

46. Mozhgan Bayat; Kai Wan; Mingyue Ji; Giuseppe Caire "Cache-Aided Modulation for Heterogeneous Coded Caching over a Gaussian Broadcast Channel," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

47. Mohsen Amidzadeh; Hanan Al-Tous; Olav Tirkkonen; Giuseppe Caire "Cellular Network Caching Based on Multipoint Multicast Transmissions," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

48. Mahdi Barzegar Khalilsarai; Benedikt Gross; Stelios Stefanatos; Gerhard Wunder; Giuseppe Caire "WiFi-Based Channel Impulse Response Estimation and Localization via Multi-Band Splicing," GLOBECOM 2020 - 2020 IEEE Global Communications Conference Year: 2020 – Conference Paper

49. Lorenzo Gaudio, Mari Kobayashi, Giuseppe Caire, and Giulio Colavolpe "Joint Radar Target Detection and Parameter Estimation with MIMO OTFS," 2020 IEEE Radar Conference (RadarConf20) Year: 2020

50. Elnaz Alizadeh Jarchlo, Piotr Gaw?owicz, Hossein Doroud, Bernhard Siessegger, Markus Jung, Giuseppe Caire, Anatolij Zubow, and Zabih Ghassemlooy, "A Flexible Transport Layer Protocol Architecture for Handover in a Vehicular VLC Network," 2020 12th International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP) Year: 2020.

51. Elnaz Alizadeh Jarchlo, Sepideh Mohammadi Kouhini, Hossein Doroud, Elizabeth Eso, Piotr Gaw?owicz, Min Zhang, Bernhard Siessegger, Markus Jung, Zabih Ghassemlooy, Giuseppe Caire, and Anatolij Zubow "Analyzing Interface Bonding Schemes for VLC with Mobility and Shadowing," 2020 12th International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP) Year: 2020

52. Kai Wan and Giuseppe Caire, "Coded Caching with Private Demands," 2020 Information Theory and Applications Workshop (ITA) Year: 2020

53. Hao Xu, Giuseppe Caire, and Cunhua Pan "An Achievable Region for the Multiple Access Wiretap Channels with Confidential and Open Messages," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

54. Yahya H. Ezzeldin, Martina Cardone, Christina Fragouli, and Giuseppe Caire "Gaussian 1-2-1 Networks with Imperfect Beamforming," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

55. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti, and Giuseppe Caire "Novel Converse for Device-to-Device Demand-Private Caching with a Trusted Server," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

56. Hamdi Joudeh, Eleftherios Lampiris, Petros Elia, and Giuseppe Caire "Fundamental Limits of Wireless Caching Under Mixed Cacheable and Uncacheable Traffic," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

57. Alexander Fengler, Peter Jung, and Giuseppe Caire "Unsourced Multiuser Sparse Regression Codes achieve the Symmetric MAC Capacity," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

58. Kai Wan, Hua Sun, Mingyue Ji, Daniela Tuninetti, and Giuseppe Caire, "Cache-Aided Scalar Linear Function Retrieval," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

59. Xiaoshen Song and Giuseppe Caire "Queue-Aware Beam Scheduling for Half-Duplex mmWave Relay Networks," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

60. Hamdi Joudeh and Giuseppe Caire "Optimality of Treating Inter-Cell Interference as Noise Under Finite Precision CSIT," 2020 IEEE International Symposium on Information Theory (ISIT) Year: 2020

61. Xiang Zhang, Kai Wan, Hua Sun, Mingyue Ji, and Giuseppe Caire "Private Cache-aided Interference Alignment for Multiuser Private Information Retrieval," 2020 18th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOPT) Year: 2020

62. Andreas Benzin, Dennis Osterland, Maksim Dill, and Giuseppe Caire "Centralized Single FPGA Real Time Zero Forcing Massive MIMO 5G Basestation Hardware and Gateware," 2020 IEEE 21st International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) Year: 2020

63. Kai Wan ; Hua Sun ; Mingyue Ji ; Daniela Tuninetti ; Giuseppe Caire "Device-to-Device Private Caching with Trusted Server," ICC 2020 - 2020 IEEE International Conference on Communications (ICC), Year: 2020

64. Mahdi Barzegar Khalilsarai ; Tianyu Yang ; Saeid Haghighatshoar ; Giuseppe Caire "Structured Channel Covariance Estimation from Limited Samples in Massive MIMO," ICC 2020 - 2020 IEEE International Conference on Communications (ICC), Year: 2020

65. Thomas Kuehne ; Xiaoshen Song ; Giuseppe Caire ; Kimmo Rasilainen ; Thi Huyen Le ; Marco Rossi ; Ivan Ndip ; Christian Fager "Performance Simulation of a 5G Hybrid Beamforming Millimeter-Wave System," WSA 2020; 24th International ITG Workshop on Smart Antennas, Year: 2020

66. Mahdi Barzegar Khalilsarai ; Tianyu Yang ; Saeid Haghighatshoar ; Xinping Yi ; Giuseppe Caire "Active Channel Sparsification and Precoding for Dual-Polarized FDD Massive MIMO," WSA 2020; 24th International ITG Workshop on Smart Antennas, Year: 2020

67. Mahdi Barzegar Khalilsarai ; Tianyu Yang ; Saeid Haghighatshoar ; Giuseppe Caire "Structured Channel Covariance Estimation for Dual-Polarized Massive MIMO Arrays," WSA 2020; 24th International ITG Workshop on Smart Antennas, Year: 2020

68. Ron Levie ; Cagkan Yapar ; Gitta Kutyniok ; Giuseppe Caire, "Pathloss Prediction using Deep Learning with Applications to Cellular Optimization and Efficient D2D Link Scheduling," *ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing,* Barcelona, Spain, Year: 2020.

69. Alexander Fengler ; Saeid Haghighatshoar ; Peter Jung ; Giuseppe Caire "Grant-Free Massive Random Access With a Massive MIMO Receiver," *53rd Asilomar Conference on Signals, Systems, and Computers,* Pacific Grove, CA, Year: 2019.

70. Eleftherios Lampiris ; Petros Elia ; Giuseppe Caire "Bridging the Gap between Multiplexing and Diversity in Finite SNR Multiple Antenna Coded Caching," *53rd Asilomar Conference on Signals, Systems, and Computers,* Pacific Grove, CA, Year: 2019.

71. Mahdi Barzegar Khalilsarai ; Yi Song ; Tianyu Yang ; Saeid Haghighatshoar ; Giuseppe Caire "Uplink-Downlink Channel Covariance Transformations and Precoding Design for FDD Massive MIMO," *53rd Asilomar Conference on Signals, Systems, and Computers,* Pacific Grove, CA, Year: 2019.

72. Elnaz Alizadeh Jarchlo ; Sepideh Mohammadi Kouhini ; Hossein Doroud ; Gerhard Maierbacher ; Markus Jung ; Bernhard Siessegger ; Zabih Ghassemlooy ; Anatolij Zubow ; Giuseppe Caire "Flight: A Flexible Light Communications network architecture for indoor environments," 2019 15th International Conference on Telecommunications (ConTEL) Year: 2019.

73. Kai Wan ; Daniela Tuninetti ; Mingyue Ji ; Giuseppe Caire "A Novel Cache-aided Fog-RAN Architecture," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

74. Alexander Fengler ; Peter Jung ; Giuseppe Caire "SPARCs and AMP for Unsourced Random Access," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

75. Yonatan Shadmi ; Peter Jung ; Giuseppe Caire "Sparse Non-Negative Recovery from Shifted Symmetric Subgaussian Measurements using NNLS," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

76. Yahya H. Ezzeldin ; Martina Cardone ; Christina Fragouli ; Giuseppe Caire "On the Multicast Capacity of Full-Duplex 1-2-1 Networks," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

77. Yahya H. Ezzeldin ; Martina Cardone ; Christina Fragouli ; Giuseppe Caire "Polynomial-time Capacity Calculation and Scheduling for Half-Duplex 1-2-1 Networks," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

78. Amirreza Asadzadeh ; Giuseppe Caire "Coded Caching with Small Subpacketization via Spatial Reuse and Content Base Replication," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

79. Mari Kobayashi ; Hassan Hamad ; Gerhard Kramer ; Giuseppe Caire "Joint State Sensing and Communication over Memoryless Multiple Access Channels," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

80. Kai Wan ; Daniela Tuninetti ; Mingyue Ji ; Giuseppe Caire "On Coded Caching with Correlated Files," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

81. Cagkan Yapar ; Kai Wan ; Rafael F. Schaefer ; Giuseppe Caire "On D2D Caching with Uncoded Cache Placement," 2019 IEEE International Symposium on Information Theory (ISIT) Year: 2019.

82. Mahdi Barzegar Khalilsarai ; Stelios Stefanatos ; Gerhard Wunder ; Giuseppe Caire "WiFi-Based Indoor Localization via Multi-Band Splicing and Phase Retrieval," 2019 IEEE 20th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC).

83. Mozhgan Bayat ; Kai Wan ; Giuseppe Caire "Routing-Based Delivery in Combination-Type Networks with Random Topology," 2019 IEEE 20th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC).

84. Xiaoshen Song ; Thomas Kuhne ; Giuseppe Caire "Fully-Connected vs. Sub-Connected Hybrid Precoding Architectures for mmWave MU-MIMO," ICC 2019 - 2019 IEEE International Conference on Communications (ICC).

85. Junyoung Nam ; Giuseppe Caire ; Merouane Debbah ; H. Vincent Poor "Impact of Strong Spatial Correlation on the Capacity Scaling of Massive MIMO," ICC 2019 - 2019 IEEE International Conference on Communications (ICC).

86. Fan Wei ; Yongpeng Wu ; Wen Chen ; Wei Yang ; Giuseppe Caire "On the Fundamental Limits of MIMO Massive Multiple Access Channels," ICC 2019 - 2019 IEEE International Conference on Communications (ICC)

87. Lorenzo Gaudio ; Mari Kobayashi ; Bjorn Bissinger ; Giuseppe Caire, "Performance Analysis of Joint Radar and Communication using OFDM and OTFS," 2019 IEEE International Conference on Communications, Shanghai, 2019.

88. Mario Kieburg ; Gernot Akemann ; Giusi Alfano ; Giuseppe Caire "Closed-form performance analysis of linear MIMO receivers in general fading scenarios," WSA 2019; 23rd International ITG Workshop on Smart Antennas Year: 2019 — Conference Paper

89. Mozhgan Bayat ; Cagkan Yapar ; Giuseppe Caire "Spatially Scalable Lossy Coded Caching," 2018 15th International Symposium on Wireless Communication Systems (ISWCS) Year: 2018 Pages: 1 - 6

90. Charles Jumaa Katila ; Benjamin Okolo ; Chiara Buratti ; Roberto Verdone ; Giuseppe Caire "UAV-to-Ground Multi-Hop Communication Using Backpressure and FlashLinQ-Based Algorithms," 2018 IEEE 29th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) Year: 2018 Pages: 1179 - 1184

91. Giuseppe Caire ; Shlomo Shamai ; Antonia Tulino ; Sergio Verdu ; Cagkan Yapar "Information Bottleneck for an Oblivious Relay with Channel State Information: the Scalar Case," 2018 IEEE International Conference on the Science of Electrical Engineering in Israel (ICSEE) Year: 2018 Pages: 1 - 5

92. Sebastian Schiessl ; James Gross ; Giuseppe Caire "Delay Performance of the Multiuser MISO Downlink" 2018 IEEE Global Communications Conference (GLOBECOM) Year: 2018 Pages: 206 - 212

93. Yilin Li ; Jian Luo ; Zhongfeng Li ; Richard A. Stirling-Gallacher ; Wen Xu ; Giuseppe Caire "Multihop Routing in Hybrid Vehicle-to-Vehicle and Vehicle-to-Infrastructure Networks," 2018 IEEE Globecom Workshops (GC Wkshps) Year: 2018 Pages: 1 - 6

94. Abdellatif Zaidi ; Iñaki Estella Azuerri ; Giuseppe Caire ; Shlomo Shamai Shitz "Uplink Oblivious Cloud Radio Access Networks: An Information Theoretic Overview," 2018 Information Theory and Applications Workshop (ITA) Year: 2018 Pages: 1 - 9

95. Mahdi Barzegar Khalilsarai ; Saeid Haghighatshoar ; Giuseppe Caire "How to Achieve Massive MIMO Gains in FDD Systems?" 2018 IEEE 19th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC), Year: 2018 Pages: 1 - 5

96. Yahya H. Ezzeldin ; Martina Cardone ; Christina Fragouli ; Giuseppe Caire "Gaussian 1-2-1 Networks: Capacity Results for mmWave Communications," 2018 IEEE International Symposium on Information Theory (ISIT), Year: 2018 Pages: 2569 - 2573

97. Mari Kobayashi ; Giuseppe Caire ; Gerhard Kramer "Joint State Sensing and Communication: Optimal Tradeoff for a Memoryless Case," 2018 IEEE International Symposium on Information Theory (ISIT), Year: 2018 Pages: 111 - 115

98. Saeid Haghighatshoar ; Peter Jung ; Giuseppe Caire "Improved Scaling Law for Activity Detection in Massive MIMO Systems," 2018 IEEE International Symposium on Information Theory (ISIT), Year: 2018 Pages: 381 - 385

99. Ratheesh K. Mungara ; Giuseppe Caire ; Ozgun Y. Bursalioglu ; Chenwei Wang ; Haralabos C. Papadopoulos "Fog Massive MIMO with On-the-Fly Pilot Contamination Control," 2018 IEEE International Symposium on Information Theory (ISIT), Year: 2018 Pages: 41 - 45

100. Saeid Haghighatshoar ; Mahdi Barzegar Khalilsarai ; Giuseppe Caire "Multi-Band Covariance Interpolation with Applications in Massive MIMO," 2018 IEEE International Symposium on Information Theory (ISIT), Year: 2018 Pages: 386 - 390

101. Jiwook Choi ; Namyoon Lee ; Song-Nam Hong ; Giuseppe Caire "Joint User Scheduling, Power Allocation, and Precoding Design for Massive MIMO Systems: A Principal Component Analysis Approach," 2018 IEEE International Symposium on Information Theory (ISIT), Year: 2018 Pages: 396 - 400

102. Chenwei Wang ; Ozgun Y. Bursalioglu ; Haralabos Papadopoulos ; Giuseppe Caire "On-the-Fly Large-Scale Channel-Gain Estimation for Massive Antenna-Array Base Stations," 2018 IEEE International Conference on Communications (ICC), Year: 2018 Pages: 1 - 6

103. Xiaoshen Song ; Saeid Haghighatshoar ; Giuseppe Caire "An Efficient CS-Based and Statistically Robust Beam Alignment Scheme for mmWave Systems," 2018 IEEE International Conference on Communications (ICC), Year: 2018 Pages: 1 - 6

104. Mahdi Barzegar Khalilsarai ; Saeid Haghighatshoar ; Xinping Yi ; Giuseppe Caire "FDD Massive MIMO: Efficient Downlink Probing and Uplink Feedback via Active Channel Sparsification," 2018 IEEE International Conference on Communications (ICC), Year: 2018 Pages: 1 - 6

105. Yongpeng Wu ; Chaokai Wen ; Wen Chen ; Shi Jin ; Robert Schober ; Giuseppe Caire "Data-Aided Secure Massive MIMO Transmission with Active Eavesdropping," 2018 IEEE International Conference on Communications (ICC), Year: 2018 Pages: 1 - 6

106. Sian Jin ; Ying Cui ; Hui Liu ; Giuseppe Caire "Uncoded placement optimization for coded delivery," 2018 16th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt), Year: 2018 Pages: 1 - 8

107. Konstantinos Manolakis ; Wen Xu ; Giuseppe Caire "Synchronization signal design and hierarchical detection for the D2D sidelink," 2017 51st Asilomar Conference on Signals, Systems, and Computers, Year: 2017, Pages: 1650 - 1654

108. Yilin Li; Jian Luo; Mario H. Castaneda; Nikola Vucic; Wen Xu; Giuseppe Caire "Analysis of Broadcast Signaling for Millimeter Wave Cell Discovery," 2017 IEEE 86th Vehicular Technology Conference (VTC-Fall) Year: 2017 Pages: 1 - 5

109. Mahdi Barzegar Khalilsarai; Saeid Haghighatshoar; Giuseppe Caire; Gerhard Wunder "Compressive estimation of a stochastic process with unknown autocorrelation function," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 1282 - 1286

110. Mingyue Ji; Rong-Rong Chen; Giuseppe Caire; Andreas F. Molisch "Fundamental limits of distributed caching in multihop D2D wireless networks," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 2950 - 2954

111. Saeid Haghighatshoar; Giuseppe Caire "Signal recovery from unlabeled samples," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 451 - 455

112. Iñaki Estella Aguerri; Abdellatif Zaidi; Giuseppe Caire; Shlomo Shamai Shitz "On the capacity of cloud radio access networks with oblivious relaying," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 2068 - 2072

113. Seyed Pooya Shariatpanahi; Giuseppe Caire; Babak Hossein Khalaj "Multi-antenna coded caching," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 2113 - 2117

114. Xinping Yi; Giuseppe Caire "Topological interference management with decoded message passing: A polyhedral approach," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 2800 - 2804

115. An Liu; Vincent Lau; Giuseppe Caire "Capacity scaling of wireless device-to-device caching networks under the physical model," 2017 IEEE International Symposium on Information Theory (ISIT) Year: 2017 Pages: 396 - 400

116. Zheda Li; Nadisanka Rupasinghe; Ozgun Y. Bursalioglu; Chenwei Wang; Haralabos Papadopoulos; Giuseppe Caire "Directional training and fast sector-based processing schemes for mmWave channels," 2017 IEEE International Conference on Communications (ICC) Year: 2017 Pages: 1 - 7

117. Saeid Haghighatshoar; Giuseppe Caire "Low-complexity massive MIMO subspace tracking from low-dimensional projections," 2017 IEEE International Conference on Communications (ICC) Year: 2017 Pages: 1 - 7

118. Yilin Li; Jian Luo; Wen Xu; Nikola Vucic; Emmanouil Pateromichelakis; Giuseppe Caire "A Joint Scheduling and Resource Allocation Scheme for Millimeter Wave Heterogeneous Networks," 2017 IEEE Wireless Communications and Networking Conference (WCNC) Year: 2017 Pages: 1 - 6

119. Ozgun Y. Bursalioglu; Chenwei Wang; Haralabos Papadopoulos; Giuseppe Caire "A novel alternative to cloud RAN for throughput densification: Coded pilots and fast user-packet scheduling at remote radio heads," 2016 50th Asilomar Conference on Signals, Systems and Computers Year: 2016 Pages: 3 - 10

120. Kittipong Kittichokechai; Onur Günlü; Rafael F. Schaefer; Giuseppe Caire "Private authentication with controllable measurement," 2016 50th Asilomar Conference on Signals, Systems and Computers Year: 2016 Pages: 1680 - 1684

121. Saeid Haghighatshoar; Giuseppe Caire "Pilot decontamination through compressive wideband channel estimation," 2016 50th Asilomar Conference on Signals, Systems and Computers Year: 2016 Pages: 979 - 983

122. Saeid Haghighatshoar; Giuseppe Caire "The beam alignment problem in mmWave wireless networks," 2016 50th Asilomar Conference on Signals, Systems and Computers Year: 2016 Pages: 741 - 745

123. Salah Eddine Hajri; Mohamad Assaad; Giuseppe Caire "Scheduling in Massive MIMO: User clustering and pilot assignment," 2016 54th Annual Allerton Conference on Communication, Control, and Computing (Allerton) Year: 2016 Pages: 107 - 114

124. Sian Jin; Ying Cui; Hui Liu; Giuseppe Caire "Order-Optimal Decentralized Coded Caching Schemes with Good Performance in Finite File Size Regime," 2016 IEEE Global Communications Conference (GLOBECOM) Year: 2016 Pages: 1 - 7

125. Kittipong Kittichokechai; Rafael F. Schaefer; Giuseppe Caire "Secret key generation through a relay," 2016 IEEE Information Theory Workshop (ITW) Year: 2016 Pages: 196 - 200,

126. Michal Kaliszan; Giuseppe Caire; Slawomir Stanczak, "On the throughput rate of wireless multipoint multicasting," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 2998 - 3002

127. Ozgun Y. Bursalioglu; Chenwei Wang; Haralabos Papadopoulos; Giuseppe Caire "RRH based massive MIMO with "on the Fly" pilot contamination control," 2016 IEEE International Conference on Communications (ICC) Year: 2016 Pages: 1 - 7

128. Kim Mahler; Wilhelm Keusgen; Fredrik Tufvesson; Thomas Zemen; Giuseppe Caire "Propagation Channel in a Rural Overtaking Scenario with Large Obstructing Vehicles," 2016 IEEE 83rd Vehicular Technology Conference (VTC Spring) Year: 2016 Pages: 1 - 5

129. Xinping Yi; Giuseppe Caire "Topological interference management with decoded message passing," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 550 - 55

130. Fabio D'Andreagiovanni; Giuseppe Caire "An unconventional clustering problem: User Service Profile Optimization," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 855 - 859

131. Nikhil Karamchandani; Suhas Diggavi; Giuseppe Caire; Shlomo Shamai "Rate and delay for coded caching with carrier aggregation," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 2724 - 2728

132. Xinping Yi; Giuseppe Caire "Topological coded caching," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 2039 - 2043

133. Saeid Haghighatshoar; Peter Jung; Giuseppe Caire "Capacity and degree-of-freedom of OFDM channels with amplitude constraint," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 900 - 904

134. Kittipong Kittichokechai; Giuseppe Caire "Privacy-constrained remote source coding," 2016 IEEE International Symposium on Information Theory (ISIT) Year: 2016 Pages: 1078 - 1082

135. Antonio Forenza; Stephen Perlman; Fadi Saibi; Mario Di Dio; Roger van der Laan; Giuseppe Caire "Achieving large multiplexing gain in distributed antenna systems via cooperation with pCell technology," 2015 49th Asilomar Conference on Signals, Systems and Computers Year: 2015 Pages: 286 - 293

136. K. Mahler; W. Keusgen; F. Tufvesson; T. Zemen; G. Caire "Propagation of Multipath Components at an Urban Intersection," Vehicular Technology Conference (VTC Fall), 2015 IEEE 82nd Year: 2015, Pages: 1 - 5.

137. A. S. Tehrani; A. F. Molisch; G. Caire "Directional ZigZag: Neighbor Discovery with Directional Antennas," 2015 IEEE Global Communications Conference (GLOBECOM) Year: 2015, Pages: 1 - 6.

138. Kurras, Martin and Thiele, Lars and Caire, Giuseppe, "Interference Mitigation and Multiuser Multiplexing with Beam-Steering Antennas," *19th International ITG Workshop on Smart Antennas WSA 2015*, Ilmenau, Germany, April 2015.

139. Mingyue Ji; Shanmugam, K.; Vettigli, G.; Llorca, J.; Tulino, A.M.; Caire, G. "An efficient multiple-groupcast coded multicasting scheme for finite fractional caching," Communications (ICC), 2015 IEEE International Conference on Year: 2015, Pages: 3801 - 3806

140. Yongpeng Wu; Schober, R.; Ng, D.W.K.; Chengshan Xiao; Caire, G. "Secure Massive MIMO transmission in the presence of an active eavesdropper," Communications (ICC), 2015 IEEE International Conference on Year: 2015, Pages: 1434 - 1440

141. Kittichokechai, Kittipong; Caire, Giuseppe "Secret key-based authentication with a privacy constraint," Information Theory (ISIT), 2015 IEEE International Symposium on Year: 2015, Pages: 1791 - 1795

142. Sang-Woon Jeon; Song-Nam Hong; Mingyue Ji; Caire, G. "On the capacity of multihop device-to-device caching networks," Information Theory Workshop (ITW), 2015 IEEE Year: 2015, Pages: 1 - 5

143. Yi, Xinping; Caire, Giuseppe "On the optimality of treating interference as noise: A combinatorial optimization perspective," Information Theory (ISIT), 2015 IEEE International Symposium on Year: 2015, Pages: 1721 - 1725

144. Song-Nam Hong; Maric, I.; Hui, D.; Caire, G. "Multihop virtual full-duplex relay channels," Information Theory Workshop (ITW), 2015 IEEE Year: 2015, Pages: 1 - 5

145. Ratnam, V.V.; Caire, G.; Molisch, A.F. "Capacity analysis of interlaced clustering in a distributed antenna system," Communications (ICC), 2015 IEEE International Conference on Year: 2015, Pages: 1727 - 1732

146. Mingyue Ji; Tulino, A.; Llorca, J.; Caire, G. "Caching-aided coded multicasting with multiple random requests," Information Theory Workshop (ITW), 2015 IEEE Year: 2015, Pages: 1 - 5

147. Sang-Woon Jeon; Song-Nam Hong; Mingyue Ji; Caire, G. "Caching in wireless multihop device-to-device networks," Communications (ICC), 2015 IEEE International Conference on Year: 2015, Pages: 6732 - 6737

148. Ntranos, Vasilis; Ali, Mohammad-Ali Maddah; Caire, Giuseppe "Cooperation alignment for distributed interference management," Information Theory (ISIT), 2015 IEEE International Symposium on Year: 2015, Pages: 874 - 878

149. Mingyue Ji; Ming Fai Wong; Tulino, A.M.; Llorca, J.; Caire, G.; Effros, M.; Langberg, M. "On the fundamental limits of caching in combination networks," Signal Processing Advances in Wireless Communications (SPAWC), 2015 IEEE 16th International Workshop on Year: 2015, Pages: 695 - 699

150. Song-Nam Hong ; Caire, G. "Demystifying the scaling laws of dense wireless networks: No linear scaling in practice," Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 71 - 75

151. Bethanabhotla, D. ; Bursalioglu, O.Y. ; Papadopoulos, H.C. ; Caire, G. "User association and load balancing for cellular massive MIMO," Information Theory and Applications Workshop (ITA), 2014 Publication Year: 2014 , Page(s): 1 - 10

152. Dhillon, H.S. ; Caire, G. "Scalability of line-of-sight massive MIMO mesh networks for wireless backhaul," Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 2709 - 2713

153. Ji, Mingyue ; Tulino, Antonia M. ; Llorca, Jaime ; Caire, Giuseppe "On the average performance of caching and coded multicasting with random demands," Wireless Communications Systems (ISWCS), 2014 11th International Symposium on Publication Year: 2014 , Page(s): 922 - 926

154. Adhikary, A. ; Al Safadi, E. ; Caire, G. "Massive MIMO and inter-tier interference coordination," Information Theory and Applications Workshop (ITA), 2014 Publication Year: 2014 , Page(s): 1 - 10

155. Dhillon, H.S. ; Caire, G. “Information theoretic upper bound on the capacity of wireless backhaul networks,” Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 251 - 255

156. Ntranos, V. ; Maddah-Ali, M.A. ; Caire, G. “Cellular interference alignment,” Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 1598 - 1602

157. Wei Yang ; Caire, G. ; Durisi, G. ; Polyanskiy, Y. “Finite-blocklength channel coding rate under a long-term power constraint,” Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 2067 - 2071

158. Tehrani, A.S. ; Caire, G. “ZigZag neighbor discovery in wireless networks,” Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 1386 - 1390

159. Tulino, A. ; Caire, G. ; Shamai, S. “Broadcast approach for the sparse-input random-sampled MIMO Gaussian channel,” Information Theory (ISIT), 2014 IEEE International Symposium on Publication Year: 2014 , Page(s): 621 - 625

160. Rogalin, Ryan ; Bursalioglu, Ozgun Y. ; Papadopoulos, Haralabos C. ; Caire, Giuseppe ; Molisch, Andreas F. “Hardware-impairment compensation for enabling distributed large-scale MIMO,,” Information Theory and Applications Workshop (ITA), Year: 2013 , Page(s): 1 - 10

161. Tehrani, A.S. ; Dimakis, A.G. ; Caire, G. “Optimal deterministic compressed sensing matrices,” Acoustics, Speech and Signal Processing (ICASSP), 2013 IEEE International Conference on Publication Year: 2013 , Page(s): 5895 - 5899

162. Ntranos, V. ; Cadambe, V.R. ; Nazer, B. ; Caire, G. “Feedback interference alignment: Exact alignment for three users in two time slots,” Communications (ICC), 2013 IEEE International Conference on Publication Year: 2013 , Page(s): 3073 - 3078

163. Bethanabhotla, D. ; Caire, G. ; Neely, M.J. “Utility optimal scheduling and admission control for adaptive video streaming in small cell networks,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 1944 - 1948

164. Song-Nam Hong ; Caire, G. “Generalized degrees of freedom for network-coded cognitive interference channel,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 1769 - 1773

165. Tehrani, A.S. ; Dimakis, A.G. ; Caire, G. “Optimal measurement matrices for neighbor discovery,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 2134 - 2138

166. Ntranos, V. ; Cadambe, V.R. ; Nazer, B. ; Caire, G. “Integer-forcing interference alignment,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 574 - 578

167. Song-Nam Hong ; Caire, G. “Structured lattice codes for 2??2?2 MIMO interference channel,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 2229 - 2233

168. Mingyue Ji ; Caire, G. ; Molisch, A.F. “Optimal throughput-outage trade-off in wireless one-hop caching networks,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 1461 - 1465

169. Tchamkerten, A. ; Chandar, V. ; Caire, G. “Energy and sampling constrained asynchronous communication,” Information Theory Proceedings (ISIT), 2013 IEEE International Symposium on Publication Year: 2013 , Page(s): 2518 - 2522

170. Piantanida, Pablo ; Kobayashi, Mari ; Caire, Giuseppe "Analog index coding over block-fading MISO broadcast channels with feedback," Information Theory Workshop (ITW), 2013 IEEE Publication Year: 2013 , Page(s): 1 - 5

171. Tehrani, A.S. ; Dimakis, A.G. ; Caire, G. "Optimal binary measurement matrices for compressed sensing," Information Theory Workshop (ITW), 2013 IEEE Publication Year: 2013 , Page(s): 1 - 5

172. Fundamental limits of distributed caching in D2D wireless networks Mingyue Ji ; Caire, G. ; Molisch, A.F. Information Theory Workshop (ITW), 2013 IEEE Publication Year: 2013 , Page(s): 1 - 5

173. Hong, Song-Nam ; Caire, Giuseppe "Two-unicast two-hop interference network: Finite-field model," Information Theory Workshop (ITW), 2013 IEEE Publication Year: 2013 , Page(s): 1 - 5

174. Michaloliakos, A. ; Rogalin, R. ; Balan, V. ; Psounis, K. ; Caire, G. "Efficient MAC for distributed multiuser MIMO systems," Wireless On-demand Network Systems and Services (WONS), 2013 10th Annual Conference on Publication Year: 2013 , Page(s): 52 - 59

175. Golrezaei, N. ; Shanmugam, K. ; Dimakis, A.G. ; Molisch, A.F. ; Caire, G. "Wireless video content delivery through coded distributed caching," 2012 IEEE International Conference on Communications (ICC), Year: 2012 , Page(s): 2467 - 2472

176. Yong Sheng Soh ; Quek, Tony Q.S. ; Kountouris, Marios ; Caire, Giuseppe "Flexible duplex for cognitive femtocells in two-tier networks," 2012 IEEE Global Communications Conference (GLOBECOM), Year: 2012 , Page(s): 2209 - 2214

177. Shanmugam, K.; Caire, G. "Wireless downloading delay under proportional fair scheduling with coupled service and requests: An approximated analysis," *IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2012 , Page(s): 2841 - 2845

178. Song-Nam Hong; Caire, G. "Reverse compute and forward: A low-complexity architecture for downlink distributed antenna systems," *IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2012 , Page(s): 1147 - 1151

179. Kobayashi, M.; Caire, G. "On the net DoF comparison between ZF and MAT over time-varying MISO broadcast channels," *IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2012 , Page(s): 2286 - 2290

180. Junyoung Nam; Caire, G. "A new outer bound on the capacity region of Gaussian interference channels," *IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2012 , Page(s): 2806 - 2810

181. Ntranos, V.; Caire, G.; Dimakis, A.G. "Allocations for heterogenous distributed storage," *IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2012 , Page(s): 2761 - 2765

182. Adhikary, A. ; Caire, G. "On the coexistence of macrocell spatial multiplexing and cognitive femtocells," 2012 IEEE International Conference on Communications (ICC), Year: 2012 , Page(s): 6830 - 6834

183. Golrezaei, N.; Shanmugam, K.; Dimakis, A.G.; Molisch, A.F.; Caire, G. "FemtoCaching: Wireless video content delivery through distributed caching helpers," *Proceedings IEEE INFOCOM,* Publication Year: 2012 , Page(s): 1107 - 1115

184. Ntranos, V.; Caire, G. "A comparison of decoding techniques for Interference Alignment," *2012 5th International Symposium on Communications Control and Signal Processing (ISCCSP),* Publication Year: 2012 , Page(s): 1 - 5

185. Junyoung Nam ; Jae-Young Ahn ; Adhikary, A. ; Caire, G. "Joint spatial division and multiplexing: Realizing massive MIMO gains with limited channel state information," 2012 46th Annual Conference on Information Sciences and Systems (CISS), Year: 2012 , Page(s): 1 - 6

186. Song-Nam Hong; Caire, G. "Quantized compute and forward: A low-complexity architecture for distributed antenna systems," *2011 IEEE Information Theory Workshop (ITW),* Publication Year: 2011 , Page(s): 420 - 424

187. Huh, H.; Caire, G.; Papadopoulos, H.C.; Ramprashad, S.A.; "Achieving large spectral efficiency with TDD and not-so-many base-station antennas," *IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications (APWC), 2011* Publication Year: 2011 , Page(s): 1346 - 1349

188. Bursalioglu, O.Y.; Caire, G.; "Is Unequal Error Protection useful?" *2011 IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2011 , Page(s): 1402 - 1406

189. Tulino, A.; Caire, G.; Shamai, S.; Verdu, S.; "Support recovery with sparsely sampled free random matrices," *2011 IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2011 , Page(s): 2328 - 2332

190. Razaghi, P.; Caire, G.; "A nonlinear approach to interference alignment," *2011 IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2011 , Page(s): 2741 - 2745

191. Al-Naffouri, T.Y.; Quadeer, A.A.; Caire, G.; "Impulsive noise estimation and cancellation in DSL using orthogonal clustering," *2011 IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2011 , Page(s): 2841 - 2845

192. Junyoung Nam; Caire, G.; Jeongseok Ha; "Block triangularization: A new linear precoding strategy for Gaussian MIMO BC," *2011 IEEE International Symposium on Information Theory Proceedings (ISIT),* Publication Year: 2011 , Page(s): 1728 - 1732

193. Hoon Huh; Tulino, A.; Caire, G.; "Network-MIMO cellular systems: Large-system analysis and low-overhead downlink scheduling," *2011 IEEE Statistical Signal Processing Workshop (SSP),* Publication Year: 2011 , Page(s): 693 - 696

194. Chenwei Wang; Papadopoulos, H.C.; Ramprashad, S.A.; Caire, G.; "Improved Blind Interference Alignment in a Cellular Environment Using Power Allocation and Cell-Based Clusters," *2011 IEEE International Conference on Communications (ICC),* Publication Year: 2011 , Page(s): 1 - 6

195. Bursalioglu, O.Y.; Caire, G.; Divsalar, D.; "Joint source-channel coding for deep space image transmission using rateless codes," *2011 Information Theory and Applications Workshop (ITA),* La Jolla, CA, Feb. 2011.

196. Chenwei Wang; Papadopoulos, H.C.; Ramprashad, S.A.; Caire, G.; "Design and operation of Blind Interference Alignment in cellular and cluster-based systems," *2011 Information Theory and Applications Workshop (ITA),* La Jolla, CA, Feb. 2011.

197. Adhikary, A.; Ntranos, V.; Caire, G.; "Cognitive femtocells: Breaking the spatial reuse barrier of cellular systems," *2011 Information Theory and Applications Workshop (ITA),* La Jolla, CA, Feb. 2011.

198. Razaghi, Peyman; Caire, Giuseppe; "Relay strategies based on cross-determinism for the broadcast relay channel," 48th Annual Allerton Conference on Communication, Control, and Computing, Page(s): 936 - 943, 2010.

199. Caire, G.; Kumar, K.R.; "A low-latency low-complexity scheme for efficient channel state feedback in MIMO multiuser communications," MILITARY COMMUNICATIONS CONFERENCE, 2010 - MILCOM 2010 Page(s): 1666 - 1671, 2010.

200. Razaghi, Peyman; Caire, Giuseppe; "Coarse Network Coding: A Simple Relay Strategy to Resolve Interference," *IEEE Wireless Network Coding Conference (WiNC), 2010* Page(s): 1 - 6, 2010.

201. Kyoung-Jae Lee; Jin-Sung Kim; Caire, G.; Inkyu Lee; "Asymptotic Analysis of Ergodic Capacity for Amplify-and-Forward MIMO Relaying Systems," *IEEE International Conference on Communications, ICC 2010*, Page(s): 1 - 5, 2010

202. Ramprashad, S.A.; Caire, G.; Papadopoulos, H.C.; "A Joint Scheduling and Cell Clustering Scheme for MU-MIMO Downlink with Limited Coordination," *IEEE International Conference on Communications, ICC 2010*, Page(s): 1 - 6, 2010.

203. Shirani-Mehr, H.; Papadopoulos, H.; Ramprashad, S.A.; Caire, G.; "Joint Scheduling and Hybrid-ARQ for MU-MIMO Downlink in the Presence of Inter-Cell Interference," *IEEE International Conference on Communications, ICC 2010*, Page(s): 1 - 6, 2010.

204. Sung-Hyun Moon; Hoon Huh; Young-Tae Kim; Caire, G.; Inkyu Lee; "Weighted Sum Rate of Multi-Cell MIMO Downlink Channels in the Large System Limit," *IEEE International Conference on Communications, ICC 2010*, Page(s): 1 - 5, 2010.

205. Shirani-Mehr, H.; Caire, G.; Papadopoulos, H.; Ramprashad, S. A.; "Joint scheduling and hybrid ARQ for multi-cell MU-MIMO downlink," *IEEE International Symposium on Information Theory, ISIT 2010*, Page(s): 2053 - 2057, 2010.

206. Huh, Hoon; Caire, Giuseppe; Moon, Sung-Hyun; Lee, Inkyu; "Multi-cell MIMO downlink with fairness criteria: The large system limit," *IEEE International Symposium on Information Theory, ISIT 2010*, Page(s): 2058 - 2062, 2010.

207. Hoon Huh; Tulino, A.; Caire, G.; "Network MIMO large-system analysis and the impact of CSIT Estimation," *2010 44th Annual Conference on Information Sciences and Systems (CISS)*, Page(s): 1 - 6, 2010.

208. Caire, G.; Ramprashad, S.A.; Papadopoulos, H.C.; "Rethinking network MIMO: Cost of CSIT, performance analysis, and architecture comparisons," *Information Theory and Applications Workshop (ITA), 2010*, Page(s): 1 - 10, 2010.

209. Bursalioglu, O.Y.; Caire, G.; "A Flexible Multiple Description Coding Scheme Based on Rateless Codes," *Data Compression Conference (DCC), 2010* Page(s): 269 - 278, 2010.

210. Tulino, A.; Caire, G.; Shamai, S.; Verdu, S.; "The capacity of the frequency/time-selective fading channel," *IEEE Information Theory Workshop, ITW 2010*, Page(s): 1 - 5, 2010.

211. Papadopoulos, H.C.; Caire, G.; Ramprashad, S.A.; "Achieving large spectral efficiencies from MU-MIMO with tens of antennas: Location-adaptive TDD MU-MIMO design and user scheduling," 2010 Conference Record of the Forty Fourth Asilomar Conference on Signals, Systems and Computers (ASILOMAR), Publication Year: 2010 , Page(s): 636 - 643

212. Shirani-Mehr, H.; Caire, G.; "MIMO downlink scheduling with non-perfect channel state knowledge," *IEEE Information Theory Workshop, ITW,* Taormina Italy, 2009 , Page(s): 80 - 84

213. Moustakas, A.L.; Kumar, K.R.; Caire, G.; "Performance of MMSE MIMO Receivers: A Large N Analysis for Correlated Channels," *IEEEVehicular Technology Conference, VTC Spring,* 2009 , Page(s): 1 - 5

214. Caire, G.; Bursalioglu, O.Y.; Poor, H.V.; Fresia, M.; "Joint source-channel coding at the application layer for parallel Gaussian sources," *IEEE International Symposium on Information Theory, ISIT 2009*, June 28 2009-July 3 2009 Page(s):2126 - 2130

215. Tomasoni, A.; Caire, G.; Ferrari, M.; Bellini, S.; "On the selection of semi-orthogonal users for zero-forcing beamforming," *IEEE International Symposium on Information Theory, ISIT 2009*, June 28 2009-July 3 2009 Page(s):1100 - 1104

216. Caire, G.; Papadopoulos, H.; Hoon Huh; "MIMO broadcast channel optimization under general linear constraints," *IEEE International Symposium on Information Theory, ISIT 2009*, June 28 2009-July 3 2009 Page(s):2664 - 2668

217. Kumar, K.R.; Caire, G.; "Channel state feedback over the MIMO-MAC," *IEEE International Symposium on Information Theory, ISIT 2009*, June 28 2009-July 3 2009 Page(s):2361 - 2365

218. Kobayashi, M.; Jindal, N.; Caire, G.; "Optimized training and feedback for MIMO downlink channels," *IEEE Information Theory Workshop on Networking and Information Theory, 2009. ITW 2009*, 12-10 June 2009 Page(s):226 - 230

219. Kazakopoulos, P.; Mertikopoulos, P.; Moustakas, A.L.; Caire, G.; "Distribution of MIMO mutual information: A large deviations approach," *IEEE Information Theory Workshop on Networking and Information Theory, 2009. ITW 2009*, 12-10 June 2009 Page(s):306 - 310

220. Fresia, M.; Bursalioglu, O.Y.; Caire, G.; Poor, H.V.; "Multicasting of digital images over erasure broadcast channels using rateless codes," Sarnoff Symposium, 2009. SARNOFF '09. IEEE March 30 2009-April 1 2009 Page(s):1 - 6

221. Bursalioglu, O. Y.; Fresia, M.; Caire, G.; Poor, H. V.; "Joint Source-Channel Coding at the Application Layer," Data Compression Conference, 2009. DCC '09. 16-18 March 2009 Page(s):93 - 102

222. Caire, G.; Ramprashad, S.A.; Papadopoulos, H.C.; Pepin, C.; Sundberg, C.-E.W.; "Multiuser MIMO downlink with limited inter-cell cooperation: Approximate interference alignment in time, frequency and space," *2008 46th Annual Allerton Conference on Communication, Control, and Computing,* October 2008 , Page(s): 730 - 737

223. Daeyoung Park; Caire, G.; "Hard fairness versus proportional fairness in wireless communications: The Multiple-Cell Case," Information Theory, 2008. ISIT 2008. IEEE International Symposium on 6-11 July 2008 Page(s):2036 - 2040

224. Martinez, A.; Guillen i Fabregas, A.; Caire, G.; Willems, F.; "Bit-interleaved coded modulation revisited: A mismatched decoding perspective," Information Theory, 2008. ISIT 2008. IEEE International Symposium on 6-11 July 2008 Page(s):2337 - 2341

225. Kobayashi, M.; Caire, G.; Jindal, N.; "How much training and feedback are needed in MIMO broadcast channels?" Information Theory, 2008. ISIT 2008. IEEE International Symposium on 6-11 July 2008 Page(s):2663 - 2667

226. Kumar, K.R.; Caire, G.; "Coding and decoding for the Dynamic Decode and Forward relay protocol," Information Theory, 2008. ISIT 2008. IEEE International Symposium on 6-11 July 2008 Page(s):2380 - 2384

227. Tulino, A.; Verdu, S.; Caire, G.; Shamai, S.; "Intersymbol interference with flat fading: Channel capacity," Information Theory, 2008. ISIT 2008. IEEE International Symposium on 6-11 July 2008 Page(s):1577 - 1581

228. Caire, G.; Al-Naffouri, T.Y.; Narayanan, A.K.; "Impulse noise cancellation in OFDM: an application of compressed sensing," Information Theory, 2008. ISIT 2008. IEEE International Symposium on 6-11 July 2008 Page(s):1293 - 1297

229. Barbieri, A.; Caire, G.; Mitra, U.; "An approximate eigenmode decomposition for doubly-selective wireless channels," Acoustics, Speech and Signal Processing, 2008. ICASSP 2008. IEEE International Conference on March 31 2008-April 4 2008 Page(s):2857 - 2860

230. Caire, G.; Shirani-Mehr, H.; "Feedback schemes for multiuser MIMO-OFDM downlink," Information Theory and Applications Workshop, 2008 Jan. 27 2008-Feb. 1 2008 Page(s):33 - 40

231. Caire, G.; Jindal, N.; Shamai, S.; "On the Required Accuracy of Transmitter Channel State Information in Multiple Antenna Broadcast Channels," Signals, Systems and Computers, 2007. ACSSC 2007. Conference Record of the Forty-First Asilomar Conference on 4-7 Nov. 2007 Page(s):287 - 291

232. Kobayashi, M.; Caire, G.; "A Practical Approach for Weighted Rate Sum Maximization in MIMO-OFDM Broadcast Channels," Signals, Systems and Computers, 2007. ACSSC 2007. Conference Record of the Forty-First Asilomar Conference on 4-7 Nov. 2007 Page(s):1591 - 1595

233. Raj K. Kumar and G. Caire, "The Diversity-Multiplexing Tradeoff of Linear MIMO Receivers," *IEEE 2007 Information Theory Workshop,* ITW07, Lake Tahoe, CA, Sept. 2007.

234. Tung T. Kim, G. Caire and M. Skoglund, "On the Outage Exponent of Fading Relay Channels with Partial Channel State Information," *IEEE 2007 Information Theory Workshop,* ITW07, Lake Tahoe, CA, Sept. 2007.

235. A. Tulino, S. Verdu, G. Caire and S. Shamai, "The Gaussian Erasure Channel," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

236. A. Gullen i Fabregas and G. Caire, "Multidimensional Coded Modulation in Block-Fading Channels," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

237. A. Martinez, A. Guillen i Fabregas and G. Caire, "Bit-Interleaved Coded Modulation in the Wideband Regime," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

    K. Narayanan and G. Caire, "Duality between Broadcasting with Bandwidth Expansion and Bandwidth Compression," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

238. K. Raj Kumar and G. Caire, "On Outage Analysis and Code Design for Correlated MIMO Fading Channels," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

239. K. Raj Kumar and G. Caire, "Structured Lattice Space-Time Trellis Coded Modulation," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

240. K. Tung, M. Skoglund and G. Caire, "Distortion Exponents over Fading MIMO Channels with Quantized Feedback," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

241. N. Jindal, G. Caire and M. Kobayashi, "Quantized vs. Analog Feedback for the MIMO: A Comparison between Zero-Forcing Based Achievable Rates," *IEEE Int. Symp. on Inform. Theory,* Nice, June 24–29, 2007.

242. M. Kobayashi and G. Caire, "Iterative waterfilling for weighted sum rate maximization in MIMO-OFDM broadcast channels," *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Honolulu, Hawaii, April 15 - 20, 2007.

243. N. Jindal, G. Caire and M. Kobayashi, "Achievable rates of MIMO downlink beamforming with non-perfect CSI: a comparison between "quantized" and "analog" feedback," *Asilomar Conference on Signals, Systems, and Computers,* Pacific Grove, CA, Oct. 28 – Nov. 1, 2006

244. K. Bhattad, K. Narayanan and G. Caire, "On the distortion exponent of some layered transmission schemes," *Asilomar Conference on Signals, Systems, and Computers,* Pacific Grove, CA, Oct. 28 – Nov. 1, 2006

245. S. Franz, G. Caire and U. Mitra, "Capacity Bounds for Training-Based Ultra-Wideband Systems," *IEEE Globecom 2006,* San Francisco, CA, Nov. 27 – Dec. 1, 2006.

246. M. Kobayashi and G. Caire, "Iterative Waterfilling for Weighted Rate Sum Maximization in MIMO-MAC," The Seventh IEEE International Workshop on Signal Processing Advances in Wireless Communications, Cannes, France, July 2-5, 2006.

247. G. Caire, R. Mueller, R. Knopp, "Hard Fairness versus Proportional Fairness in Wireless Communications: the Single-Cell Case," *2006 IEEE International Symposium on Information Theory,* Seattle, WA, July 9-14, 2006.

248. M. Kobayashi and G. Caire, "Joint Beamforming and Scheduling for a MIMO Downlink with Random Arrivals," *2006 IEEE International Symposium on Information Theory,* Seattle, WA, July 9-14, 2006.

249. K. Raj Kumar and G. Caire, "Construction of Structured LaST Codes," *2006 IEEE International Symposium on Information Theory,* Seattle, WA, July 9-14, 2006.

250. G. Caire, S. Verdu and S. Shamai, "Feedback and Belief Propagation," *2007 Turbo Coding Symposium,* Munich, Germany, April 3-7, 2006.

251. M. Fresia and G. Caire, "Combined Error Protection and Compression with Turbo Codes for Image Transmission using a JPEG2000-Like Architecture," *IEEE Intern. Conf. On Image Processing*, ICIP 2006, Atlanta, GA, Oct. 8-11, 2006.

252. Boccardi, F.; Tosato, F.; Caire, G.; "Precoding Schemes for the MIMO-GBC," International Zurich Seminar on Communications, February 22-24, 2006 Page(s):10 - 13.

253. Caire, G.; Muller, R.; Knopp, R.; "Multiuser Diversity in Delay-Limited Cellular Wideband Systems Communications," International Zurich Seminar on Communications, February 22-24, 2006 Page(s):178 - 181.

254. Martinez, A.; Guillen i Fabregas, A.; Caire, G.; "A closed-form approximation for the error probability of coded BPSK fading channels," 7th Australian Communications Theory Workshop, 1-3 Feb. 2006 Page(s):15 - 18.

255. G. Caire, "MIMO downlink joint processing and scheduling: a survey of classical and recent results," *Information Theory and Applications (ITA), Workshop,* University of California, San Diego, Feb. 2-7, 2006.

256. K. Narayanan and G. Caire, "Further Results on the SNR Exponent of Hybrid Digital Analog Space Time Codes," *Information Theory and Applications (ITA), Workshop,* University of California, San Diego, Feb. 2-7, 2006.

257. Souilmi, Y.; Knopp, R.; Caire, G.;, "Code constructions for non-coherent on-off ultra-wideband systems," 2005 IEEE International Conference on Ultra-Wideband. ICU 2005. 5-8 Sept. 2005 Page(s):28 - 32

258. H. El Gamal, G. Caire, M. Damen and A. Murugan, "From Sphere to Sequential Decoding," 43th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Sept. 28-30, 2005

259. F. Boccardi and G. Caire, "The p-Sphere encoder: Vector Precoding with Low Peak-Power," 43th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Sept. 28-30, 2005.

260. G. Caire and K. Narayanan, "On the SNR Exponent of Hybrid Digital Analog Space-Time Coding," 43th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Sept. 28-30, 2005

261. Sesia, S.; Caire, G.; Vivier, G.; "Lossy transmission over slow-fading AWGN channels: a comparison of progressive, superposition and hybrid approaches," Proc. of *Int. Symp. on Inform. Theory, ISIT 2005* 4-9 Sept. 2005, Page(s):224 - 228

262. Martinez, A.; Guillen i Fabregas, A.; Caire, G.; "Gallager bounds for linear codes in binary-input output-symmetric memoryless channels," Proc. of *Int. Symp. on Inform. Theory, ISIT 2005* 4-9 Sept. 2005, Page(s):800 - 804

263. El Gamal, H.; Caire, G.; Damen, M.O.; "The diversity-multiplexing-delay tradeoff in MIMO ARQ channels," Proc. of *Int. Symp. on Inform. Theory, ISIT 2005* 4-9 Sept. 2005, Page(s):1823 - 1827

264. Bonneau, N.; Altman, E.; Debbah, M.; Caire, G.; "When to synchronize in uplink CDMA," Proc. of *Int. Symp. on Inform. Theory, ISIT 2005* 4-9 Sept. 2005, Page(s):337 - 341

265. Caire, G.; Shamai, S.; Verdu, S.; "An efficient scheme for reliable error correction with limited feedback," Proc. of *Int. Symp. on Inform. Theory, ISIT 2005* 4-9 Sept. 2005, Page(s):1521 - 1525

266. Murugan, A.D.; El Gamal, H.; Damen, M.O.; Caire, G.; "A unified framework for tree search decoding: rediscovering the sequential decoder," Proc. of *6th IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC),* June 2-8, 2005 Page(s):761 - 765

267. Kobayashi, M.; Caire, G.; Gesbert, D.; "Impact of multiple transmit antennas in a queued SDMA/TDMA downlink," Proc. of *6th IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC),* June 2-8, 2005 Page(s):761 - 765

268. A MIMO-OFDM Testbed for Wireless Local Area Networks Guillen i Fabregas, A.; Guillaud, M.; Caire, G.; Gosse, K.; Rouquette, S.; Dias, A.R.; Bernardin, P.; Miet, X.; Conrat, J.-M.; Toutain, Y.; Peden, A.; Zaiqing Li; Signals, Systems and Computers, 2005. Conference Record of the Thirty-Ninth Asilomar Conference on October 28 - November 1, 2005 Page(s):82 - 86

269. Kim, A.N.; Sesia, S.; Ramstad, T.A.; Caire, G.; "Combined Error Protection and Compression Using Turbo Codes for Error Resilient Image Transmission," Proc. of *IEEE Int. Conf. on Image Processing (ICIP),* Volume 3, 11-14 Sept. 2005 Page(s):912 - 915

270. Bonneau, N.; Debbah, M.; Altman, E.; Caire, G.; "Spectral efficiency of CDMA uplink cellular networks," Proc. of *IEEE Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP),* Volume 5, 18-23 March 2005 Page(s):v/821 - v/824.

271. Barbieri, A.; Colavolpe, G.; Caire, G.; "Joint iterative detection and decoding in the presence of phase noise and frequency offset," Proc. of *IEEE Int. Conf. on Commun. (ICC),* Volume 1, 16-20 May 2005 Page(s):720 - 724.

272. Muller, R.R.; Caire, G.; Knopp, R.; "Multiuser diversity in delay-limited cellular wideband systems," Proc. of *, IEEE Information Theory Workshop (ITW),* Aug. 29 - Sept. 1, 2005 Page(s):132 - 136.

273. Murugan, A.D.; El Gamal, H.; Damen, M.O.; Caire, G.; "A unified framework for tree search decoding: rediscovering sequential decoding," Proc. of *, IEEE Information Theory Workshop (ITW),* Aug. 29 - Sept. 1, 2005 Page(s):137 - 141

274. H. El Gamal, G. Caire and M.O. Damen, "On the Optimality of Incremental Redundancy LAST Coding," 2005 International Conference on Wireless Networks, Communications and Mobile Computing, Volume 2, pp. 1472–1476, 13-16 June 2005.

275. G. Caire, S. Shamai, A. Shokrollahi and S. Verdu, "Universal variable-length data compression of binary sources using fountain codes," *Inform. Theory Workshop, ITW 2004,* San Antonio, TX, Oct. 2004.

276. A. Guillen i Fabregas and G. Caire, "Turbo-like codes are Good in the Block-Fading Channel," *Int. Symp. on Inform. Theory and its Applications (ISITA 2004)*, Parma, Italy, October 10–13, 2004.

277. A. Martinez, A. Guillen i Fabregas and G. Caire, "New Simple Evaluation of Error Probability of Bit-Interleaved Coded Modulation using the Saddlepoint Approximation," *Int. Symp. on Inform. Theory and its Applications (ISITA 2004)*, Parma, Italy, October 10–13, 2004.

278. M. Kobayashi, G. Caire and D. Gesbert, "Antenna diversity versus Multiuser diversity: Quantifying the tradeoffs," *Intern. Symp. on Inform. Theory and its Applications (ISITA 2004)*, Parma, Italy, October 10–13, 2004.

279. G. Caire, S. Shamai and S. Verdu, "Practical Schemes for Interactive Data Exchange," *Intern. Symp. on Inform. Theory and its Applications (ISITA 2004)*, Parma, Italy, October 10–13, 2004.

280. A. Bennatan, D. Burshtein, G. Caire and S. Shamai, "Superposition Coding for Gaussian Dirty Paper," *Intern. Symp. on Inform. Theory and its Applications (ISITA 2004)*, Parma, Italy, October 10–13, 2004.

281. S. Sesia and G. Caire, "Multilevel trellis quantization and its applications," 42th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Sept. 29-Oct. 2, 2004.

282. A. Bennatan, D. Burshtein, G. Caire and S. Shamai, "Superposition coding for Gaussian dirty-paper," *The 23rd IEEE Convention of Electrical & Electronics Engineers in Israel (IEEEI'2004)*. Sept. 6-7, Herzlia, Israel.

283. A. Guillen i Fabregas and G. Caire, "Impact of Signal Constellation Expansion on Achievable Diversity in Quasistatic Multiple Antenna Channels," EUSIPCO 2004, Vienna, Austria, Sept. 6 – 10, 2004.

284. A. Barbieri, G. Colavolpe and G. Caire, "A Bayesian Method for Iterative Joint Detection and Decoding in the Presence of Phase Noise," EUSIPCO 2004, Vienna, Austria, Sept. 6 – 10, 2004.

285. G. Colavolpe, A. Barbieri, G. Caire, N. Bonneau, "Bayesian and non-Bayesian methods for joint decoding and detection in the presence of phase noise," *2004 IEEE Int. Symp. on Inform. Theory, ISIT 2004,* Chicago IL, June 27 – July 2, 2004.

286. M. O. Damen, H. El Gamal and G. Caire, "MMSE-GDFE Lattice Decoding for Solving Under-determined Linear Systems With Integer Unknowns," *2004 IEEE Int. Symp. on Inform. Theory, ISIT 2004,* Chicago IL, June 27 – July 2, 2004.

287. M. O. Damen, H. El Gamal and G. Caire, "On the Optimality of LAttice Space-Time (LAST) Coding," *2004 IEEE Int. Symp. on Inform. Theory, ISIT 2004,* Chicago IL, June 27 – July 2, 2004.

288. A. Guillen i Fabregas and G. Caire, "Turbo-like Codes for the Block-Fading Channel," *2004 IEEE Int. Symp. on Inform. Theory, ISIT 2004,* Chicago IL, June 27 – July 2, 2004.

289. S. Sesia, G. Caire and G. Vivier, "On the scalability of H-ARQ systems in Wireless Multicast," *2004 IEEE Int. Symp. on Inform. Theory, ISIT 2004,* Chicago IL, June 27 – July 2, 2004.

290. A. Guillen i Fabregas, A. Martinez and G. Caire, "Error Probability of Bit-Interleaved Coded Modulation using the Gaussian Approximation," 38th Annual Conf. on Inform. Sciences and Systems, CISS04, March 2004.

291. M. O. Damen, H. El Gamal and G. Caire, "MMSE-GDFE Lattice Decoding for Under-determined Linear Channels," 38th Annual Conf. on Inform. Sciences and Systems, CISS04, March 2004.

292. G. Caire, S. Shamai and S. Verdú, "Noiseless Data Compression with Low-Density Parity-Check Codes," Advances in Network Information Theory, P. Gupta, G. Kramer and A. J. van Wijngaarden, Eds., DIMACS Series in Discrete Mathematics and Theoretical Computer Science, vol. 66, pp. 263-284, American Mathematical Society, 2004.

293. S. Guemghar and G. Caire, "Construction of Finite Length Irregular Repeat Accumulate Codes," *5th Int. ITG Conf. on Source and Channel Coding,* Erlangen, Germany, Jan. 14-16, 2004.

294. G. Caire, S. Shamai and S. Verdu, "Almost-Noiseless Joint Source-Channel Coding-Decoding of Sources with Memory," *5th Int. ITG Conf. on Source and Channel Coding,* Erlangen, Germany, Jan. 14-16, 2004.

295. M. Kobayashi and G. Caire, "A Low-Complexity Approach to Space-Time Coding for Multipath Fading Channels" Intern. Symp. on Wireless Personal Multimedia Commun., WPMC'03, Yokosuka Kanagawa, Japan, Oct. 2003.

296. H. El Gamail, G. Caire and M. O. Damen, "On the role of MMSE in lattice decoding: achieving the optimal diversity-vs-multiplexing tradeoff," 41th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 1-3, 2003.

297. G. Caire, A. Bennatan, D. Burshtein and S. Shamai, "Coding schemes for the binary symmetric channel with known interference," 41th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 1-3, 2003.

298. S. Sesia, G. Caire and G. Vivier, "Reducing the average complexity of LDPC decoding for incremental redundancy schemes," *3rd International Symposium on Turbo-Codes,* Brest, France, Sept. 2003.

299. A. Guillen i Fabregas and G. Caire, "Turbo-like codes over the block-fading channel: code design and construction," *3rd International Symposium on Turbo-Codes,* Brest, France, Sept. 2003.

300. G. Caire, S. Shamai and S. Verdu, "Universal data compression with LDPC codes," *3rd International Symposium on Turbo-Codes,* Brest, France, Sept. 2003.

301. S. Sesia, G. Caire and G. Vivier, "The throughput of LDPC-based incremental redundancy schemes with finite block length," *IEEE Int. Symp. on Inform. Theory, ISIT 2003,* Yokohama, Japan, July 2003..

302. A. Roumy, S. Guemghar, G. Caire and S. Verdu, "Design methods for irregular repeat accumulate codes," *IEEE Int. Symp. on Inform. Theory, ISIT 2003,* Yokohama, Japan, July 2003..

303. G. Caire, S. Shamai and S. Verdu, "Lossless data compression with error correcting codes," *IEEE Int. Symp. on Inform. Theory, ISIT 2003,* Yokohama, Japan, July 2003..

304. M. O. Damen, H. El Gamal and G. Caire, "Low complexity ML detection based on search for the closest lattice point," *IEEE Int. Symp. on Inform. Theory, ISIT 2003,* Yokohama, Japan, July 2003..

305. G. Caire, S. Shamai and S. Verdu, A new data compression algorithm for sources with memory based on error correcting codes *2003 IEEE Information Theory Workshop,* pp. 291–295, La Sorbonne, Paris France, March 31 - April 4, 2003.

306. A. Guillen i Fabregas and G. Caire, Design of space-time bit-interleaved coded modulation for block fading channels with iterative decoding 2003 Conf. on Inform. Sciences and Systems, CISS 2003, The Johns Hopkins University, March 12-14, 2003.

307. G. Caire, S. Shamai, A. Shokrollahi and S. Verdu, "Fountain codes for lossless data compression," Proc. of *DIMACS Workshop on Algebraic Coding Theory and Information Theory,* Rutgers University, NJ, Dec. 15-18, 2003.

308. A. Guillen i Fabregas and G. Caire, Analysis and Design of Natural and Threaded Space-Time Codes with Iterative Decoding , Proc. 36th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, November 2002.

309. G. Caire and S. Shamai, "Writing on Dirty Tape with LDPC codes" *DIMACS Workshop on Signal Processing for Wireless Transmission,* Rutgers University, NJ, USA, October 7-9, 2002.

310. G. Caire, D. Burshtein and S. Shamai, "LDPC coding for interference mitigation at the transmitter" 40th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 2-4, 2001.

311. R. Muller, G. Caire and T. Tanaka, "Density evolution and power profile optimization for iterative multiuser decoders based on individually optimum multiuser detectors" 40th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 2-4, 2001.

312. S. Sesia and G. Caire, "Incremental redundancy schemes based on LDPCs for transmission over Gaussian block-fading channels" *2002 IEEE Inform. Theory Workshop,* Banglore, India, October 2002.

313. R. Muller and G. Caire, "Efficient implementation of iterative multiuser decoding" *IEEE Int. Symp. on Inform. Theory, ISIT 2002,* Lausanne, Switzerland, July 2002..

314. D. Tuninetti, G. Caire and S. Verdu, "Fading multiaccess channels in the wideband regime: the impactof delay constraints" *IEEE Int. Symp. on Inform. Theory, ISIT 2002,* Lausanne, Switzerland, July 2002..

315. S. Verdu, G. Caire and D. Tuninetti, "Is TDMA optimal in the low power regime?" *IEEE Int. Symp. on Inform. Theory, ISIT 2002,* Lausanne, Switzerland, July 2002.

316. J. Boutros, G. Caire, E. Viterbo, H. Sawaya and S. Vialle, "Turbo code at 0.03 dB from capacity limit" *IEEE Int. Symp. on Inform. Theory, ISIT 2002,* Lausanne, Switzerland, July 2002.

317. C.F. Leanderson, G. Caire and O. Edfors, Performance of Incremental Redundancy Schemes with Turbo Codes, in *Proc. Radiovetenskap och Kommunikation 2002,* Stockholm, Sweden, Jun., 2002.

318. A. Nordio, M. Hernandez and G. Caire, "Design and performance of a low-complexity iterative multiuser joint decoder based on Viterbi decoding and parallel interference cancellation," *IEEE Int. Conf on Commun., ICC 2002,* New York, May 2002.

319. G. Caire and G. Colavolpe, "On space-time coding for quasi-static multiple-antenna channels," *IEEE Globecom 2001,* San Antonio TX, November 25-29, 2001.

320. D. Tuninetti and G. Caire, "The long-term average capacity per unit energy with applications to protocols for sensor networks," European Wireless 2002, Florence, Italy, 25-28 February, 2002.

321. D. Tuninetti and G. Caire, "The effect of delay constraint and causal feedback on the wideband performance of multiaccess block-fading channels," 36th Asilomar Conf. on Signals, Systems and Computers Asilomar, Pacific Grove, CA, 3-6 November 2001.

322. G. Caire and S. Shamai, "On the multiple-antenna broadcast channel," 36th Asilomar Conf. on Signals, Systems and Computers Asilomar, Pacific Grove, CA, 3-6 November 2001.

323. G. Caire, S. Guemghar, A. Roumy, and S. Verdu, "Design approaches for LDPC-encoded CDMA," 39th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 3-5, 2001.

324. G. Caire and R. Mueller, "The Optimal Received Power Distribution for IC-Based Iterative Multiuser Joint Decoders," 39th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 3-5, 2001.

325. M. Kobayashi, J Boutros, G. Caire, "Iterative Soft- SIC Joint Decoding and Parameter Estimation," DSP 2001 Seventh International Workshop on Digital Signal Processing Techniques for Space Communications 1-3 October 2001, Sesimbra, Portugal

326. G. Caire, A. Tulino and E. Biglieri, "Iterative Multiuser Joint Detection and Parameter Estimation: A Factor Graph Approach," 2001 IEEE Inform. Theory Workshop, Cairns, Australia 2-7 Sept. 2001.

Constellation Exhibit 2012, Page 45 of 51

327. D. Tuninetti and G. Caire, "The optimal throughput of some wireless multiaccess systems," *IEEE Int. Symp. on Inform. Theory, ISIT 2001,* Washington D.C., June 2001.

328. G. Caire and S. Shamai, "On achievable rates in a multi-access Gaussian broadcast channel," *IEEE Int. Symp. on Inform. Theory, ISIT 2001,* Washington D.C., June 2001.

329. G. Caire and J. Boutros, "Iterative multiuser joint decoding: unified framework and asymptotic analysis," *IEEE Int. Symp. on Inform. Theory, ISIT 2001,* Washington D.C., June 2001.

330. G. Caire and C. F. Leanderson, "Throughput performance of an incremental-redundancy ARQ scheme in the block-fading Gaussian collision channel," *IEEE Int. Symp. on Inform. Theory, ISIT 2001,* Washington D.C., June 2001.

331. G. Caire and G. Colavolpe, "Wrapped space-time codes for quasi-static multiple-antenna channels," WPMC '01, Sept. 9-12, Aalborg, Denmark, 2001.

332. G. Caire and J. Boutros, "Iterative multiuser joint decoding in DS-CDMA: unified framework and performance analysis," 2001 International Symposium on Signals, Systems, and Electronics (ISSSE '01), Tokyo, Japan, July 24-27, 2001.

333. G. Caire and S. Shamai, "On achievable rates in a multi-antenna broadcast downlink," 38th Annual Allerton Conference on Commun., Control and Computing, Monticello, IL, Oct. 4 – 6, 2000.

334. G. Caire, P. Humblet, G. Montalbano and A. Nordio, "Slot timing maximum likelihood estimation with bursty pilot signals for DS/CDMA in multipath fading channels," IEEE Globecom 2000, March 2000.

335. G. Caire and D. Tuninetti, "ARQ protocols for the Gaussian collision channel," *IEEE Intern. Symp. on Inform. Theory, ISIT 2000,* Sorrento, June 25-30, 2000.

336. E. Biglieri, G. Caire, G. Taricco and E. Viterbo, "CDMA with fading: effective bandwidth and spreading-coding trade-off," *IEEE Intern. Symp. on Inform. Theory, ISIT 2000,* Sorrento, June 25-30, 2000.

337. G. Caire, "PSP-based space-time scheme for large spectral efficiency," IEEE 2000 Conf. on Inform. Signals and Systems (CISS 2000), Princeton University, Princeton NJ, March 15-17, 2000

338. G. Caire, E. Biglieri, G. Taricco and E. Viterbo, "CDMA system design through asymptotic analysis : Fading Channel," 37th Annual Allerton Conference, Urbana-Champaign (Illinois), USA, 22-24 Sept, 1999.

339. G. Caire and U. Mitra, "Training Sequence-Based Multiuser Channel Estimation for Block-Synchronous DS/CDMA," 37th Annual Allerton Conference, Urbana-Champaign (Illinois), USA, 22-24 Sept, 1999.

340. G. Caire, G. Taricco and E. Biglieri, "CDMA system design through asymptotic analysis," *IEEE Globecom '99,* Rio de Janeiro, Brazil, 5-7- December, 1999

341. G. Caire and R. Knopp, "Power control schemes for TDD systems with multiple transmit and receive antennas," *IEEE Globecom '99,* Rio de Janeiro, Brazil, 5-7- December, 1999

342. G. Caire, R. De Gaudenzi, G. Gallinaro, R. Lyons , M.Luglio, M .Ruggieri, A. Vernucci, H. Widmer "ESA satellite wideband CDMA radio transmission technology for the IMT-2000/UMTS satellite component: Features & performance," *IEEE Globecom '99,* Rio de Janeiro, Brazil, 5-7-December, 1999

343. G. Taricco, E. Biglieri and G. Caire, "Limiting performance of block-fading channels with multiple antennas," *IEEE Inform. Theory Symposium, ITW 1999,* Kruger National Park, South Africa, June 22 – 25, 1999.

344. G. Caire and U. Mitra, "Pilot-aided adaptive MMSE receivers for DS/CDMA," *IEEE ICC '99,* Vancouver, BC, Canada, June 6 – 10, 1999.

345. G. Caire, G. Taricco and E. Biglieri, "Capacity of multi-antenna block-fading channels," *IEEE ICC '99,* Vancouver, BC, Canada, June 6 – 10, 1999.

346. G. Caire, "Adaptive Linear Receivers for DS/CDMA: Steady-State Performance Analysis," COST 254, Neuchatel, Switzerland, May 4 – 7, 1999.

347. G. Caire and U. Mitra, "Training sequence design for adaptive equalization of multiuser systems," Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, November 2–5, 1998.

348. G. Caire, E. Leonardi and E. Viterbo, "Improving performance of wireless networks using collision resistant modulations," *IEEE Globecom '98,* Sydney, Australia, 8 – 12 Nov., 1998.

349. G. Caire, E. Leonardi, and E. Viterbo "Collision Resistant Modulation", IEEE ICT 1998, pp. 438-444, Porto Carras, Grecia, Jun. 1998.

350. G. Caire, E. Leonardi, and E. Viterbo "Concatenated Coding for Packet Transmission over the Collision Channel", *IEEE Intern. Symp. on Inform. Theory, ISIT '98,* p.288, Boston, MA, Aug. 1998.

351. E. Biglieri, G. Caire, G. Taricco, "Minimum outage probability for slowly-varying fading channels," *IEEE Intern. Symp. on Inform. Theory, ISIT '98,* p.288, Boston, MA, Aug. 1998.

352. E. Biglieri, F. Boggio, G. Caire and G. Taricco, "Fractionally-spaced multiuser receivers with array observations," *IEEE Intern. Symp. on Inform. Theory, ISIT '98,* p.288, Boston, MA, Aug. 1998.

353. E. Biglieri, G. Caire, and G. Taricco, "Adaptive fractionally spaced MMSE receiver for asynchronous DS-CDMA," *1998 International Symposium on Signals, Systems and Electronics (ISSSE'98)*, Pisa, Italy, September 29–October 2, 1998.

354. G. Caire, G. Taricco, and E. Biglieri, "Optimal Power Control for Minimum Outage Rate in Wireless Communications," IEEE ICC '98, Atlanta, GA, June 7-11, 1998.

355. E. Biglieri, G. Caire, and G. Taricco, "Coding for the block-fading channel: Optimum and suboptimum power-allocation schemes," *1998 IEEE Information Theory Workshop*, Killarney, Eire, June 1998.

356. E. Biglieri, G. Caire, and G. Taricco, "Random coding bounds for the block-fading channel with simple power allocation schemes," IEEE 1998 Conf. on Inform. Signals and Systems (CISS 1998), Princeton, NJ, March 18–20 1998.

357. E. Biglieri, G. Caire, and G. Taricco, "MMSE linear interference canceler for multibeam satellite antennas," *Symposium on Interference Rejection and Signal Separation in Wireless Communications*, Newark, NJ, March 17, 1998 **(Invitd paper)**.

358. G. Caire, E. Biglieri and G. Taricco, "System Capacity of a Single-Cell Mobile System with Conventional and Linear Multiuser MMSE Detection," IEEE 1997 Conf. on Inform. Signals and Systems (CISS 1997), Baltimora, DL, Jan. 1997.

359. G. Caire, E. Biglieri and G. Taricco, "Bit-Interleaved Coded Modulation," *IEEE ICC '97,* Montreal, Canada, June. 1997.

360. E. Biglieri, G. Caire and G. Taricco, "Multiuser Detection Schemes Applied to a Regional GEO Satellite Mobile System," *IEEE ICC '97,* Montreal, Canada, June. 1997.

361. G. Caire, E. Biglieri and G. Taricco, "Bit-Interleaved Coded Modulation," *IEEE Intern. Symp. on Inform. Theory, ISIT'97,* Ulm, Germany, June 1997.

362. E. Biglieri, G. Caire, and G. Taricco, "Expurgating the union bound to error probabiliy: A generalization of the Verdú-Shields theorem," *IEEE Intern. Symp. on Inform. Theory, ISIT'97,* Ulm, Germany, June 1997.

363. E. Biglieri, G. Caire, G. Taricco, and F. Boggio, "MMSE linear interference cancellation for GEO land mobile satellite systems," *31st Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, November 2–5, 1997.

364. G. Caire, R. Knopp and P. Humblet, "System Capacity of F-TDMA Cellular Systems," *IEEE Globecom '97,* Phoenix, AZ, Nov. 1997.

365. E. Biglieri, G. Caire, G. Taricco, and J. Ventura-Traveset, "Capacity of a regional FDM/TDMA GEO satellite system," *IEEE Globecom '97,* Phoenix, AZ, November 5–7, 1997.

366. G. Caire, E. Biglieri, and G. Taricco, "System capacity of single-cell mobile system with conventional and linear multiuser MMSE detection," *IEEE Globecom '97,* Phoenix, AZ, November 5–7, 1997.

367. E. Biglieri, G. Caire, G. Taricco, and J. Ventura-Traveset, "Coding and modulation for the fading channel," *PIMRC'97*, Helsinki, Finland, 1997

368. E. Biglieri, G. Caire and G. Taricco, "Power Control for the Fading Channel: an Information Theoretical Approach," 35th Annual Allerton Conference on Communication, Control and Computing, Sept. 29-30 and Oct. 1, 1997.

369. G. Caire, E. Biglieri, G. Taricco, and J. Ventura, "A multi-user approach to narrowband cellular communications," IEEE Conf. on Information Sciences and Systems, CISS 96, Princeton NJ, USA, March 20-22, 1996.

370. J. Ventura, G. Caire, E. Biglieri, and G. Taricco, "Are fading codes essential?" *International Telecommunications Conference ITC '96,* Istanbul, Turkey, April 13-17, 1996.

371. E.Biglieri, G.Caire, G. Taricco, and J. Ventura, "Multi-User Receiver Structures for Cancellation of Co-channel Interference in Narrowband Mobile Communications," *5-th ESA International Workshop on Digital Signal Processing*, Barcelona, Spain, Sept. 1996.

372. E. Biglieri, G. Caire, G. Taricco, and J. Ventura, "Coding and modulation for the fading channel: The quest for robustness," *5th ESA International Workshop on Digital Signal Processing*, Sitges, Barcelona - Spain, 25-27 Sept. 1996.

373. F. Burkert, G. Caire, J. Hagenauer, T. Hindelang and G. Lechner, "Turbo Decoding with Unequal Error Protection Applied to GSM Speech Coding," IEEE Globecom '96, London, UK, 18–22 November, 1996.

374. G. Caire, G. Taricco, J. Ventura, and E. Biglieri, "Reducing the effect of co-channel interference over the Rayleigh fading channel by combining coding and diversity," IEEE Globecom '96, London, UK, 18–22 November, 1996.

375. G. Caire, G. Taricco, and E. Biglieri, "Capacity and cut-off rate of bit-interleaved channels," IEEE International Symposium on Information Theory and its Applications ISITA '96, Victoria, Canada, 17–20 Sept. 1996.

376. E. Biglieri, G. Caire, G. Taricco, J. E. Haakegaard, and J. Ventura, "System capacity enhancement by using multiuser processing techniques in narrowband satellite mobile communications," *Fifth International Conference on Satellite Systems for Mobile Communications and Navigation,* London, UK, May 13-15, 1996.

377. J. Ventura, G. Caire, E. Biglieri, and G. Taricco, "Coded Modulations and Diversity for Satellite Cellular Communications," *Multi-Access Mobility and Teletraffic Workshop,* Paris, France, May 20-22, 1996.

378. J. Ventura-Traveset, G. Caire, E. Biglieri and G. Taricco "A multi-user approach to combating co-channel interference in narrowband mobile communications," Proceedings of *7-th Tyrrehnian Workshop on Digital Communications,* Sept. 11-14, 1995.

379. J. Ventura-Traveset, G. Caire, E. Biglieri and G. Taricco "Synergy of diversity reception and coded modulation in mobile communication channels," Proceedings of *European Personal and Mobile Communications Conference EPMCC '95,* Bologna, Italy, Nov. 28-30, 1995.

380. J. Ventura-Traveset, G. Caire and E. Biglieri "The effect of space diversity on coded modulation for the fading channel," *IEEE Int. Symp. on Inform. Theory, ISIT '95,* Whistler, Canada, Sept. 17-22, 1995.

381. G. Caire, G. Taricco and E. Biglieri "On the convergence of the iterated decoding algorithm," *IEEE Int. Symp. on Inform. Theory, ISIT '95,* Whistler, Canada, Sept. 17-22, 1995.

382. J. Ventura-Traveset, G. Caire and E. Biglieri, "The effect of space diversity on coded modulation for the fading channel," Proceedings of the IEEE Information Theory Workshop '95, Rydzna, Poland, June 25-29, 1995.

383. G. Caire, J. Ventura-Traveset and E. Biglieri, "Normalized diversity receiver with multi-symbol detection," *IEEE Globecom '95,* Singapore, Nov. 13-17, 1995.

384. J. Ventura-Traveset, G. Caire and E. Biglieri "Impact of diversity reception on mobile systems with coded modulation, fading and co-channel interference," *IEEE Globecom '95,* Singapore, Nov. 13-17, 1995.

385. G. Caire, J. Ventura and E. Biglieri, "Coded non-Coherent Orthogonal Signals for the Fading Channel," *IEEE ICC '95,* Seattle, June 18-22, 1995.

386. E. Biglieri, G. Caire and G. Taricco, "On the Convergence of the Iterated Decoding Algorithm," proceedings of the *SBT/IEEE International Telecomunications Symposium,* Rio de Janeiro, Brasil, August 22-25, 1994, pp. 78-82.

387. G. Caire, G. Taricco and G. Battail "Weight distribution and performance of the iterated product of single-parity-check codes," *EUROCODE '94,* L'abbaye de La Bussière sur Ouche, Côte d'Or, France, pp. 55-60, Oct. 24-28 1994.

388. G. Caire, G. Taricco, and G. Battail "Weight distribution and performance of the iterated product of single-parity-check codes," *IEEE Globecom '94,* San Francisco – CA, USA, November 27 - December 1, 1994.

389. G. Caire, E. Biglieri, "Linear Codes over Cyclic Groups," *IEEE Int. Symp. on Inform. Theory, ISIT '94,* Trondheim, Norway, June 25 – July 1, 1994.

390. J. Ventura-Traveset, G. Caire, and E. Biglieri, "Normalized diversity receiver for the mobile fading channel," proceedings of *Cost 229 Workshop on Adaptive Systems, Intelligent Approaches, Massively Parallel Computing and Emergent Techniques in Signal Processing and Communications*, Bayona (Vigo), Spain, October 1994.

391. E. Biglieri, G. Caire and G. D'Aria, "Blind Channel Identification of Terrestrial Microwave Channels," *IEEE Globecom '93,* Houston TX, USA, Dec. 1993.

392. E. Biglieri, G. Caire and G. D'Aria, "Blind Channel Identification of Terrestrial Radio Links," Proceedings of the *COST 229, European Workshop on Signal Processing for Communications*, Vigo, Spain, June 16-18, 1993.

393. G. Caire, J. Ventura, M. Hollreiser and E. Biglieri, "Systolic Architecture for the VLSI Implementation of High-Speed Decoders/Quantizers," *IEEE ICC '93,* Geneva, Switzerland, May 23-26, 1993.

394. E. Biglieri and G. Caire, "Symmetry Properties of Block-Coded Modulation," Conference on Information Signals and Systems, CISS 92, Princeton NJ, USA, March 1992.

395. E. Biglieri, G. Caire, and V. Zingarelli, "Coded Doubly-Differential PSK for Areonautical and Satellite Mobile Radio," IEEE Symposium on Personal, Indoor and Mobile Radio Communications, London UK, Sept. 23-25, 1991.

4 Books

- Boche, H., Caire, G., Calderbank, R., März, M., Kutyniok, G., Mathar, R. (Eds.) *Compressed Sensing and its Applications – Second International MATHEON Conference 2015*, Springer-Verlag Series in Functional Analysis, ISBN 978-3-319-69802-1, 2017.
- Albert Guillén i Fàbregas, Alfonso Martinez and Giuseppe Caire, *Bit-Interleaved Coded Modulation*, Foundations and Trends in Information Theory and Communications, Volume 5, Issue 1, NOW Publisher, January 2009.
- Georgios Paschos and George Iosifidis and Giuseppe Caire, *Cache Optimization Models and Algorithms*, Foundations and Trends in Information Theory and Communications, Volume 16, Issue 3-4, NOW Publisher, January 2020. DOI 10.1561/0100000104.

4.1 Book Chapters

1. Jaime Llorca, Antonia Tulino and Giuseppe Caire "Service delivery in 5G," in: Ivana Maric, Shlomo Shamai (Shitz), and Osvaldo Simeone (eds.) Information Theoretic Perspectives on 5G Systems and Beyond, Cambridge Univ. Press, 2020, ISBN: 9781108416474.

2. Giuseppe Vettigli, Mingyue Ji, Karthikeyan Shanmugam, Jaime Llorca, Antonia M. Tulino and Giuseppe Caire "Efficient Algorithms for Coded Multicasting in Heterogeneous Caching Networks," in: Shlomo Shamai (Shitz) and Abdellatif Zaidi (eds.) Information Theory for Data Communications and Processing, MDPI Editor, 2020, ISBN 978-3-03943-818-1.

3. G. Caire, "Massive-MIMO Scheduling Protocols," in: V. Wong, R. Schober, D. W. K. Ng, L-C Wang (eds.), Key Technologies for 5G Wireless Systems, Cambridge Univ. Press, 2017.

4. G. Caire, A. Adhikary and V. Ntranos, "Physical layer techniques for cognitive femtocells," in: Tony Q. S. Quek, Guillaume de la Roche, Ismail Güvenc, Marios Kountouris (eds.), Small Cell Networks Deployment, PHY Techniques, and Resource Management, Cambridge Univ. Press, 2013.

5. G. Caire, S. Shamai (Shitz), Y. Steinberg and H. Weingarten, "On Information Theoretic Aspects of MIMO-Broadcast Channels," in: H. Bölcskei, D. Gesbert, C. Papadias, and A. J. van der Veen (eds.), Space-Time Wireless Systems: From Array Processing to MIMO Communications, Cambridge Univ. Press, 2005.

6. E. Biglieri, G. Caire, and G. Taricco, "Coding and modulation for power-constrained wireless channels," in: M. Shafi, S. Ogose, and T. Hattori (eds.), Wireless Communications in the 21st Century. pp. 197–216, New York: IEEE Press, 2002.

7. E. Biglieri, G. Caire, and G. Taricco, "Coding for the fading channel: A survey," *Signal Processing for Multimedia*, J.S.Byrnes (Ed.), IOS Press, 1999, pp. 189–204, 1999.

8. E. Biglieri, G. Caire, and G. Taricco, "Coding vs. spreading over block fading channels," in: Francis Swarts (Ed.),Spread Spectrum: Developments for the New Millenium. Boston, MA: Kluwer Academic Publ., 1998.

9. E. Biglieri, G. Caire, G. Taricco, and J. Ventura-Traveset, "Coding and modulation for the fading channel," in: Savo Glisic (Ed.), Wireless Communications – TDMA versus CDMA, Kluwer, 1997.

Constellation Exhibit 2012, Page 50 of 51

5 Other Scholarly Publications

1. Marzetta, Thomas L., Giuseppe Caire, Merouane Debbah, I. Chih-Lin, and Saif K. Mohammed. "Special issue on Massive MIMO." Communications and Networks, Journal of 15, no. 4 (2013): 333-337. (Introduction to the Special Issue on Massive MIMO).

2. Hochwald, B.M.; Caire, G.; Hassibi, B.; Marzetta, T.L.; "The academic and industrial embrace of space-time methods," *IEEE Trans. on Inform. Theory,* Vol. 49, No. 10, pp. 2329 - 2331, Oct. 2003. (Introduction to the Special Issue on Space-Time Transmission, Reception, Coding and Signal Processing).

6 Selected Patents

1. Caire, Giuseppe and Psounis, Kostantinos, "Composite Beamforming to Coordinate Concurrent WLAN Links," U.S. Patent 9,479,240 B1, Oct. 2016.

2. Caire, Giuseppe, Tareq Y. Al-Naffouri, and Ahmed Abdul Quadeer. "Method of estimating and removing noise in OFDM systems." U.S. Patent No. 8,213,525. 3 Jul. 2012.

3. Caire, Giuseppe, Sean A. Ramprashad, and Haralabos Papadopoulos. "Method of combined user and coordination pattern scheduling over varying antenna and base-station coordination patterns in a multi-cell environment." U.S. Patent No. 8,229,443. 24 Jul. 2012.

4. Caire, Giuseppe, Carl-Erik W. Sundberg, Haralabos Papadopoulos, and Sean A. Ramprashad. "Channel classification and rate adaptation for SU-MIMO systems." U.S. Patent 8,451,951, issued May 28, 2013.

5. Lee, Seung Joon, Dong Seung Kwon, Giuseppe Caire, and Hooman Shirani-Mehr. "Method for channel state feedback by quantization of time-domain coefficients." U.S. Patent 8,331,481, issued December 11, 2012.

6. Caire, Giuseppe. "Variable coordination pattern approach for improving performance in multi-cell or multi-antenna environments." U.S. Patent 8,472,963, issued June 25, 2013.

7. Papadopoulos, Haralabos, Sean Ramprashad, and Giuseppe Caire. "Method and apparatus for the joint design and operation of scheduling and transmission for downlink multi-user MIMO with reciprocity-based training." U.S. Patent No. 8,638,746. 28 Jan. 2014.

8. Caire, Giuseppe, Haralabos Papadopoulos, Sean A. Ramprashad, and Christine Pepin. "Method for varying transmit power patterns in a multi-cell environment." U.S. Patent 8,705,484, issued April 22, 2014.

9. Bosch, Javier Ventura-Traveset, Giuseppe Caire, Mike Yarwood, and Ezio Biglieri. "System for transmitting radio signals from mobile terminals to provide space diversity for uplink signals via geostationary communication satellites." U.S. Patent 5,839,053, issued November 17, 1998.

10. Caire, Guiseppe, Javier Ventura Traveset, Martin Hollreiser, and Ezio Biglieri. "High-speed staged decoder/quantizer." U.S. Patent 5,487,075, issued January 23, 1996.