

IEEE

# COMMUNICATIONS LETTERS

A PUBLICATION OF THE IEEE COMMUNICATIONS SOCIETY



JUNE 2016

VOLUME 20

NUMBER 6

ICLEF6

(ISSN 1558-2558)

---

#### CODING THEORY AND TECHNIQUES

Constructions of Optimal Binary Locally Repairable Codes With Multiple Repair Groups .....	<i>J. Hao and S.-T. Xia</i>	1060
Ordered Statistic Decoding for Short Polar Codes .....	<i>D. Wu, Y. Li, X. Guo, and Y. Sun</i>	1064
Construction of Multiple-Rate QC-LDPC Codes Using Hierarchical Row-Splitting .....	<i>P. Zhao, Z. Wang, and Q. Wang</i>	1068

#### COHERENT LIGHT COMMUNICATIONS

Phase Noise Tracking and Compensation in Coherent Optical Systems Using Kalman Filter .....	<i>A. Jain and P. K. Krishnamurthy</i>	1072
---	--	------

#### COMMUNICATION THEORY

A Low-Complexity Bit-Loading Algorithm for OFDM Systems Under Spectral Mask Constraint .....	<i>T. N. Vo, K. Amis, T. Chonavel, and P. Siohan</i>	1076
A Precoding-Based Compute-and-Forward .....	<i>Y. Fu, X. Wang, C. Liu, and W.-P. Zhu</i>	1080
Robust Synthesis Method for Secure Directional Modulation With Imperfect Direction Angle .....	<i>J. Hu, F. Shu, and J. Li</i>	1084

#### COMMUNICATION THEORY AND CODING APPLICATIONS

Performance Improvement of JSCC Scheme Through Redesigning Channel Code .....	<i>Q. Chen, L. Wang, S. Hong, and Z. Xiong</i>	1088
---	--	------

#### MODULATION

Optimal Spatial-Domain Design for Spatial Modulation Capacity Maximization .....	<i>C. Liu, M. Ma, Y. Yang, and B. Jiao</i>	1092
Spatial Modulation via 3-D Mapping .....	<i>S. Guo, H. Zhang, S. Jin, and P. Zhang</i>	1096
Differential Spatial Modulation With Gray Coded Antenna Activation Order .....	<i>J. Li, M. Wen, X. Cheng, Y. Yan, S. Song, and M. H. Lee</i>	1100

#### OPTICAL COMMUNICATIONS SYSTEMS

Novel Flicker-Free Optical Camera Communications Based on Compressed Sensing .....	<i>B. W. Kim and S.-Y. Jung</i>	1104
--	---------------------------------	------

#### RELIABILITY AND SURVIVABILITY

Optimal Model for Failure Foresight Capacitated Controller Placement in Software-Defined Networks .....	<i>B. P. R. Killi and S. V. Rao</i>	1108
---	-------------------------------------	------

(Contents Continued on Page 1058)



## SECURITY

Enhancing Secrecy Rate in Cognitive Radio Networks via Multilevel Stackelberg Game .....	A. Al-Talabani, Y. Deng, A. Nallanathan, and H. X. Nguyen	1112
Secure Multiuser MIMO Downlink Transmission Via Precoding-Aided Spatial Modulation .....	Y. Chen, L. Wang, Z. Zhao, M. Ma, and B. Jiao	1116
Secure Relaying in Multihop Communication Systems .....	E. R. Alotaibi and K. A. Hamdi	1120
Secret-Key Agreement With Public Discussion Subject to an Amplitude Constraint .....	M. Zorgui, Z. Rezki, B. Alomair, and M.-S. Alouini	1124
CAMP: A New Bitmap Index for Data Retrieval in Traffic Archival .....	Y. Wu, Z. Chen, J. Cao, H. Li, C. Li, Y. Wang, W. Zheng, J. Chang, J. Zhou, Z. Hu, and J. Guo	1128

## SIGNAL PROCESSING

A Distributed 1-bit Compressed Sensing Algorithm Robust to Impulsive Noise .....	H. Zayyani, M. Korki, and F. Marvasti	1132
A Family of Square-Root Nyquist Filter With Low Group Delay and High Stopband Attenuation .....	S. Traverso	1136

## WIRELESS COMMUNICATIONS

Robust and Low Complexity Hybrid Beamforming for Uplink Multiuser MmWave MIMO Systems .....	J. Li, L. Xiao, X. Xu, and S. Zhou	1140
Tag Memory-Erasure Tradeoff of RFID Grouping Codes .....	M. Burmester and J. Munilla	1144
Outage Performance of Underlay Multihop Cognitive Relay Networks With Energy Harvesting .....	C. Xu, M. Zheng, W. Liang, H. Yu, and Y.-C. Liang	1148
Robust Beamforming and Power Splitting for Secrecy Wireless Information and Power Transfer in Cognitive Relay Networks .....	Y. Wu and X. Chen	1152
Caching-Based Scalable Video Transmission Over Cellular Networks .....	L. Wu and W. Zhang	1156

## WIRELESS NETWORKS

Enhanced Mobility Management Scheme in PMIP-SAE-Based Mobile Networks .....	M. Gohar and J.-G. Choi	1160
An Optimal Resource Allocation Method for Multi-User Multi-Relay DF Cognitive Radio Networks .....	B. Chen, M. Lei, and M. Zhao	1164
Optimal Power Control for Delay-Constraint Machine Type Communications Over Cellular Uplinks .....	G. Zhang, A. Li, K. Yang, L. Zhao, and D. Cheng	1168
Near-Optimal BFS-Tree Construction in Radio Networks .....	M. Ghaffari and B. Haeupler	1172
Caching in Wireless Small Cell Networks: A Storage-Bandwidth Tradeoff .....	S. Tamoor-ul-Hassan, M. Bennis, P. H. J. Nardelli, and M. Latva-aho	1175
Resource Allocation Techniques for Heterogeneous Networks Under User Misbehavior .....	V. Miliotis, L. Alonso, and C. Verikoukis	1179
Approaching Optimal Centralized Scheduling With CSMA-Based Random Access Over Fading Channels .....	M. Karaca and B. Landfeldt	1183
Reliable Broadcast Using Limited LT Coding in Wireless Networks .....	S. Y. Jeon, J. H. Ahn, and T.-J. Lee	1187
Secure Communications in Underlay Cognitive Radio Networks: User Scheduling and Performance Analysis .....	L. Yang, H. Jiang, S. A. Vorobyov, J. Chen, and H. Zhang	1191
Dynamic Delegation-Based Efficient Broadcast Protocol for Asynchronous Wireless Sensor Networks .....	X. Zhang, X. Jia, and F. Yan	1195
Energy Efficient Cell Selection in Small Cell Networks With Constrained Backhaul Links .....	G. Nie, H. Tian, and C. Ren	1199
Analytical Modeling of Mode Selection for Moving D2D-Enabled Cellular Networks .....	X. Xu, Y. Zhang, Z. Sun, Y. Hong, and X. Tao	1203
UAV-Assisted Heterogeneous Networks for Capacity Enhancement .....	V. Sharma, M. Bennis, and R. Kumar	1207
Analysis of Coverage in Heterogeneous Cellular Networks .....	W. Lee and R. Schober	1211
Analytical Identification of Anchor Nodes in a Small-World Network ....	A. Chakraborty, V. B. S., and B. S. Manoj	1215
Maximizing LTE Capacity in Unlicensed Bands (LTE-U/LAA) While Fairly Coexisting With 802.11 WLANs .....	V. Valls, A. Garcia-Saavedra, X. Costa, and D. J. Leith	1219
Auction-Based Data Gathering Scheme for Wireless Sensor Networks .....	S. Althunibat, A. Abu-Al-Aish, W. F. Abu Shehab, and W. H. Alsawalmeh	1223

## WIRELESS SYSTEMS

High-Rate and Low-Complexity Space-Time Block Codes for $2 \times 2$ MIMO Systems .....	V. Vakilian and H. Mehrpooyan	1227
---	-------------------------------	------

(Contents Continued from Page 1058)

---

Shuffled Multiuser Detection Schemes for Uplink Sparse Code Multiple Access Systems .....	Y. Du, B. Dong, Z. Chen, J. Fang, and L. Yang	1231
On Fair Resource Sharing in Downlink Coordinated Multi-Point Systems .....	X. Ge, H. Jin, J. Cheng, and V. C. M. Leung	1235
A QoS-Driven Random Access Algorithm for MPR-Capable VLC System .....	L. Zhao, X. Chi, and W. Shi	1239
Improving Energy Efficiency of Mobile WSN Using Reconfigurable Directional Antennas .....	T. N. Le, A. Pegatoquet, T. Le Huy, L. Lizzi, and F. Ferrero	1243
Cooperative Energy Broadcasting System With Massive MIMO .....	L. Zhao and K. Zheng	1247
<b>WIRELESS TECHNIQUES AND FADING</b>		
Performance Analysis of a Low-Complexity Detector for MCIC-OFDM Over TWDP Fading .....	E. Chatziantoniou, J. Crawford, and Y. Ko	1251
Polarized Rician Fading Models for Performance Analysis in Cellular Networks .....	O. Georgiou	1255
Channel Estimation for Millimeter-Wave Massive MIMO With Hybrid Precoding Over Frequency-Selective Fading Channels .....	Z. Gao, C. Hu, L. Dai, and Z. Wang	1259
Optimal Precoding for a QoS Optimization Problem in Two-User MISO-NOMA Downlink .....	Z. Chen, Z. Ding, P. Xu, and X. Dai	1263
SWIPT in 3-D Bipolar Ad Hoc Networks With Sectorized Antennas .....	I. Krikidis	1267

---