

IEEE BMSB 2020 (Online virtual conference)

Program Details Oct. 27-29, 2020

Paris Time (GMT+2)	Tuesday, Oct. 27th	Wednesday, Oct. 28th	Thursday, Oct. 29th							
15:00 – 15:30	-Opening Ceremony BTS talk, -Conference arrangement	-Paper Award Ceremony, -BMSB2021 Chengdu announcement	-BMSB TPC report							
15:30 – 16:00	Keynote 1	Keynote 3	Panel Discussion							
16:00 – 16:30	Keynote 2	Keynote 4								
Anytime from Oct. 27th to 29th, 2020 (online)										
Session A1 Coding and modulation -1	Session A2 Signal/video processing-1	Session A3 Networks and security -1	Session A4 mmWave & MIMO-1	Session A5 ATSC3.0-1	Session B1 Coding and modulation-1	Session B2 Signal/video processing-2	Session B3 Networks and security -1	Session C1 Resource allocation	Session C2 Signal/video processing-3	Session C3 VLC
Session A6 Video streaming-1	Session A7 LDM&NOM A	Session A8 5G	Session A9 AI & ML	Posters Session	Session B4 mmWave & MIMO-2	Session B5 ATSC3.0-2	Session B6 Video streaming-2	Session C4 Spectrum sharing & CR	Session C5 DTTB Systems	Session C6 Video streaming-3

1. **Tuesday, October 27th, 2020 (Day 1, Paris Time, GMT+2)**

15h00 – 15h30 : Opening Ceremony BTS, & Conference arrangement

15h30-16h30 : Plenary Session 1 :

Chair : **Xun Zhang (ISEP Paris) or Lina Mehoue (ISEP Paris) ?**

Keynote 1 : **Madeleine Noland**, (President of the ATSC)

Keynote 2 : **TBD**

2. **Wednesday, October 28th, 2020 (Day 2, Paris Time, GMT+2)**

15h00 – 15h30 : Paper Award Ceremony, & BMSB2021 Chengdu announcement

15h30 – 16h30 : Plenary Session 2

Chair : **Xun Zhang (ISEP Paris) or Fen Zhou (IMT Lille Douai, France) ?**

Keynote 3 : **Zuqing Zhu**, University of Science & Technology China (USTC). Topic: Application-driven Virtual Network Slicing for Future Broadcast Core Networks

Keynote 4 : **TBD**

3. **Thursday, October 29th, 2020 (Day 3, Paris Time, GMT+2)**

15h00 – 15h30 : BMSB2020 TPC report

15h30 – 16h30 : Plenary Session 3

Chair: **Yiyan Wu (CRC, Canada)**

Panel discussions: Convergence of Broadcast and Broadband

Panelist: Madeleine Norland (ATSC, USA), Yiyan Wu (CRC Canada/IEEE BTS), David Gomez (Politec U./Spain), Pablo Angueria (U. Basque Country, Spain), xxx (NHK, Japan), xxx (ETRI, Korea), xxx (ABP, or ABS, or NERC, China) Panel Chair: Bill Hayes (IEEE BTS past president, USA, to be confirmed?)

4. All the technical sessions (recorded videos, Q&A forums) will be available online from Oct. 27th to 29th, 2020

Technical Sessions A1-A3 (15mn/paper, recorded videos + forum for Q&A)

Session A1: Coding and Modulation-1

10	Junghwan Kim and Wei Wei. <i>Modeling and Performance Evaluation of Chaotic Symbol Dynamic 16-APSK for Secure Broadcast</i>
14	Tomoya Ijiguchi, Shingo Asakura, Shogo Kawashima, Tomoaki Takeuchi, Kohei Kambara and Masahiro Okano. <i>Performance Evaluation of an Advanced ISDB-T Coded SFN</i>
49	Jaehwui Bae, Youngsu Kim, Namho Hur, Dong-Joon Choi, Ho Jae Kim and Hyung-Nam Kim. <i>PN sequence based 4-layer Layer Division Multiplexing modulation</i>
71	Zhigang Liu, Jun Wang and Yinglin Wang. <i>Low-Complexity Calibration of Joint TX/RX I/Q Imbalance in Wideband Direct-Conversion Transceiver</i>
109	Wei Lin, Yang'an Zhang, Guanjun Gao, Hongfei Liu and Xueguang Yuan. <i>FAST telescope optical transmission system based on Delta-Sigma Modulation</i>

Session A2: Signal/Video Processing-1

15	Zhen Yang, Li Song, Rong Xie, Wenjun Zhang, Lin Li and Yanan Feng. <i>TSGAN: A TWO-STREAM GENERATIVE ADVERSARIAL NETWORK FOR BIT-DEPTH EXPANSION</i>
81	Chu Chu, Li Chen and Zhiyong Gao. <i>Similarity Based Filter Pruning for Efficient Super-Resolution Models</i>
88	Yuqi Ding, Jiaming Liu, Jinwei Ye, Weidong Xiang, Hsiao-Chun Wu and Costas Busch. <i>3D LiDAR and Color Camera Data Fusion</i>

108	Jongbin Park. <i>Color Transfer based on Image Statistics</i>
101	Shengyang Shen, Zexiang Liu, Bingkun Zhao, Chongyang Zhang and Li Chen. <i>Improving Real-world Object Detection Using Balanced Loss</i>

Session A3: Networks and Security -1

11	Chengli Mei, Xu Xia, Jiayi Liu and Hongyan Yang. <i>Load Balancing Oriented Deployment Policy for 5G Core Network Slices</i>
80	Cristina Desogus, Alessandra Fontana and Maurizio Murrone. <i>SMASH: a SMART Slicing Heterogeneous 5G network selection algorithm</i>
102	Jon Montalban, Gabriel-Miro Muntean and Pablo Angueira. <i>Performance Impact of Background Traffic on Broadcast-like Services in Converged 5G Network Environments</i>
169	Kareem Ali, Nawar Jawad, Benjamin Meunier and John Cosmas. <i>IoRL Real-Time Video Lan Client Player Streaming through SDN Network</i>
38	John Cosmas, Yue Zhang and Xun Zhang. <i>Bringing Television and Communications Services to Train Passengers</i>

Technical Sessions A4-A6 (15mn/paper, recorded videos + forum for Q&A)

Session A4: mmWave and MIMO-1

50	Sungjun Ahn, Sung-Ik Park, Jae-Young Lee and Namho Hur. <i>Multi-Antenna Diversity Gain at Terrestrial Broadcasting Receivers on Vehicle: A Coverage Probability Perspective</i> (withdrawn)
56	Shuai Ma, Li Xu, Chun Du, Xueqi Cheng and Shiyin Li. <i>A Novel Dynamic User Admission Scheme for Multi-cell Massive MIMO Systems</i>
64	Hong, Zhao, Hong, Tang and Lv. <i>Modeling and Performance Simulation of MIMO Channel in THz Communication</i>
66	Xu Shi and Jintao Wang. <i>Low-Complexity Hybrid Precoder Design for GenSM-Aided mmWave MIMO</i>

98	Xu Chao, Jingcheng Zhao, Zhengwei Chang, Mohamed Cheriet, Michel Kadoch, Rongke Liu, Jizhao Lu and Yuandong Liu. <i>Design of Environmental backscatter tag antenna for 5G Internet of things</i>
----	---

Session A5: ATSC3.0-1

17	Zhihong Hong, Liang Zhang, Yiyan Wu, Wei Li, Sebastien Lafleche, Sung-Ik Park, Jae-Young Lee, Heung Mook Kim and Namho Hur. <i>Application of Dual-Polarization Transmission for Wireless Distribution Using LDM in ATSC 3.0</i>
22	Hyun-Jeong Yim, Bo-mi Lim, Soonchoul Kim, Sung-Ik Park and Namho Hur. <i>Device communication technology between various terminals for delivering ATSC 3.0 service</i>
44	Sung-Ik Park, Bomi Lim, Hae-Chan Kwon and Sungjun Ahn. <i>Mobile Performance of Diversity Receiver in ATSC 3.0 System</i>
52	Sungjun Ahn, Sung-Ik Park, Jae-young Lee, Bo-mi Lim, Sunhyoung Kwon, Namho Hur and Jeongchang Kim. <i>Mobile Performance Enhancement via Tracking Inter-Carrier Interference Power for ATSC 3.0 Receivers</i>
54	Sungjun Ahn, Sunhyoung Kwon, Sung-Ik Park, Jae-Young Lee, Namho Hur and Joonhyuk Kang. <i>Outage Probability Performance of Preamble Cancellation-Assisted RF-Watermark TxID Detection in Repeater Networks</i>

Session A6: QoS/QoE and Video streaming-1

12	Roberto Viola, Angel Martin, Juan Felipe Mogollón, Alvaro Gabilondo, Javier Morgade, Mikel Zorrilla, Jon Montalbán and Pablo Angueira. <i>Adaptive Rate Control for Live streaming using SRT protocol</i>
23	Jiayi Liu, Gwendal Simon, Xavier Corbillon, Jacob Chakaresk and Qinghai Yang. <i>Delivering Viewport-Adaptive 360-Degree Videos in Cache-Aided MEC Networks</i>
43	Minsu Kim and Kwangsue Chung. <i>Mobile Edge-Driven Adaptive Streaming Scheme Based on User Interest</i>
111	Abid Yaqoob and Gabriel-Miro Muntean. <i>A Weighted Tile Approach for DASH-based Viewport Adaptive 360° Video Streaming</i>
141	João Carreira, Sérgio Faria, Luis Tavora, Antonio Navarro and Pedro A. Amado Assuncao. <i>Scalable coding of 360-degree video for streaming adaptation at 5G network edges</i>

Technical Sessions A7-A9 (15mn/paper, recorded videos + forum for Q&A)

Session A7: LDM and NOMA

24	Hiroto Yamamoto, Tomohiro Takaya, Akira Nakamura and Makoto Itami. <i>A Study on Cross-Layer Interference of Layered Division Multiplexing</i>
32	Eduardo Garro Crevillen, Alvaro Ibañez Latorre, David Gomez-Barquero, Hoiyoon Jung, Sung-Ik Park and Namho Hur. <i>Integration analysis and performance evaluation of LDM into NR physical layer</i>
110	Gorka Pujana, Eneko Iradier, Jon Montalban, Lorenzo Fanari and Pablo Angueira. <i>PHY Layer Performance of N-LDM for Broadcast and IoT Use Cases</i>
120	Eneko Iradier, Gorka Pujana, Lorenzo Fanari, Jon Montalban and Pablo Angueira. <i>Multiple Layer P-NOMA in 5G</i>
136	Lidie Liu, Yin Xu, Yiyang Wu, Yu Zhang, Dazhi He and Wenjun Zhang. <i>NUC optimization for Hierarchical Modulation aiming at achieving comparable capacity with Layered Division Multiplexing</i>

Session A8: 5G

31	Alvaro Gabilondo, Javier Morgade, Roberto Viola, Juan Felipe Mogollon, Mikel Joseba Zorrilla, Jon Montalban and Pablo Angueira. <i>Realising a vRAN based FeMBMS Management and Orchestration Framework</i>
46	Yuchao Chen, Haoyue Tang and Jintao Wang. <i>Optimizing Age of Information in Multicast Unilateral Networks</i>
87	Álvaro Ibañez Latorre, Manuel Fuentes, Borja Iñesta Hernandez, David Gómez-Barquero and Diarmuid Collins. <i>5G Broadcast implementation and demonstration in a SDR laboratory experiment</i>
106	Seok-Ki Ahn, Hoiyoon Jung and Sung-Ik Park. <i>Performance evaluation of terrestrial broadcasting based on 5G NR</i>
125	Xiuxuan Huang, Hanjiang Hong, Yin Xu, Dazhi He, Yu Zhang, Ning Liu and Wenjun Zhang. <i>Design of Time and Frequency Interleaver for LTE-based 5G Terrestrial Broadcasting</i>

Session A9 : AI and Machine Learning

47	Bo Guo, Shichang Ding, Jixuan Li, Bin Gu, Zhuojun Jin and Peng Lin. <i>Cyber-Physical Risk Driven Routing Planning with Deep Reinforcement-Learning for Multimedia Broadband Services in Smart Grid Communication Networks</i>
60	Hengrui Hu, Jian Xiong, Peng Cheng and Zhiping Shi. <i>On Service Traffic Prediction of Base Stations along High-speed Railway</i>
61	Minyu Jin, Jian Xiong, Bo Liu and Lina Xiao. <i>On Channel Classification by Using DTMB Signal</i>
103	Sunghee Lee, Ilhong Shin and Namkyung Lee. <i>Deep Learning based Real-time Mobile Obscenity Detection System for Personal Broadcasting</i>
180	Guannan Liu, Hsiao-Chun Wu, Weidong Xiang, Jinwei Ye, Yiyuan Wu and Limeng Pu. <i>Indoor Object Localization and Tracking Using Deep Learning over Received Signal Strength</i>

Technical Sessions B1-B3 (15mn/paper, recorded videos + forum for Q&A)

Session B1: Coding and Modulation-2

127	Roberto Toledo, Cristiano Akamine and Leandro Silva. <i>M-QAM Demodulation based on Machine Learning</i>
130	Yang Cai, Hanjiang Hong, Yin Xu, Dazhi He, Ning Liu, Wei Xie and Wenjun Zhang. <i>Design of Circular Structured One-dimensional Non-uniform Constellations with Better Performace</i>
147	Kang Xu, Na Gao, Yin Xu, Dazhi He and Boyuan Xu. <i>On the Non-concentrated Check-node Degree Distributions in QC-IRA Raptor-like LDPC Codes</i>
151	Jefferson Almeida, Cristiano Akamine and Paulo Lopes. <i>A proposed iterative DFT-based channel estimation for FBMC scattered pilot frame model</i>
179	Qian Wang, Suwen Xu, Xiao Yan, Hsiao-Chun Wu and Yiyuan Wu. <i>Innovative Modulation Scheme Using Multiwavelets for Non-orthogonal Multiple-Access Downlink Transceiver</i>

Session B2: Signal/Video Processing-2

113	Harini Priyadarshini Hariharan and Thorsten Herfet. <i>OPTIMIZED PREDICTIVE CODING OF 5D LIGHT FIELDS</i>
-----	---

117	Ao Li, Lei Luo, Ce Zhu, Zhi Jin and Shu Tang. <i>Clustering-based Optimization for Side Window Filtering</i>
176	Elaine Sun, Hsiao-Chun Wu, Costas Busch, Scott Huang, Yen-Cheng Kuan and Jonathan Wu. <i>Innovative Audio Mosaic Technique by Permutations</i>
177	Rui Tian, Hsiao-Chun Wu, Jinwei Ye and Yiyan Wu. <i>Novel Moving-Target Detection Using A Hybrid of RGB Images and LiDAR Point-Clouds</i>
173	Motong Xu and Byeungwoo Jeon. <i>Selection of Intra Prediction Tools for Fast AV1 Encoding</i>

Session B3: Networks and Security-2

50	Sungjun Ahn, Sung-Ik Park, Jae-Young Lee and Namho Hur. <i>Multi-Antenna Diversity Gain at Terrestrial Broadcasting Receivers on Vehicle: A Coverage Probability Perspective</i>
57	Jinmeng Zhang, Renlong Zhang, Tao Hong, Michel Kadoch and Mohamed Cheriet. <i>OpenCV Based Plant Monitoring and Alarming in 5G Smart Farm System</i>
73	Jianli Guo, Yahui Ding, Yi Zhang, Xiujuan Shi and Peng Yu. <i>Optimization of Data Delivery Performance for Broadcasting System over Dynamic Networks</i>
183	Hengrui Hu, Jian Xiong, Peng Cheng and Zhiping Shi. <i>On Service Traffic Prediction of Base Stations along High-speed Railway</i>
145	Chiara Suraci, Sara Pizzi, Antonella Molinaro, Antonio Iera and Giuseppe Araniti. <i>An RSA-based algorithm for secure D2D-aided Multicast Delivery of Multimedia Services</i>

Technical Sessions B4-B6 (15mn/paper, recorded videos + forum for Q&A)

Session B4: mmWave and MIMO-2

77	Neng Ye, Lu Jiang, Xiangming Li and Aihua Wang. <i>A Novel mmWave MIMO-NOMA Scheme Based on Beam Aggregation</i>
107	Yinglin Wang, Jun Wang and Jian Song. <i>Novel Channel Estimation and Data Detection Scheme based on MCMC Algorithms in MU-MIMO Systems with IQ Imbalance</i>

112	Marta Fernandez, Lei Zhang, Simon L. Cotton and David Guerra. <i>Path Loss Measurements of User Equipment to Access Point Communications at 60 GHz</i>
114	Quan Wan, Jun Wang and Jian Song. <i>A New Search Process for High-Accuracy Beam Training in MmWave Communication</i>
115	Yikun Zhao, Fanqin Zhou, Lei Feng, Wenjing Li and Xuesong Qiu. <i>Coverage Analysis of Cooperative mmWave Cellular Communication for Multimedia Services</i>

Session B5: ATSC3.0-2

8	Florian Jackisch and Lennart Hauk. <i>Data Over Cable Services - Improving the BICM Capacity</i>
16	Wei Li, Liang Zhang, Yiyan Wu, Sung-Ik Park, Jae-Young Lee and Namho Hur. <i>LDM in Wireless In-Band Distribution Link and In-Band Inter-Tower Communication Networks for Backhaul, IoT and Datacasting</i>
63	Hoiyoon Jung, Sung-Ik Park, Jae-Young Lee, Namho Hur, Jeongchang Kim, Michael Simon and Mark Aitken. <i>Implementation of Terrestrial 8K Broadcast System Using ATSC 3.0 Channel Bonding</i>
74	Haechan Kwon, Sung-Ik Park, Jae-young Lee, Bomi Lim and Sungjun Ahn. <i>Laboratory Test Analysis for Co-Channel Interference Mitigation in ATSC 3.0 System</i>
104	Jon Montalban, Eneko Iradier, Lorenzo Fanari, Pablo Angueira, Sung-Ik Park, Sunhyoung Kwon and Namho Hur. <i>Design and Performance Analysis of an ATSC 3.0 Model in NS-3</i>

Session B6: QoS/QoE and Video streaming-2

28	Ryo Shirato, Junichiro Kawamoto and Takuya Kurakake. <i>Video Decomposition Method Used in Multi-format Transmission System for Remote Production</i>
76	Lana Jalal and Maurizio Murrioni. <i>On the Impact of Single and Multiple Effects on Quality of Experience for Multisensorial TV in Smart Home</i>
148	Fabio Silva, Mohammed Amine Togou and Gabriel-Miro Muntean. <i>An Innovative Algorithm for Improved Quality Multipath Delivery of Virtual Reality Content</i>

150	Matteo Anedda, Roberto Girau and Daniele. D. Giusto. <i>Urban Mobility Services based on User Virtualization and Social IoT</i>
162	Alejo Paullier and Rafael Sotelo. <i>Evaluation of Recommender Systems algorithms using the Lenskit library and MovieLens databases</i>

Technical Session Posters (10mn/paper, recorded videos + forum for Q&A)

Posters Session

79	Weiliang Liu, Xiaguan Yuan, Yangan Zhang, Mengqi Wu, Hang Du and Yakun Cui. <i>An automatic taxi receipt text recognition application system</i>
75	Qiang Liu, Songlin Sun, Liang Gong, Zhongle Wu, Mohamed Cheriet and Michel Kadoch. <i>Remote Healthcare Monitoring System for Aging Population Based on IoT and Big Data Analysis</i>
92	Mauro Fadda, Simone Porcu, Alessandro Floris, Matteo Anedda, Luigi Atzori and Vlad Popescu. <i>Quality of Experience Eye Gaze Analysis On HbbTV Smart Home Notification System</i>
122	Jianrong Wang, Hongbo Zhao and Haoqiang Liu. <i>A new hybrid positioning method for 5G using MIMO antennas</i>
135	Hyeongseok Kim, Jeongchang Kim, Sung-Ik Park and Namho Hur. <i>An Improved Decoding Scheme Based on Iterative Decoding for ATSC 3.0 MIMO</i>
137	Federica Rinaldi, Sara Pizzi, Antonella Molinaro, Antonio Iera and Giuseppe Araniti. <i>Frequency Reuse Techniques for eMBB Services over 5G Multi-Beam Non-Terrestrial Networks</i>
146	Natalia Santiago and Cristiano Akamine. <i>TxID in the ISDB-Tb using Auxiliary Channel</i>
149	Flavio Ribeiro Nogueira Barbosa and Guido Lemos de Souza Filho. <i>Hybrid Architecture CDN/Peer-to-Peer for Live Video Distribution over the Internet</i>
170	John Cosmas, Nawar Jawad, Kareem Ali, Yue Zhang, Wei Li, Marcin Gregorczyk, Wojciech Mazurczyk, Krzysztof Cabaj, Mathias Lacaud, Daniel Negru, Sara Cuerva Navas, Ignacio Losas Davila, Charilaos C Zarakovitis, Harilaos Koumaras and Michail-Alexandros Kourtis. <i>Network and Application Layer Services for High Performance Communications in Buildings</i>
144	Yixin Zhang, Yang Yang, Yuanyuan Wang, Jiang Luo, Zhipeng Gao and Peng Yu. <i>A Computation Offloading Mechanism for Multimedia Services in Green Smart Community</i>

39	Junghyun Kim, Kyungchul Kwak and Donghyun Kwon. <i>Implementation of Test Environment and Tools for IMSC1 Closed Caption based on ATSC 3.0</i>
42	Wenjing Li, Lei Feng, Yingxin Lin, Qiang Zhao and Qinghai Ou. <i>Network Slicing Cache Deployment And Resource Allocation Strategy For Maximizing Network Revenue in 5G C-RANs</i>
62	Haiyang Wu, Shichang Ding, Yong Dai, Yong Xu, Qingliu Ma and Peng Lin. <i>Co-Allocation of Service Routing in SDN-driven IP+Optical Smart Grid Communication Networks based on Deep Reinforcement Learning</i>
69	Zhuo Tao, Yang Yang, Yuanyuan Wang, Jiang Luo, Zhipeng Gao and Peng Yu. <i>A Nonnegativity-Constraint Sparse Stacked Autoencoder With Optimized Transfer Learning for Anomaly Detection With Few Labeled Data</i>
99	Fangning Shi, Xiaojun Jing, Yuan He, Yuanhao Cui, Michel Kadoch and Mohamed Cheriet. <i>Deep Classification Model of Wireless Signals Based on Higher-order Statistics</i>
121	Jing Gao, Fanqing Zhou, Lei Feng, Wenjing Li and Xuesong Qiu. <i>Resource Allocation for Network Slices with Delay-Sensitive Multimedia Services</i>
140	Anne-Carole Honfoga, Michel Dossou and Véronique Moeyaert. <i>Performance comparison of new waveforms applied to DVB-T2 transmissions</i>
142	Ting Bi, Abid Yaqoob, Longhao Zou and Gabriel-Miro Muntean. <i>A Study of Learning Experience With Olfaction via The Adaptive Rich Media Solution</i>
182	Halim Chouabia, Abdesselam Babouri, Abdelaziz Ladjimi and Ameer Chaabna. <i>3D arrangement of LEDs for indoor VLC applications</i>
90	Fadi Jerji, Cristiano Akamine and Nizam Omar. <i>Designing Non-Uniform Constellations using Genetic Algorithm</i>
6	Remigiusz Prokopiak and Sławomir Kukliński. <i>Application aware concurrent multipath transmission in hybrid wireless networks</i>
13	Juha Kalliovaara, Pekka Talmola, Heidi Himmanen, Petri Hyvärinen, Pedro Alfonso Perez-Chuecos Alcaraz, Tero Jokela, Reijo Ekman and Jarkko Paavola. <i>Shared Spectrum Access between PMSE Cameras and Private LTE Networks in 2.3 GHz Band</i>
65	Ziqi Zhou, Kewu Peng, Aleksei Krylov, Andrey Rashich, Dmitry Tkachenko, Fengshuang Li, Chao Zhang and Jian Song. <i>Enhanced Adaptive Normalized Min-Sum Algorithm for Layered Scheduling of 5G-NR LDPC codes</i>
67	Senyuan Ji, Houqun Yang, Liang Gong, Zhongzhao Li, Michel Kadoch and Mohamed Cheriet. <i>Airport network traffic prediction in 5G scenarios: a deep learning approach</i>
68	Ke Teng, Jibo Wang, Xueguang Yuan and Yangan Zhang. <i>Multimedia Service Upstream Transmission Demonstration in Real-Time Based OFDM and FSO</i>
78	Junwei Dong, Aihua Wang, Peili Ding and Neng Ye. <i>Comparisons on Deep Learning Methods for NOMA Scheme Classification in Cellular Downlink</i>

83	Lin Guan, Hui Yang, Bowen Bao, Ao Yu, Baoguo Yu and Jie Zhang. <i>Joint Optimization of Modulation and Guard Band Assignment with DNN-Based Channel Estimation in RoF Broadcasting System</i>
94	Xueting Li, Hui Yang, Qiuyan Yao, Bowen Bao, Zhengjie Sun, Jun Li and Jie Zhang. <i>Method for analyzing service risk of optical transport network based on index system</i>
116	Yen-Ming Chen, Yong-Jan Yang, Bo-Lun Huang, Huang-Chang Lee and Chih-Peng Li. <i>Polar Decoding with Schedule Diversity Based on LDPC-like Sparse Graphs</i>
129	Fengshuang Li, Chao Zhang, Kewu Peng and Jian Song. <i>Implementation of BICM-ID Receiver for Coded Modulation in DTMB-A</i>
132	Siheem Sehli and Malika Babes. <i>A new efficient hybridization for spectrum allocation in cognitive radio networks</i>
19	Xueting Li, Hui Yang, Qiuyan Yao, Bowen Bao, Zhengjie Sun, Jun Li and Jie Zhang. <i>Deep Reinforcement Learning-based Power and Caching Joint Optimal Allocation over Mobile Edge Computing</i>
20	Honghui Zhu, Zhuqing Jiang and Aidong Men. <i>Image Super-Resolution Using Light-Weight Deep Learning Methods</i>
33	Fabian Schrieber. <i>Antenna Diversity for Co-Channel Interference Suppression in DAB SFNs with Local Services</i>
36	Lucca Richter. <i>5G New Radio LDPC Extensions for Multimedia Broadcast Multicast Service</i>
45	Shuli Zheng, Tao Hong, Fanjie Meng and Haohui Hong. <i>The design of antenna for tunnel broadcasting based on SIW technology</i>
55	Hangyu Chen, Jingcheng Zhao, Tao Hong, Tao Tang, Shuli Zheng and Xu Chao. <i>Microwave One-dimensional Imaging Measurement in 5G MIMO</i>
133	Vinicius Barragam, George Henrique Maranhão Garcia de Oliveira, Ricardo Seriacopi Rabaça, Fadi Jerji, Rafael Diniz and Cristiano Akamine. <i>Implementation of Layered-Division-Multiplexing in Digital Radio Mondiale</i>
156	Yizhe Zhang, Dazhi He, Yin Xu, Yunfeng Guan and Wenjun Zhang. <i>MBSFN: Efficiently Broadcast in Vehicular Network</i>
93	Hanqing Li, Changyong Pan, Yonglin Xue, Chao Zhang, Hui Yang, Jintao Wang and Jian Song. <i>8K Ultra-high Definition Digital Television Transmission System Based on DTMB-A</i>
9	Ladislav Polak, Jan Kufa and Tomas Kratochvil. On the Compression Performance of HEVC, VP9 and AV1 Encoders for Virtual Reality Videos

Technical Sessions C1-C3 (15mn/paper, recorded videos + forum for Q&A)

Session C1: Resource Allocation

48	Mo Yang, Peng Yu, Lei Feng, Fanqin Zhou, Minxing Tao, Wenjing Li and Xuesong Qiu. <i>Deep Reinforcement Learning Based Green Resource Allocation Mechanism for Multimedia Broadband Services in Mobile Edge Network</i>
82	Hui Yang, Jingwen Nan, Qiuyan Yao, Ao Yu, Bowen Bao, Yong Jiang, Huifeng Guo and Jie Zhang. <i>Representation Learning-based Slice Resource Reconfiguring Scheme in Multimedia Networks</i>
85	Wenhao Zhan, Haoyue Tang and Jintao Wang. <i>Delay Optimal Cross-Layer Scheduling Over Markov Channels with Power Constraint</i>
138	Haining Duan, Yu Zhang and Jian Song. <i>Optimized Resource Allocation in Scalable Video Broadcasting Using LDM and BDM</i>
134	Eneko Iradier, Aritz Abuin, Lorenzo Fanari, Jon Montalban, Pablo Angueira, Liang Zhang, Wei Li and Yiyang Wu. <i>Broadcast/Unicast Convergence in NOMA-based 5G: a Resource Allocation Optimization Algorithm</i>

Session C2: Signal/Video Processing-3

30	Xun Tong, Chen Zhu, Rong Xie and Li Song. <i>A VMAF Directed Perceptual Rate Distortion Optimization for Video Coding</i>
70	Zaixin Yang, Yu Dong, Li Song, Rong Xie, Lin Li and Yanan Feng. <i>Native Resolution Detection for 4K-UHD Videos</i>
95	Xueshu Wang, Xiaojun Jing, Hai Huang, Yuanhao Cui, Michel Kadoch and Mohamed Cheriet. <i>Artifacts Reduction GAN For Enhancing Quality Of Compressed Panoramic Video</i>
119	Heng Zhao, Qi Yang, Wenjie Zhu and Yiling Xu. <i>A Quality Metric for 3D LiDAR Point Cloud based on Vision Tasks</i>
131	Hongwei Guo, Ce Zhu, Yuyang Liu, Mao Ye and Lei Luo. <i>Temporal dependency based Lagrange multiplier adaptation for HEVC</i>

Session C3: Visible Light Communications

5	Sander Bastiaens, Kenneth Deprez, Luc Martens, Wout Joseph and David Plets. <i>Visible Light Positioning with Light Signals of Opportunity</i>
7	Hequn Zhang, Yue Zhang, Gaojie Chen, Wei Li, Nawar Jawad, John Cosmas, Xun Zhang, Jintao Wang and Robert Müller. <i>The Performance Measurement of the 60GHz mmWave Module for IoRL Network</i>
124	Ameur Chaabna, Abdesselam Babouri and Halim Chouabia. <i>A Modeling Hybrid Radio Frequency and Visible Light Communication Channel</i>
152	Dayu Shi, Jiacheng Li, Yourong Liu, Lina Shi, Yanqi Huang, Zhan Wang, Xun Zhang and Andrei Vladimirescu. <i>Effect of Illumination Intensity on LED Based Visible Light Communication System</i>
153	Yanqi Huang, Yourong Liu, Lina Shi, Dayu Shi, Xun Zhang, El-Hassane Aglzim and Jihong Zheng. <i>On improving the accuracy of Visible Light Positioning system based PAPR reduction schemes</i>

Technical Sessions C4-C6 (15mn/paper, recorded videos + forum for Q&A)

Session C4: Spectrum Sharing and Cognitive Radio

2	Rodney Martinez Alonso, Arley Coto Guerra, Ernesto Fontes Pupo, David Plets, Glauco Guillen Nieto, Luc Martens and Wout Joseph. <i>Assessment of White Spaces Quality in Rural Areas: a large-scale spectrum survey</i>
4	Rodney Martinez Alonso, David Plets, Arley Coto Guerra, Yosvany Hervis Santana, Ernesto Fontes Pupo, Alejandro Gonzalez Garcia, Rufino Cabrera Alvarez, Glauco Guillen Nieto, Luc Martens and Wout Joseph. <i>Experimental Assessment of Harmful Interference Between Broadcasting and Distributed Cognitive Radio Networks in Real Scenarios</i>
97	Quan Zhou, Xiaojun Jing, Yuan He, Yuanhao Cui, Michel Kadoch and Mohamed Cheriet. <i>LSTM-based Automatic Modulation Classification</i>
143	Ernesto Fontes Pupo, Rufino Cabrera Alvarez, Alejandro González García and Reinier Díaz Hernández. <i>Protection ratios and overload thresholds between 700 MHz FDD-LTE and analog/digital terrestrial television</i>
174	Xuemei Huang, Lixuan Zhang, Kun Yan and Hsiao-Chun Wu. <i>Novel Modulation Recognizer for Frequency-Hopping Signals Based on Persistence Diagram</i>

Session C5: DTTB Systems

25	Lachlan Michael. <i>Mobile Field Test Results for Advanced Terrestrial Broadcasting in Japan</i>
26	Kazuyuki Takahashi, Lachlan Michael and Makoto Itami. <i>Static Field Test Results for Advanced Terrestrial Broadcasting in Japan</i>
53	Bo-mi Lim, Sungjun Ahn, Sunhyoung Kwon, Jae-young Lee and Sung-Ik Park. <i>ATSC 3.0 Field Trial Under 3-Tx SFN Environments</i>
126	Subodh Nepal, Duong Quang Thang, Takeshi Higashino and Minoru Okada. <i>A comparative study on radio coverage due to DVB-T2 Multi-Frequency Network (MFN) and Single Frequency Network (SFN)</i>

Session C6: QoS/QoE and Video streaming-3

18	Hiroki Endo, Shuhei Taguchi, Shinya Takeuchi, Hiroshi Fujisawa and Arisa Fujii. <i>Distribution Media-Independent Multidevice Cooperation System for Content Viewing</i>
37	Nawar Jawad, Mukhald Salih and John Cosmas. <i>Virtual Gateway: Local Multimedia Services and mobility management for 5G Internet of Radio Light gNB</i>
72	Chaoyu Gu, Jian Xiong, Zhiping Shi and Bo Liu. <i>Video Cooperative Caching in High-Speed Train by using Differential Evolution Algorithm</i>
89	Mathias Lacaud and Daniel Negru. <i>Multiple-Source Streaming over Remote Radio Light Head: a pragmatic, efficient and reliable video streaming system for 5G intra-building use cases</i>
171	Ben Meunier, John Cosmas, Nawar Jawad and Kareem Ali. <i>Realising a new generation of 5G VR systems through Internet of Radio Light</i>

# ea-sychair	List of Accepted Papers authors, title	Index
66	Xu Shi and Jintao Wang. Low-Complexity Hybrid Precoder Design for GenSM-Aided mmWave MIMO	1
72	Chaoyu Gu, Jian Xiong, Zhiping Shi and Bo Liu. Video Cooperative Caching in High-Speed Train by using Differential Evolution Algorithm	2
111	Abid Yaqoob and Gabriel-Miro Muntean. A Weighted Tile Approach for DASH-based Viewport Adaptive 360° Video Streaming	3
16	Wei Li, Liang Zhang, Yiyang Wu, Sung-Ik Park, Jae-Young Lee and Namho Hur. LDM in Wireless In-Band Distribution Link and In-Band Inter-Tower Communication Networks for Backhaul, IoT and Datacasting	4
61	Minyu Jin, Jian Xiong, Bo Liu and Lina Xiao. On Channel Classification by Using DTMB Signal	5
131	Hongwei Guo, Ce Zhu, Yuyang Liu, Mao Ye and Lei Luo. Temporal dependency based Lagrange multiplier adaptation for HEVC	6
136	Lidie Liu, Yin Xu, Yiyang Wu, Yu Zhang, Dazhi He and Wenjun Zhang. NUC optimization for Hierarchical Modulation aiming at achieving comparable capacity with Layered Division Multiplexing	7
153	Yanqi Huang, Yourong Liu, Lina Shi, Dayu Shi, Xun Zhang, El-Hassane Aglzim and Jihong Zheng. On improving the accuracy of Visible Light Positioning system based PAPR reduction schemes	8
176	Elaine Sun, Hsiao-Chun Wu, Costas Busch, Scott Huang, Yen-Cheng Kuan and Jonathan Wu. Innovative Audio Mosaic Technique by Permutations	9
177	Rui Tian, Hsiao-Chun Wu, Jinwei Ye and Yiyang Wu. Novel Moving-Target Detection Using A Hybrid of RGB Images and LiDAR Point-Clouds	10
179	Qian Wang, Suwen Xu, Xiao Yan, Hsiao-Chun Wu and Yiyang Wu. Innovative Modulation Scheme Using Multiwavelets for Non-orthogonal Multiple-Access Downlink Transceiver	11
15	Zhen Yang, Li Song, Rong Xie, Wenjun Zhang, Lin Li and Yanan Feng. TSGAN: A TWO-STREAM GENERATIVE ADVERSARIAL NETWORK FOR BIT-DEPTH EXPANSION	12

44	Sung-Ik Park, Bomi Lim, Hae-Chan Kwon and Sungjun Ahn. Mobile Performance of Diversity Receiver in ATSC 3.0 System	13
53	Bo-mi Lim, Sungjun Ahn, Sunhyoung Kwon, Jae-young Lee and Sung-Ik Park. ATSC 3.0 Field Trial Under 3-Tx SFN Environments	14
73	Jianli Guo, Yahui Ding, Yi Zhang, Xiujuan Shi and Peng Yu. Optimization of Data Delivery Performance for Broadcasting System over Dynamic Networks	15
104	Jon Montalban, Eneko Iradier, Lorenzo Fanari, Pablo Angueira, Sung-Ik Park, Sunhyoung Kwon and Namho Hur. Design and Performance Analysis of an ATSC 3.0 Model in NS-3	16
117	Ao Li, Lei Luo, Ce Zhu, Zhi Jin and Shu Tang. Clustering-based Optimization for Side Window Filtering	17
152	Dayu Shi, Jiacheng Li, Yourong Liu, Lina Shi, Yanqi Huang, Zhan Wang, Xun Zhang and Andrei Vladimirescu. Effect of Illumination Intensity on LED Based Visible Light Communication System	18
183	Ting Wang and Eric Monacelli. EVAL Cane: An IoT based Smart Cane for the Evaluation of Walking Gait and Environment	19
60	Hengrui Hu, Jian Xiong, Peng Cheng and Zhiping Shi. On Service Traffic Prediction of Base Stations along High-speed Railway	20
138	Haining Duan, Yu Zhang and Jian Song. Optimized Resource Allocation in Scalable Video Broadcasting Using LDM and BDM	21
2	Rodney Martinez Alonso, Arley Coto Guerra, Ernesto Fontes Pupo, David Plets, Glauco Guillen Nieto, Luc Martens and Wout Joseph. Assessment of White Spaces Quality in Rural Areas: a large-scale spectrum survey	22
7	Hequn Zhang, Yue Zhang, Gaojie Chen, Wei Li, Nawar Jawad, John Cosmas, Xun Zhang, Jintao Wang and Robert Müller. The Performance Measurement of the 60GHz mmWave Module for IoRL Network	23
11	Chengli Mei, Xu Xia, Jiayi Liu and Hongyan Yang. Load Balancing Oriented Deployment Policy for 5G Core Network Slices	24
14	Tomoya Ijiguchi, Shingo Asakura, Shogo Kawashima, Tomoaki Takeuchi, Kohei Kambara and Masahiro Okano. Performance Evaluation of an Advanced ISDB-T Coded SFN	25
25	Lachlan Michael. Mobile Field Test Results for Advanced Terrestrial Broadcasting in Japan	26
26	Kazuyuki Takahashi, Lachlan Michael and Makoto Itami. Static Field Test Results for Advanced Terrestrial Broadcasting in Japan	27

30	Xun Tong, Chen Zhu, Rong Xie and Li Song. A VMAF Directed Perceptual Rate Distortion Optimization for Video Coding	28
31	Alvaro Gabilondo, Javier Morgade, Roberto Viola, Juan Felipe Mogollon, Mikel Joseba Zorrilla, Jon Montalban and Pablo Angueira. Realising a vRAN based FeMBMS Management and Orchestration Framework	29
32	Eduardo Garro Crevillen, Alvaro Ibañez Latorre, David Gomez-Barquero, Hoiyoon Jung, Sung-Ik Park and Namho Hur. Integration analysis and performance evaluation of LDM into NR physical layer	30
37	Nawar Jawad, Mukhald Salih and John Cosmas. Virtual Gateway: Local Multimedia Services and mobility management for 5G Internet of Radio Light gNB	31
49	Jaehwui Bae, Youngsu Kim, Namho Hur, Dong-Joon Choi, Ho Jae Kim and Hyung-Nam Kim. PN sequence based 4-layer Layer Division Multiplexing modulation	32
50	Sungjun Ahn, Sung-Ik Park, Jae-Young Lee and Namho Hur. Multi-Antenna Diversity Gain at Terrestrial Broadcasting Receivers on Vehicle: A Coverage Probability Perspective (withdrawn)	33
51	Lei Tao, Tao Hong, Yichen Guo and Hangyu Chen. Drone identification based on CenterNet-TensorRT	34
52	Sungjun Ahn, Sung-Ik Park, Jae-young Lee, Bo-mi Lim, Sunhyoung Kwon, Namho Hur and Jeongchang Kim. Mobile Performance Enhancement via Tracking Inter-Carrier Interference Power for ATSC 3.0 Receivers	35
54	Sungjun Ahn, Sunhyoung Kwon, Sung-Ik Park, Jae-Young Lee, Namho Hur and Joonhyuk Kang. Outage Probability Performance of Preamble Cancellation-Assisted RF-Watermark TxID Detection in Repeater Networks	36
56	Shuai Ma, Li Xu, Chun Du, Xueqi Cheng and Shiyin Li. A Novel Dynamic User Admission Scheme for Multi-cell Massive MIMO Systems	37
57	Jinmeng Zhang, Renlong Zhang, Tao Hong, Michel Kadoch and Mohamed Cheriet. OpenCV Based Plant Monitoring and Alarming in 5G Smart Farm System	38
63	Hoiyoon Jung, Sung-Ik Park, Jae-Young Lee, Namho Hur, Jeongchang Kim, Michael Simon and Mark Aitken. Implementation of Terrestrial 8K Broadcast System Using ATSC 3.0 Channel Bonding	39
70	Zaixin Yang, Yu Dong, Li Song, Rong Xie, Lin Li and Yanan Feng. Native Resolution Detection for 4K-UHD Videos	40

71	Zhigang Liu, Jun Wang and Yinglin Wang. Low-Complexity Calibration of Joint TX/RX I/Q Imbalance in Wideband Direct-Conversion Transceiver	41
74	Haechan Kwon, Sung-Ik Park, Jae-young Lee, Bomi Lim and Sungjun Ahn. Laboratory Test Analysis for Co-Channel Interference Mitigation in ATSC 3.0 System	42
76	Lana Jalal and Maurizio Murrone. On the Impact of Single and Multiple Effects on Quality of Experience for Multisensorial TV in Smart Home	43
80	Cristina Desogus, Alessandra Fontana and Maurizio Murrone. SMASH: a SMART Slicing Heterogeneous 5G network selection algorithm	44
87	Álvaro Ibáñez Latorre, Manuel Fuentes, Borja Iñesta Hernandez, David Gómez-Barquero and Diarmuid Collins. 5G Broadcast implementation and demonstration in a SDR laboratory experiment	45
95	Xueshu Wang, Xiaojun Jing, Hai Huang, Yuanhao Cui, Michel Kadoch and Mohamed Cheriet. Artifacts Reduction GAN For Enhancing Quality Of Compressed Panoramic Video	46
98	Xu Chao, Jingcheng Zhao, Zhengwei Chang, Mohamed Cheriet, Michel Kadoch, Rongke Liu, Jizhao Lu and Yuandong Liu. Design of Environmental backscatter tag antenna for 5G Internet of things	47
102	Jon Montalban, Gabriel-Miro Muntean and Pablo Angueira. Performance Impact of Background Traffic on Broadcast-like Services in Converged 5G Network Environments	48
107	Yinglin Wang, Jun Wang and Jian Song. Novel Channel Estimation and Data Detection Scheme based on MCMC Algorithms in MU-MIMO Systems with IQ Imbalance	49
114	Quan Wan, Jun Wang and Jian Song. A New Search Process for High-Accuracy Beam Training in MmWave Communication	50
119	Heng Zhao, Qi Yang, Wenjie Zhu and Yiling Xu. A Quality Metric for 3D LiDAR Point Cloud based on Vision Tasks	51
126	Subodh Nepal, Duong Quang Thang, Takeshi Higashino and Minoru Okada. A comparative study on radio coverage due to DVB-T2 Multi-Frequency Network (MFN) and Single Frequency Network (SFN)	52
130	Yang Cai, Hanjiang Hong, Yin Xu, Dazhi He, Ning Liu, Wei Xie and Wenjun Zhang. Design of Circular Structured One-dimensional Non-uniform Constellations with Better Performace	53

141	João Carreira, Sérgio Faria, Luis Tavora, Antonio Navarro and Pedro A. Amado Assuncao. Scalable coding of 360-degree video for streaming adaptation at 5G network edges	54
147	Kang Xu, Na Gao, Yin Xu, Dazhi He and Boyuan Xu. On the Non-concentrated Check-node Degree Distributions in QC-IRA Raptor-like LDPC Codes	55
169	Kareem Ali, Nawar Jawad, Benjamin Meunier and John Cosmas. IoRL Real-Time Video Lan Client Player Streaming through SDN Network	56
171	Ben Meunier, John Cosmas, Nawar Jawad and Kareem Ali. Realising a new generation of 5G VR systems through Internet of Radio Light	57
180	Guannan Liu, Hsiao-Chun Wu, Weidong Xiang, Jinwei Ye, Yiyang Wu and Limeng Pu. Indoor Object Localization and Tracking Using Deep Learning over Received Signal Strength	58
23	Jiayi Liu, Gwendal Simon, Xavier Corbillon, Jacob Chakaresk and Qinghai Yang. Delivering Viewport-Adaptive 360-Degree Videos in Cache-Aided MEC Networks	59
106	Seok-Ki Ahn, Hoiyoon Jung and Sung-Ik Park. Performance evaluation of terrestrial broadcasting based on 5G NR	60
17	Zhihong Hong, Liang Zhang, Yiyang Wu, Wei Li, Sebastien Lafleche, Sung-Ik Park, Jae-Young Lee, Heung Mook Kim and Namho Hur. Application of Dual-Polarization Transmission for Wireless Distribution Using LDM in ATSC 3.0	61
22	Hyun-Jeong Yim, Bo-mi Lim, Soonchoul Kim, Sung-Ik Park and Namho Hur. Device communication technology between various terminals for delivering ATSC 3.0 service	62
46	Yuchao Chen, Haoyue Tang and Jintao Wang. Optimizing Age of Information in Multicast Unilateral Networks	63
77	Neng Ye, Lu Jiang, Xiangming Li and Aihua Wang. A Novel mmWave MIMO-NOMA Scheme Based on Beam Aggregation	64
101	Shengyang Shen, Zexiang Liu, Bingkun Zhao, Chongyang Zhang and Li Chen. Improving Real-world Object Detection Using Balanced Loss	65
103	Sunghee Lee, Ilhong Shin and Namkyung Lee. Deep Learning based Real-time Mobile Obscenity Detection System for Personal Broadcasting	66

112	Marta Fernandez, Lei Zhang, Simon L. Cotton and David Guerra. Path Loss Measurements of User Equipment to Access Point Communications at 60 GHz	67
120	Eneko Iradier, Gorka Pujana, Lorenzo Fanari, Jon Montalban and Pablo Angueira. Multiple Layer P-NOMA in 5G	68
124	Ameur Chaabna, Abdesselam Babouri and Halim Chouabia. A Modeling Hybrid Radio Frequency and Visible Light Communication Channel	69
125	Xiuxuan Huang, Hanjiang Hong, Yin Xu, Dazhi He, Yu Zhang, Ning Liu and Wenjun Zhang. Design of Time and Frequency Inter-leaver for LTE-based 5G Terrestrial Broadcasting	70
134	Eneko Iradier, Aritz Abuin, Lorenzo Fanari, Jon Montalban, Pablo Angueira, Liang Zhang, Wei Li and Yiyan Wu. Broadcast/Unicast Convergence in NOMA-based 5G: a Resource Allocation Optimazation Algorithm	71
143	Ernesto Fontes Pupo, Rufino Cabrera Alvarez, Alejandro González García and Reinier Díaz Hernández. Protection ratios and overload thresholds between 700 MHz FDD-LTE and analog/digital terrestrial television	72
145	Chiara Suraci, Sara Pizzi, Antonella Molinaro, Antonio Iera and Giuseppe Araniti. An RSA-based algorithm for secure D2D-aided Multicast Delivery of Multimedia Services	73
18	Hiroki Endo, Shuhei Taguchi, Shinya Takeuchi, Hiroshi Fujisawa and Arisa Fujii. Distribution Media-Independent Multidevice Cooperation System for Content Viewing	74
24	Hiroto Yamamoto, Tomohiro Takaya, Akira Nakamura and Makoto Itami. A Study on Cross-Layer Interference of Layered Division Multiplexing	75
47	Bo Guo, Shichang Ding, Jixuan Li, Bin Gu, Zhuojun Jin and Peng Lin. Cyber-Physical Risk Driven Routing Planning with Deep Reinforcement-Learning for Multimedia Broadband Services in Smart Grid Communication Networks	76
81	Chu Chu, Li Chen and Zhiyong Gao. Similarity Based Filter Pruning for Efficient Super-Resolution Models	77
88	Yuqi Ding, Jiaming Liu, Jinwei Ye, Weidong Xiang, Hsiao-Chun Wu and Costas Busch. 3D LiDAR and Color Camera Data Fusion	78
89	Mathias Lacaud and Daniel Negru. Multiple-Source Streaming over Remote Radio Light Head: a pragmatic, efficient and reliable video streaming system for 5G intra-building use cases	79

108	Jongbin Park. Color Transfer based on Image Statistics	80
109	Wei Lin, Yang'an Zhang, Guanjun Gao, Hongfei Liu and Xueguang Yuan. FAST telescope optical transmission system based on Delta-Sigma Modulation	81
110	Gorka Pujana, Eneko Iradier, Jon Montalban, Lorenzo Fanari and Pablo Angueira. PHY Layer Performance of N-LDM for Broadcast and IoT Use Cases	82
113	Harini Priyadarshini Hariharan and Thorsten Herfet. OPTIMIZED PREDICTIVE CODING OF 5D LIGHT FIELDS	83
115	Yikun Zhao, Fanqin Zhou, Lei Feng, Wenjing Li and Xuesong Qiu. Coverage Analysis of Cooperative mmWave Cellular Communication for Multimedia Services	84
127	Roberto Toledo, Cristiano Akamine and Leandro Silva. M-QAM Demodulation based on Machine Learning	85
148	Fabio Silva, Mohammed Amine Togou and Gabriel-Miro Muntean. An Innovative Algorithm for Improved Quality Multipath Delivery of Virtual Reality Content	86
151	Jefferson Almeida, Cristiano Akamine and Paulo Lopes. A proposed iterative DFT-based channel estimation for FBMC scattered pilot frame model	87
162	Alejo Paullier and Rafael Sotelo. Evaluation of Recommender Systems algorithms using the Lenskit library and MovieLens databases	88
173	Motong Xu and Byeungwoo Jeon. Selection of Intra Prediction Tools for Fast AV1 Encoding	89
174	Xuemei Huang, Lixuan Zhang, Kun Yan and Hsiao-Chun Wu. Novel Modulation Recognizer for Frequency-Hopping Signals Based on Persistence Diagram	90
82	Hui Yang, Jingwen Nan, Qiuyan Yao, Ao Yu, Bowen Bao, Yong Jiang, Huifeng Guo and Jie Zhang. Representation Learning-based Slice Resource Reconfiguring Scheme in Multimedia Networks	91
85	Wenhao Zhan, Haoyue Tang and Jintao Wang. Delay Optimal Cross-Layer Scheduling Over Markov Channels with Power Constraint	92

5	Sander Bastiaens, Kenneth Deprez, Luc Martens, Wout Joseph and David Plets. Visible Light Positioning with Light Signals of Opportunity	93
12	Roberto Viola, Angel Martin, Juan Felipe Mogollón, Alvaro Gabilondo, Javier Morgade, Mikel Zorrilla, Jon Montalbán and Pablo Angueira. Adaptive Rate Control for Live streaming using SRT protocol	94
43	Minsu Kim and Kwangsue Chung. Mobile Edge-Driven Adaptive Streaming Scheme Based on User Interest	95
48	Mo Yang, Peng Yu, Lei Feng, Fanqin Zhou, Minxing Tao, Wenjing Li and Xuesong Qiu. Deep Reinforcement Learning Based Green Resource Allocation Mechanism for Multimedia Broadband Services in Mobile Edge Network	96
79	Weiliang Liu, Xueguang Yuan, Yangan Zhang, Mengqi Wu, Hang Du and Yakun Cui. An automatic taxi receipt text recognition application system	97
97	Quan Zhou, Xiaojun Jing, Yuan He, Yuanhao Cui, Michel Kadoch and Mohamed Cheriet. LSTM-based Automatic Modulation Classification	98
150	Matteo Anedda, Roberto Girau and Daniele. D. Giusto. Urban Mobility Services based on User Virtualization and Social IoT	99
4	Rodney Martinez Alonso, David Plets, Arley Coto Guerra, Yosvany Hervis Santana, Ernesto Fontes Pupo, Alejandro Gonzalez Garcia, Rufino Cabrera Alvarez, Glauco Guillen Nieto, Luc Martens and Wout Joseph. Experimental Assessment of Harmful Interference Between Broadcasting and Distributed Cognitive Radio Networks in Real Scenarios	100
8	Florian Jackisch and Lennart Hauk. Data Over Cable Services - Improving the BICM Capacity	101
10	Junghwan Kim and Wei Wei. Modeling and Performance Evaluation of Chaotic Symbol Dynamic 16-APSK for Secure Broadcast	102
28	Ryo Shirato, Junichiro Kawamoto and Takuya Kurakake. Video Decomposition Method Used in Multi-format Transmission System for Remote Production	103
38	John Cosmas, Yue Zhang and Xun Zhang. Bringing Television and Communications Services to Train Passengers	104
64	Hong, Zhao, Hong, Tang and Lv. Modeling and Performance Simulation of MIMO Channel in THz Communication	105
75	Qiang Liu, Songlin Sun, Liang Gong, Zhongle Wu, Mohamed Cheriet and Michel Kadoch. Remote Healthcare Monitoring System for Aging Population Based on IoT and Big Data Analysis	106

92	Mauro Fadda, Simone Porcu, Alessandro Floris, Matteo Anedda, Luigi Atzori and Vlad Popescu. <u>Quality of Experience Eye Gaze Analysis On HbbTV Smart Home Notification System</u>	107
122	Jianrong Wang, Hongbo Zhao and Haoqiang Liu. <u>A new hybrid positioning method for 5G using MIMO antennas</u>	108
135	Hyeongseok Kim, Jeongchang Kim, Sung-Ik Park and Namho Hur. <u>An Improved Decoding Scheme Based on Iterative Decoding for ATSC 3.0 MIMO</u>	109
137	Federica Rinaldi, Sara Pizzi, Antonella Molinaro, Antonio Iera and Giuseppe Araniti. <u>Frequency Reuse Techniques for eMBB Services over 5G Multi-Beam Non-Terrestrial Networks</u>	110
146	Natalia Santiago and Cristiano Akamine. <u>TxID in the ISDB-Tb using Auxiliary Channel</u>	111
149	Flavio Ribeiro Nogueira Barbosa and Guido Lemos de Souza Filho. <u>Hybrid Architecture CDN/Peer-to-Peer for Live Video Distribution over the Internet</u>	112
170	John Cosmas, Nawar Jawad, Kareem Ali, Yue Zhang, Wei Li, Marcin Gregorczyk, Wojciech Mazurczyk, Krzysztof Cabaj, Mathias Lacaud, Daniel Negru, Sara Cuerva Navas, Ignacio Losas Davila, Charilaos C Zarakovitis, Harilaos Koumaras and Michail-Alexandros Kourtis. <u>Network and Application Layer Services for High Performance Communications in Buildings</u>	113
144	Yixin Zhang, Yang Yang, Yuanyuan Wang, Jiang Luo, Zhipeng Gao and Peng Yu. <u>A Computation Offloading Mechanism for Multi-media Services in Green Smart Community</u>	114
39	Junghyun Kim, Kyungchul Kwak and Donghyun Kwon. <u>Implementation of Test Environment and Tools for IMSC1 Closed Caption based on ATSC 3.0</u>	115
42	Wenjing Li, Lei Feng, Yingxin Lin, Qiang Zhao and Qinghai Ou. <u>Network Slicing Cache Deployment And Resource Allocation Strategy For Maximizing Network Revenue in 5G C-RANs</u>	116
62	Haiyang Wu, Shichang Ding, Yong Dai, Yong Xu, Qingliu Ma and Peng Lin. <u>Co-Allocation of Service Routing in SDN-driven IP+Optical Smart Grid Communication Networks based on Deep Reinforcement Learning</u>	117
69	Zhuo Tao, Yang Yang, Yuanyuan Wang, Jiang Luo, Zhipeng Gao and Peng Yu. <u>A Nonnegativity-Constraint Sparse Stacked Auto-encoder With Optimized Transfer Learning for Anomaly Detection With Few Labeled Data</u>	118

99	Fangning Shi, Xiaojun Jing, Yuan He, Yuanhao Cui, Michel Kadoch and Mohamed Cheriet. Deep Classification Model of Wireless Signals Based on Higher-order Statistics	119
121	Jing Gao, Fanqing Zhou, Lei Feng, Wenjing Li and Xuesong Qiu. Resource Allocation for Network Slices with Delay-Sensitive Multimedia Services	120
140	Anne-Carole Honfoga, Michel Dossou and Véronique Moeyaert. Performance comparison of new waveforms applied to DVB-T2 transmissions	121
142	Ting Bi, Abid Yaqoob, Longhao Zou and Gabriel-Miro Muntean. A Study of Learning Experience With Olfaction via The Adaptive Rich Media Solution	122
182	Halim Chouabia, Abdesselam Babouri, Abdelaziz Ladjimi and Ameer Chaabna. 3D arrangement of LEDs for indoor VLC applications	123
90	Fadi Jerji, Cristiano Akamine and Nizam Omar. Designing Non-Uniform Constellations using Genetic Algorithm	124
6	Remigiusz Prokopiak and Sławomir Kukliński. Application aware concurrent multipath transmission in hybrid wireless networks	125
13	Juha Kalliovaara, Pekka Talmola, Heidi Himmanen, Petri Hyvärinen, Pedro Alfonso Perez-Chuecos Alcaraz, Tero Jokela, Reijo Ekman and Jarkko Paavola. Shared Spectrum Access between PMSE Cameras and Private LTE Networks in 2.3 GHz Band	126
65	Ziqi Zhou, Kewu Peng, Aleksei Krylov, Andrey Rashich, Dmitry Tkachenko, Fengshuang Li, Chao Zhang and Jian Song. Enhanced Adaptive Normalized Min-Sum Algorithm for Layered Scheduling of 5G-NR LDPC codes	127
67	Senyuan Ji, Houqun Yang, Liang Gong, Zhongzhao Li, Michel Kadoch and Mohamed Cheriet. Airport network traffic prediction in 5G scenarios: a deep learning approach	128
68	Ke Teng, Jibo Wang, Xueguang Yuan and Yangan Zhang. Multimedia Service Upstream Transmission Demonstration in Real-Time Based OFDM and FSO	129
78	Junwei Dong, Aihua Wang, Peili Ding and Neng Ye. Comparisons on Deep Learning Methods for NOMA Scheme Classification in Cellular Downlink	130
83	Lin Guan, Hui Yang, Bowen Bao, Ao Yu, Baoguo Yu and Jie Zhang. Joint Optimization of Modulation and Guard Band Assignment with DNN-Based Channel Estimation in RoF Broadcasting System	131

94	Xueting Li, Hui Yang, Qiuyan Yao, Bowen Bao, Zhengjie Sun, Jun Li and Jie Zhang. <u>Method for analyzing service risk of optical transport network based on index system</u>	132
116	Yen-Ming Chen, Yong-Jan Yang, Bo-Lun Huang, Huang-Chang Lee and Chih-Peng Li. Polar Decoding with Schedule Diversity Based on LDPC-like Sparse Graphs	133
129	Fengshuang Li, Chao Zhang, Kewu Peng and Jian Song. <u>Implementation of BICM-ID Receiver for Coded Modulation in DTMB-A</u>	134
132	Sihem Sehli and Malika Babes. <u>A new efficient hybridization for spectrum allocation in cognitive radio networks</u>	135
19	Xueting Li, Hui Yang, Qiuyan Yao, Bowen Bao, Zhengjie Sun, Jun Li and Jie Zhang. <u>Deep Reinforcement Learning-based Power and Caching Joint Optimal Allocation over Mobile Edge Computing</u>	136
20	Honghui Zhu, Zhuqing Jiang and Aidong Men. <u>Image Super-Resolution Using Light-Weight Deep Learning Methods</u>	137
33	Fabian Schrieber. <u>Antenna Diversity for Co-Channel Interference Suppression in DAB SFNs with Local Services</u>	138
36	Lucca Richter. <u>5G New Radio LDPC Extensions for Multimedia Broadcast Multicast Service</u>	139
45	Shuli Zheng, Tao Hong, Fanjie Meng and Haohui Hong. <u>The design of antenna for tunnel broadcasting based on SIW technology</u>	140
55	Hangyu Chen, Jingcheng Zhao, Tao Hong, Tao Tang, Shuli Zheng and Xu Chao. <u>Microwave One-dimensional Imaging Measurement in 5G MIMO</u>	141
133	Vinicius Barragam, George Henrique Maranhão Garcia de Oliveira, Ricardo Seriacopi Rabaça, Fadi Jerji, Rafael Diniz and Cristiano Akamine. <u>Implementation of Layered-Division-Multiplexing in Digital Radio Mondiale</u>	142
156	Yizhe Zhang, Dazhi He, Yin Xu, Yunfeng Guan and Wenjun Zhang. <u>MBSFN: Efficiently Broadcast in Vehicular Network</u>	143
93	Hanqing Li, Changyong Pan, Yonglin Xue, Chao Zhang, Hui Yang, Jintao Wang and Jian Song. <u>8K Ultra-high Definition Digital Television Transmission System Based on DTMB-A</u>	144
9	Ladislav Polak, Jan Kufa and Tomas Kratochvil. On the Compression Performance of HEVC, VP9 and AV1 Encoders for Virtual Reality Videos (revised)	145