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This index covers all technical items—papers, correspondence, reviews, etc.—that appeared in this periodical during 2021, and items from previous years that were commented upon or corrected in 2021. Departments and other items may also be covered if they have been judged to have archival value.

The Author Index contains the primary entry for each item, listed under the first author's name. The primary entry includes the coauthors' names, the title of the paper or other item, and its location, specified by the publication abbreviation, year, month, and inclusive pagination. The Subject Index contains entries describing the item under all appropriate subject headings, plus the first author's name, the publication abbreviation, month, and year, and inclusive pages. Note that the item title is found only under the primary entry in the Author Index.

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- 3D Channel Characterization and Performance Analysis of UAV-Assisted Millimeter Wave Links. *Dabiri, M.T.*, +, *TWC Jan. 2021 110-125*
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- AI-Aided Online Adaptive OFDM Receiver: Design and Experimental Results. *Jiang, P.*, +, *TWC Nov. 2021 7655-7668*
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- UAV-Assisted MEC Networks With Aerial and Ground Cooperation. *Xu, Y., +, TWC Dec. 2021 7712-7727*
- Servomotors**
- Tracking System for Fast Moving Nodes in Optical Mobile Communication and the Design Rules. *Zhang, K., +, TWC April 2021 2716-2728*
- Set theory**
- Cox Models for Vehicular Networks: SIR Performance and Equivalence. *Jeyaraj, J.P., +, TWC Jan. 2021 171-185*
- Shadow mapping**
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- Analysis and Optimization of Fog Radio Access Networks With Hybrid Caching: Delay and Energy Efficiency. *Jiang, Y., +, TWC Jan. 2021 69-82*
- Streaming media**
- A Low-Latency MPTCP Scheduler for Live Video Streaming in Mobile Networks. *Xing, Y., +, TWC Nov. 2021 7230-7242*
- Submillimeter wave propagation**
- Distance-Adaptive Absorption Peak Modulation (DA-APM) for Terahertz Covert Communications. *Gao, W., +, TWC March 2021 2064-2077*
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- Switches**
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- A New Non-Orthogonal Transceiver for Asynchronous Grant-Free Transmission Systems. *Kim, S., +, TWC March 2021 1889-1902*
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- Characteristic Mode Analysis of ESPAR for Single-RF MIMO Systems. *Han, Z., +, TWC April 2021 2353-2367*
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- User-Pair Scheduling and Mode Selection in Asymmetric Full-Duplex Systems With Limited Feedback: Algorithm and Scaling Laws. *Kiran, R.*, +, *TWC May 2021 2863-2875*
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- Distance-Adaptive Absorption Peak Modulation (DA-APM) for Terahertz Covert Communications. *Gao, W.*, +, *TWC March 2021 2064-2077*
- Three-dimensional displays**
- Distributed 3D Deployment of Aerial Base Stations for On-Demand Communication. *Kimura, T.*, +, *TWC Dec. 2021 7728-7742*
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- Tracking**
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- A Novel Scheme of Multicarrier Modulation With the Discrete Cosine Transform. *Dominguez-Jimenez, M.E.*, +, *TWC Dec. 2021 7992-8005*
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A General 3D Space-Time-Frequency Non-Stationary Model for 6G Channels. *Huang, Z.*, +, *TWC Jan. 2021 535-548*

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Vectors

A Compressive Sensing Approach for Federated Learning Over Massive MIMO Communication Systems. *Jeon, Y.*, +, *TWC March 2021 1990-2004*

Machine Learning-Enabled Joint Antenna Selection and Precoding Design: From Offline Complexity to Online Performance. *Yu, T.X.*, +, *TWC June 2021 3710-3722*

Vehicle dynamics

TSOR: Thompson Sampling-Based Opportunistic Routing. *Huang, Z.*, +, *TWC Nov. 2021 7272-7285*

Vehicular ad hoc networks

A General 3D Non-Stationary Wireless Channel Model for 5G and Beyond. *Bian, J.*, +, *TWC May 2021 3211-3224*

- Age of Information Optimized MAC in V2X Sidelink via Piggyback-Based Collaboration. *Peng, F.*, +, *TWC Jan. 2021 607-622*
- Learning-Based Robust Resource Allocation for Ultra-Reliable V2X Communications. *Wu, W.*, +, *TWC Aug. 2021 5199-5211*
- Novel Multi-Mobility V2X Channel Model in the Presence of Randomly Moving Clusters. *Xiong, B.*, +, *TWC May 2021 3180-3195*
- Novel Online Sequential Learning-Based Adaptive Routing for Edge Software-Defined Vehicular Networks. *Zhao, L.*, +, *TWC May 2021 2991-3004*
- Novel Statistical Wideband MIMO V2V Channel Modeling Using Unitary Matrix Transformation Algorithm. *Jiang, H.*, +, *TWC Aug. 2021 4947-4961*
- Performance Analysis of NOMA in Vehicular Communications Over i.n.i.d Nakagami- m Fading Channels. *Patel, D.K.*, +, *TWC Oct. 2021 6254-6268*
- Physical Layer Security Assisted Computation Offloading in Intelligently Connected Vehicle Networks. *Liu, Y.*, +, *TWC June 2021 3555-3570*
- QoS-Driven Spectrum Sharing for Reconfigurable Intelligent Surfaces (RISs) Aided Vehicular Networks. *Chen, Y.*, +, *TWC Sept. 2021 5969-5985*
- Robust Resource Allocation for Vehicular Communications With Imperfect CSI. *Wu, W.*, +, *TWC Sept. 2021 5883-5897*
- Secrecy Analysis of UAV-Based mmWave Relaying Networks. *Pang, X.*, +, *TWC Aug. 2021 4990-5002*
- Site-Specific Online Compressive Beam Codebook Learning in mmWave Vehicular Communication. *Wang, Y.*, +, *TWC May 2021 3122-3136*
- VehCom: Delay-Guaranteed Message Broadcast for Large-Scale Vehicular Networks. *Zeng, H.*, +, *TWC June 2021 3883-3896*
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- Distortion-Aware Cross-Layer Power Allocation for Video Transmission Over Multi-User NOMA Systems. *Lu, H.*, +, *TWC Feb. 2021 1076-1092*
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- Stochastic Geometry Analysis of User Mobility in RF/VLC Hybrid Networks. *Arshad, R.*, +, *TWC Nov. 2021 7404-7419*
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- Wide area networks**
- Analysis of Random Access in NB-IoT Networks With Three Coverage Enhancement Groups: A Stochastic Geometry Approach. *Liu, Y.*, +, *TWC Jan. 2021 549-564*
- Capture Aware Sequential Waterfilling for LoRaWAN Adaptive Data Rate. *Garlisi, D.*, +, *TWC March 2021 2019-2033*
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- A Channel Measurement Campaign for mmWave Communication in Industrial Settings. *Cano, C.*, +, *TWC Jan. 2021 299-315*
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- A General Wideband Non-Stationary Stochastic Channel Model for Intelligent Reflecting Surface-Assisted MIMO Communications. *Jiang, H.*, +, *TWC Aug. 2021 5314-5328*
- A Partial Gaussian Tree Approximation (PGTA) Detector for Random Multiple Access Oriented SCMA Uplink With Codebook Collisions. *Wang, Q.*, +, *TWC April 2021 2295-2308*
- A Robust Baseband Transceiver Design for Doubly-Dispersive Channels. *Bomfin, R.*, +, *TWC Aug. 2021 4781-4796*
- Achievable Rate Analysis and Phase Shift Optimization on Intelligent Reflecting Surface With Hardware Impairments. *Xing, Z.*, +, *TWC Sept. 2021 5514-5530*
- Achievable Rate Optimization for MIMO Systems With Reconfigurable Intelligent Surfaces. *Perovic, N.S.*, +, *TWC June 2021 3865-3882*
- Adaptive Coding and Bit-Power Loading Algorithms for Underwater Acoustic Transmissions. *Zhang, R.*, +, *TWC Sept. 2021 5798-5811*
- Aerial Intelligent Reflecting Surface: Joint Placement and Passive Beamforming Design With 3D Beam Flattening. *Lu, H.*, +, *TWC July 2021 4128-4143*
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- Blind Data Detection in Massive MIMO via ℓ_3 -Norm Maximization Over the Stiefel Manifold. *Xue, Y.*, +, *TWC Feb. 2021 1411-1424*
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- Capacity Characterization for Reconfigurable Intelligent Surfaces Assisted Multiple-Antenna Multicast. *Du, L.*, +, *TWC Oct. 2021 6940-6953*
- Centralized Dynamic-Time Division Duplex Utilizing Interference Alignment. *Ghermezcheshmeh, M.*, +, *TWC Oct. 2021 6852-6866*
- Channel State Information-Based Ranging for Underwater Acoustic Sensor Networks. *Cao, Y.*, +, *TWC Feb. 2021 1293-1307*
- Channel-Correlation-Enabled Transmission Optimization for MISO Wiretap Channels. *Han, S.*, +, *TWC Feb. 2021 858-870*
- Client Selection and Bandwidth Allocation in Wireless Federated Learning Networks: A Long-Term Perspective. *Xu, J.*, +, *TWC Feb. 2021 1188-1200*
- Convergence of Update Aware Device Scheduling for Federated Learning at the Wireless Edge. *Amiri, M.M.*, +, *TWC June 2021 3643-3658*
- Cooperative Multi-Point Vehicular Positioning Using Millimeter-Wave Surface Reflection. *Zhang, Z.*, +, *TWC April 2021 2221-2236*
- CSI-Free vs CSI-Based Multi-Antenna WET for Massive Low-Power Internet of Things. *Lopez, O.L.A.*, +, *TWC May 2021 3078-3094*
- D2D-Assisted Multi-User Cooperative Partial Offloading, Transmission Scheduling and Computation Allocating for MEC. *Peng, J.*, +, *TWC Aug. 2021 4858-4873*
- Data-Aided Doppler Compensation for High-Speed Railway Communications Over mmWave Bands. *Gong, Z.*, +, *TWC Jan. 2021 520-534*

- Deep Reinforcement Learning for Multi-Agent Power Control in Heterogeneous Networks. *Zhang, L.*, +, *TWC April 2021 2551-2564*
- Deep Reinforcement Learning-Based Intelligent Reflecting Surface for Secure Wireless Communications. *Yang, H.*, +, *TWC Jan. 2021 375-388*
- Deep-Learned Approximate Message Passing for Asynchronous Massive Connectivity. *Zhu, W.*, +, *TWC Aug. 2021 5434-5448*
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- Distributed Precoding Design via Over-the-Air Signaling for Cell-Free Massive MIMO. *Azzeni, I.*, +, *TWC Feb. 2021 1201-1216*
- Downlink Coverage and Rate Analysis of an Aerial User in Vertical Heterogeneous Networks (VHetNets). *Cherif, N.*, +, *TWC March 2021 1501-1516*
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- Enhancing Ambient Backscatter Communication Utilizing Coherent and Non-Coherent Space-Time Codes. *Liu, W.*, +, *TWC Oct. 2021 6884-6897*
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- Exploiting Diversity for Ultra-Reliable and Low-Latency Wireless Control. *Khosravirad, S.R.*, +, *TWC Jan. 2021 316-331*
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- Geometry-Cluster-Based Stochastic MIMO Model for Vehicle-to-Vehicle Communications in Street Canyon Scenarios. *Huang, C.*, +, *TWC Feb. 2021 755-770*
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- Hybrid Precoding for WideBand Millimeter Wave MIMO Systems in the Face of Beam Squint. *Chen, Y.*, +, *TWC March 2021 1847-1860*
- Impact of Channel Aging on Cell-Free Massive MIMO Over Spatially Correlated Channels. *Zheng, J.*, +, *TWC Oct. 2021 6451-6466*
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- Efficient Performance Bound for Channel Estimation in Massive MIMO Receiver. *Osinsky, A.*, +, *TWC Nov. 2021 7001-7010*
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