



4th West Asian Symposium on Optical & Millimeter-Wave Wireless Communications (WASOWC2022) General Program



12-13 May 2022 - University of Tabriz, Tabriz, IRAN

<https://wasowc2022.tabrizu.ac.ir>

Online room: <https://vclass2.tabrizu.ac.ir/scowm1>

12 May 2022	
Time	Activity
9.30 – 10.00 (7.00 – 7.30 CET)	Opening – Chairs of LOC and SC
10.00 – 11.00 (7.30 – 8.30 CET)	Chairperson: Prof S Zvanovec, Czech Tech. Univ. in Prague, Czech Rep. Keynote Talk 1 - Prof. Yeon Ho CHUNG, Pukyong National University, Busan, Korea, Orbital Angular Momentum: Future of Optical Wireless for 6G and beyond
11.00 – 12.00 (8.30 – 9.30 CET)	Chairperson: Dr M-A Khalighi, EC Marseille-Institut Fresnel, France Keynote Talk 2 - Prof. Manav Bhatnagar, Indian Institute of Technology Delhi, New Delhi, India, Jamming in Free Space Optics
12.00 – 13.00 (9.30 – 10.30 CET)	Break
13.00 – 14.00 (10.30 – 11.30 CET)	Chairperson: Dr L N Alves, Univ. of Aveiro, Portuga Keynote Talk 3 - Prof. Ernesto Ciaramella, Scuola Superiore Sant'Anna Univ., Pisa, Italy, Optical Wireless Communications for Space and Sea Applications
14.00 – 14.35 (11.30 – 12.00 CET)	Chairperson: Dr S Golmohammadi, Univ. of Tabriz, Iran Invited Talk 1 - Prof Goran T. Djordjevic, University of Nis, Serbia
14.35 – 15.00 (12.00 – 13.30 CET)	Break
15.00 – 16.00 (13.30 – 14.30 CET)	Chairperson: Dr M S Sadough, Beheshti University, Iran Keynote Talk 4 - Prof Steve Hranilovic, McMaster University, Canada Optical Wireless Communications: Opportunities, Unique Use Cases and Research Challenges
16.00 – 16.30 (14.30 – 15.00 CET)	Chairperson: Prof R Pérez Jiménez, Univ. of Las Palmas, Spain Invited Talk 2 - Dr Ismael Soto, Universidad de Santiago de Chile, Chile
13 May 2022	
10.00 – 11.00 (7.30 – 8.30 CET)	Chairperson: Dr A Gholami, Isfahan Univ. of Techn., Iran Keynote Talk 5 - Prof. Nan Chi, School of Information Science and Engineering, Fudan Univ., China, Key technologies for visible light communication in 6G
11.00 – 12.00 (8.30 – 9.30 CET)	Open Discussion on OWC/mmW for 6G Networks – Chair: Prof Z Ghassemlooy, Northumbria University, UK Panel members: Prof. Manav Bhatnagar, Prof. Ernesto Ciaramella, Dr Ismael Soto, Dr M-A Khalighi, Prof R Pérez Jiménez, Dr M S Sadough
12.00 – 12.30 (9.00 – 10.00 CET)	Open Discussion on VLC-OCC - Chair: Prof R Pérez Jiménez Panel members: Prof. Nan Chi, Prof S Zvanovec, Dr A Gholami, Dr L N Alves
12.30 – 13.00 (10.00 – 10.30 CET)	Closing

Session 1A 12 May 2022, 10.00-12.00 (Local time)**Session Chair: Dr. Hamid Vahed**Virtual room address: <https://vclass2.tabrizu.ac.ir/scowm2/>

Time	Paper code	Paper Title
10.00 - 10.20	1001	The Multiplicative SPAD Noise Effects on the Performance of Adaptive RLS Incremental Networks Implemented with the VLC Technology Hadi Baghali, Ehsan Mostafapour, Changiz Ghobadi, Seyed Sadra Kashef, Javad Nourinia, Amir Hatamian
10.20 - 10.40	1003	VLC Frontends for IoT Applications Lu'is Rodrigues, M'onica Figueiredo, Lu'is Nero Alves, Zabih Ghassemlooy
10.40 - 11.00	1031	Analysis of a Single-mode DBR Laser at 0nm using TWLM Masoumeh Seyedi Yekani, Mina Noori
11.00 - 11.20	1032	Design of a Novel THz Metamaterial Based on Combination of Different Split-Ring Resonators Fatemeh Aghaei, Hamid Bahador, Saeed Golmohammadi
11.20 - 11.40	1033	Taper Waveguide Optimization for Ge vertical PIN Photodetector Hadi Hashemnezhad, Mina Noori
11.40 - 12.00	1035	Influence of MPPC Parameters on the Performance of Underwater Optical Links Taha Essalih, Ikenna Chinazaekpere Ijeh, Mohammad Ali Khalighi

Session 1B 12 May 2022, 10.00-12.00 (Local time)**Session Chair: Dr. Hadi Soofi**Virtual room address: <https://vclass2.tabrizu.ac.ir/scowm3>

Time	Paper code	Paper Title
10.00 - 10.20	1011	Transmitter Position Error Impact On Camera Based Visible Light Positioning Systems Miguel R^ego, Pedro Fonseca, Lu'is Nero Alves
10.20 - 10.40	1018	Comparison of clustering algorithms for data detection in Multispectral Camera Communication Daniel Moreno, Behnaz Majleseini, Victor Guerra, Julio Rufo, Jose Rabadan, Rafael Perez-Jimenez
10.40 - 11.00	1019	The Utilization of a Depth Sensor in Visible light Communications Othman Isam Younus, Sampath Kumar Molleti, Zabih Ghassemlooy, Joaquin Perez, Vicent Girbés-Juan, Luis Nero Alves
11.00 - 11.20	1034	A Novel Meander Sommerfeld-Goubau Line Based Sub-THz Filter Shahram Hosseinzadeh
11.20 - 11.40	1038	A Miniaturized Half-Coplanar Waveguide CRLH Leaky Wave Antenna for Millimeter-Wave Applications Saeid Mohammadpour Jaghargh, Pejman Rezaei

Session 2A 12 May 2022, 13.00-15.00 (Local time)

Session Chair: Dr. Mahmood Mohassel Feghhi

Virtual room address: <https://vclass2.tabrizu.ac.ir/scowm2/>

Time	Paper code	Paper Title
13.00 – 13.20	1008	Path Loss and RMS Delay Spread Model for VLC-based Patient Health Monitoring System Baris Donmez, Farshad Miramirkhani
13.20 – 13.40	1010	Mixed RIS-Based RF-FSO Systems over DGG Turbulence and EGK Fading Channels Ehsan Soleimani-Nasab, Mahmood Mohassel Feghhi
13.40 – 14.00	1016	Performance analysis of a hybrid RF/FSO communication system with QKD for ventilation monitoring Sebastián Lara, José Azócar, Ismael Soto
14.00 – 14.20	1023	Ergodic Capacity of a Vertical Underwater Wireless Optical Communication Link Subject to Misalignment Ikenna Chinazaekpere Ijeh, Oussama Haddad, Mohammad Ali Khalighi
14.20 – 14.40	1030	Performance Comparison of ODMA and Optical LDS-CDMA Razieh Jafari, Mahmoud Farhang
14.40 – 15.00	1041	Experimental Comparison of ALOHA and CSMA/CA for Visible Light Communication IoT Networks Armin Makvandi, Yousef Seifi Kavian

Session 2B 12 May 2022, 13.00-15.00 (Local time)

Session Chair: Prof Asghar Asgari

Virtual room address: <https://vclass2.tabrizu.ac.ir/scowm3>

Time	Paper code	Paper Title
13.00 – 13.20	1004	Utilizing Injection-Locked Quantum-Dot VCSELs for Optical Wireless Communications Ali Mahjoory, Hamed Baghban, Mohammad Mohsen Sheikhey
13.20 – 13.40	1005	Developing an Ultra-Dense Optical Frequency Comb Using an Integrated MZM and SPM Schemes in HNLF Moatoz Bassiouni, Tawfik Ismail
13.40 – 14.00	1026	Neuromorphic Sensors with Visible Light Communications Mircea Hulea, George-Iulian Uleru, Sujan Rajbhandari, Othman Isam Younus, Zabih Ghassemlooy
14.00 – 14.20	1037	Low insertion loss and high modulation depth Tunable modulator at Telecommunications Band enable by graphene/hBN multilayer gratings Elnaz Gholizadeh, Behnam Jafari, Saeed Golmohammadi, Hadi Soofi
14.20 – 14.40	1039	Absorption Enhancement in Photodetectors Based on T-Shaped Coupled Nano-Antenna for Free-Space Optical Communications Applications Ghazal Abdi, Saeed Golmohammadi
14.40 – 15.00	1040	Development of an Experimental Optical Camera Communication Research Setup Vicente Matus, Victor Guerra, Cristo Jurado-Verdu, Jose Rabadan, Julio Rufo, Rafael Perez-Jimenez

Session 3A 13 May 2022, 10.00-12.00 (Local time)

Session Chair: Dr. Mohammad Asadpour

Virtual room address: <https://vclass2.tabrizu.ac.ir/scowm2/>

Time	Paper code	Paper Title
10.00 - 10.20	1006	Deep-Learning-Based Channel Estimation for Multiband Visible Light Communication System Zhao Ma, Min Zhang, Peiyu Jia, Zabih Ghassemlooy, Dahai Han, Liqiang Wang
10.20 - 10.40	1012	On the Performance of Multi-Hop Radio and Optical Wireless Relaying Systems Ehsan Soleimani-Nasab, Zabih Ghassemlooyz
10.40 – 11.00	1013	MAX- MIN Power Control of Cell Free Massive MIMO System employing Deep Learning Akbar Mazhari Saray, Afshin Ebrahimi
11.00 – 11.20	1025	An Overview: Orthogonal Frequency Division Multiplexing Techniques for Visible Light Communication Systems Saba Habibi, Mohammadjavad Omid, Forough sadat Tabataba, Ehsan Yazdian
11.20 – 11.40	1028	Outage Performance Analysis for UAV-Based Mixed Underwater-FSO Communication Under Pointing Errors Meysam Ghanbari, Mahdi Ataee, Mohammad Sajad Sadough

Session 3B 13 May 2022, 10.00-12.00 (Local time)

Session Chair: Dr. Samiye Matloub

Virtual room address: <https://vclass2.tabrizu.ac.ir/scowm3>

Time	Paper code	Paper Title
10.00 - 10.20	1009	ONU placement in FiWi network using enhanced backtracking search algorithm Hojjat Emami
10.20 - 10.40	1015	MIMO QAM Indoor Visible Light Communication using low-cost emitters and FPGA receiver Raul Zamorano-Illanes, Mar'ia Constanza Estela, Francisco Rau, Ismael Soto
10.40 – 11.00	1017	Spatial Distribution Waveform Design for an Efficient Optical Communication System Hafiz M. Asif, Affan Affan, Naser Tarhuni
11.00 – 11.20	1021	The effect of exposure time on the performance of an underwater optical camera communication system Ehsan Hamidnejad, Stanislav Zvanovec, Asghar Gholami, Reza Montazerolghaem, Zabih Ghassemlooy, Mohammad Mahdi Mannani
11.20 – 11.40	1022	Design and Optimization of Gregorian-based Reflector Systems for THz Imaging System Optics Mohammad Hossein Koohi Ghamsari, Mehdi Ahmadi-boroujeni, Saeed Babanejad
11.40 – 12.00	1029	Microcavity-Integrated Graphene Photodetector for Mid-IR Free Space Communications Hadi Soofi, Mohammad Reza Ostovar