

COST Action CA19111

Third Newsletter

European **NEtWork** on **F**uture Generation **O**ptical Wireless **CommU**nication Technologies**S**



Funded by the Horizon 2020 Framework Programme
of the European Union

Acknowledgement

This newsletter is based upon work from COST Action NEWFOCUS, supported by COST
(European Cooperation in Science and Technology).



Funded by the Horizon 2020 Framework Programme
of the European Union

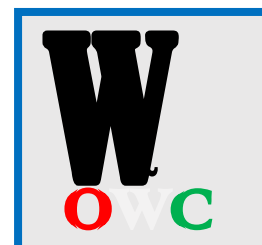


NEWSLETTER #3

Dear Reader,

This is the third newsletter of our COST Action NEWFOCUS project, related to optical wireless communications (OWC) as one of the key enabling technologies for next generation Beyond-5G (B5G) networks.

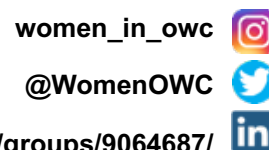
In this framework, the “**Women in OWC (WOWC) community**” has been created in June 2021, with the aim to encourage more female researchers especially under and post-graduate students, in areas of Physics, Electrical, Electronics, Computer and Communication Engineering, as well as other related subjects to get involved in this exciting wireless technology.



WOWC network encourages collaborative research activities; sharing latest scientific news; research opportunities and scholarships; facilitating networking with skilled and experienced scientists and researchers working in OWC.

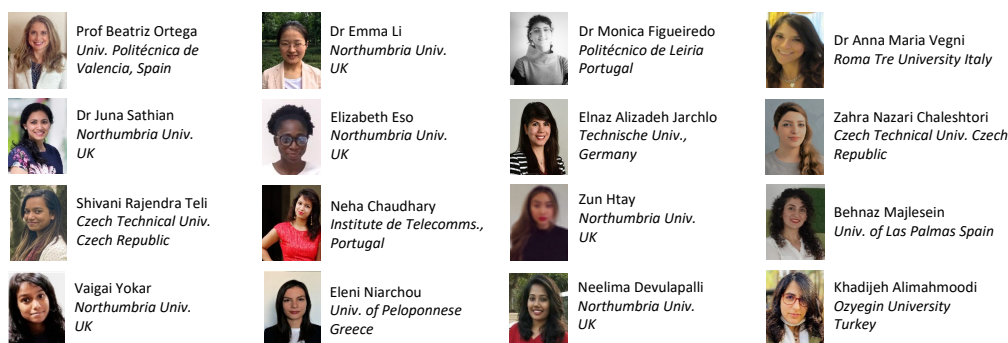
On Sept. 7, we had the Open forum – “*The future of OWC*” at the 5th Intl. Workshop on Optical Wireless Communications (IWOW 2021). This is the first initiative held by WOWC group.

**Join us at the following
social networks!**



<https://www.linkedin.com/groups/9064687/>

Founding Members

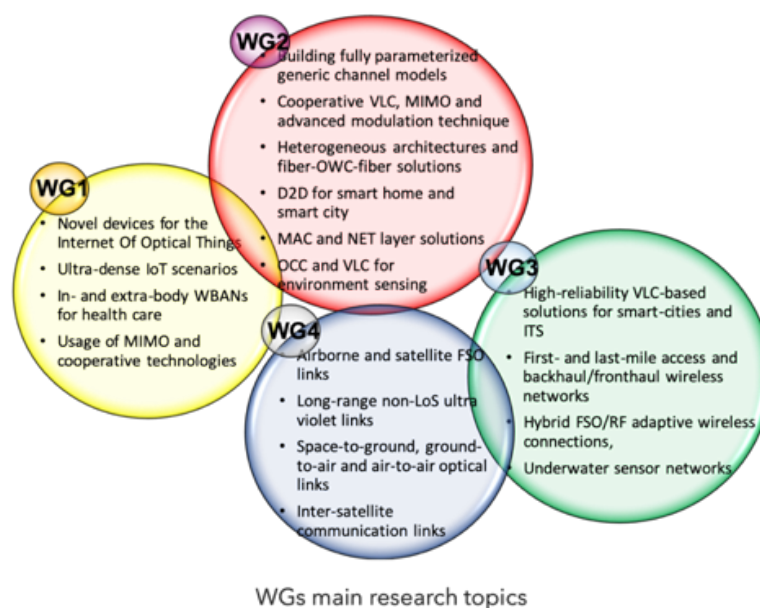


NEWFOCUS 3rd MC meeting

The Third Management Committee (MC) meeting has taken place on October 7-8, 2021 at Las Palmas, Spain. Considering the special circumstances due to COVID-19, this event has run in a hybrid format (i.e., both virtual and live). During the meeting, the following topics have been discussed:

1. Dr Alves (WG1 Chair) presented some slides on the research progress in WG1, as well as the related tasks, deliverables, and milestones. The Input Documents for WG1 are:
 - ✦ *Influence of optical axons on the synaptic weights*, Mircea Hulea, Zabih Ghassemloooy, Othman Isam Younus, Sujun Rajbhandari
 - ✦ *Influence of capacitor variability on the electronic spiking neurons*, George-Iulian Uleru, Mircea Hulea
2. Prof Nobby Stevens (WG2 Chair) presented some general information on the organization of the Action 1st Training School, coordinated by Prof Nobby Stevens, Dr Luis Alves, and Dr Qi Zhang;
 - ✦ *Indoor monitoring system based on ARQ signaling generated by a Visible Light Communication link*, Joan Bas, Jose Antonio Ortega, Martí Busquets, Alexis Dowhuszko
 - ✦ *Performance Analysis of the FBMC Modulation Format in Optical Fiber and Wireless Communications*, Róka, R., Stefanovic, S., Morales-Cespedes, M., Armada, A.G
 - ✦ *Performance Analysis of N-Fisher-Snedecor F Fading and Its Application to N-Hop FSO Communications*, Stefanovic, S., Morales-Cespedes, M., Róka, R., Armada, A.G
 - ✦ *Hybrid POF/VLC links based on a single LED for indoor communications*, Juan A. Apolo, Beatriz Ortega and Vicenç Almenar
 - ✦ *Two-Tier Multi-Rate Slotted ALOHA for OWC/RF-Based IoT Networks*, Milica Petkovic, Dejan Vukobratovic, Andrea Munari, Federico

- ✦ *The Impact of Blocking and Shadowing on the Indoor Visible Light Positioning System*, Othman Isam Younus, Neha Chaudhary, Zahra Nazari Chaleshtori, Zabih Ghassemlooy, Luis Nero Alves, and Stanislav Zvanovec
 - ✦ *An Equivalent Circuit Model of a Commercial LED With an ESD Protection Component for VLC*, Xicong Li, Zabih Ghassemlooy, Stanislav Zvanovec, Luis Nero Alves
3. Prof Zvanovec (WG3 Chair) explained the research progress in WG3, and the related tasks, deliverables, and milestones. The following Input Documents have been presented:
- ✦ *On the 40 GHz Remote versus Local Photonic Generation for DML-based C-RAN Optical Fronthaul*, Beatriz Ortega
 - ✦ *Underwater optical wireless propagation modelling*, Luís Pessoa
 - ✦ *Fiber Optic Lighting - Optical Camera Communications*, Shivani Rajendra Teli
 - ✦ *Outdoor OCC sensor networks*, Vicente Matus
 - ✦ *OWC links for mobility environments: initial post-equalization (ANN) analysis*, Joaquin Perez
4. Ms Shrestha (WG4 Chair) presented the research progress in WG4, and the related tasks, deliverables, and milestones. We had an invited speakers from DLR (DE), Dr Davide Orsucci, followed by the presentation of the Input Documents and STSMs:
- ✦ *Resource allocation in a Quantum Key Distribution Network with LEO and GEO trusted- repeaters*, M. Grillo, A. Dowhuszko, M.-A. Khalighi and J. Hämäläinen (work published in Proc. Int. Workshop Optical Wireless Comm., pp. 1-6, Sept. 2021)
 - ✦ *Modeling Near-Earth FSO channels and atmospheric seeing affected by turbulence and clouds*, Hristov Ivanov (Sapienza Università di Roma. 2nd October -15th October – STSM)
 - ✦ *QCalc: a tool to compute classical and quantum communication rates over free-space optical channels*, Orsucci, Davide and Nonay, Jorge Rosano and Shrestha, Amita and Moll, Florian (work published in SPIE 2021, Emerging Imaging and Sensing Technologies for Security and Defence VI, Madrid) – Invited Talk: Dr Orsucci
5. Dr Víctor Guerra Yanez, PI Lighting (CH), and Dr Majid Safari, University of Edinburgh (UK) have been approved as the new WG members;
6. Drs Abdelwahab Boualouache and Andy Rupp both from University of Luxembourg. have been nominated as two substitute members assigned by Luxembourg COST National Coordinator



WG1: 2 papers
WG2: 18 papers
WG3: 20 papers
WG4: 2 papers

Fig. 1. Status of NEWFOCUS publications.

Publications

The current status of publications in the framework of NEWFOCUS project is depicted in Fig. 1, where the main topics of interests are grouped into different Working Groups.

NEWFOCUS project has been included in the Spring 2021 edition of the **CommSoft eLetter**, available at the following link: <https://commsoft.committees.comsoc.org/files/2021/07/CommSoft-eLetter-Spring-2021-v2.0-1.pdf>



Call for papers

- We announce *the 6th International Workshop on Optical Wireless Communications (IWOW)* that will be organized as part of a major event on Optical Wireless

Communications during the CSNDSP conference (scheduled for July 2022). Younger members of the Action were encouraged to take part in the Organizing Committee, where several volunteers were declared their interest and have already started working on the event.

Acknowledgement

This newsletter is based upon work from COST Action NEWFOCUS, supported by COST (European Cooperation in Science and Technology).