

COST Action CA19111

Fourth 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 #5

Dear Reader,

This is the fifth newsletter of our COST Action NEWFOCUS project, related to optical wireless communications (OWC), intended as one of the key enabling technologies for next generation Beyond-5G (B5G) networks. This newsletter is the last one and represents a collection of several inputs and updates from the COST Action, as detailed in the following.

NEWFOCUS 6th WG meeting

On 26th and 27th May 2023, the COST Action NEWFOCUS attended its sixth Working Group Meeting in Valencia (Spain). It was hosted by Prof. Beatriz Ortega at the Universitat Politècnica de Valencia. The following invited talks were held:

- ♦ **Invited talk: WG1:** “Multi-channel free-space optical communication between self-configuring silicon photonics meshes,” *Prof Andrea Melloni, Politecnico di Milano*
- ♦ **Invited talk: WG1:** “SiN and InP Optical Phased Arrays for Wavelength Selective Switches,” *Prof Konstantinos Vyrsoinos, Aristotle University of Thessaloniki*
- ♦ **Invited talk: WG4:** “Recent Activities of Space Laser Communications in Japan,” *Dr Morio Toyoshima, Wireless Networks Research Center, NICT, Japan*



Pictures from the NEWFOCUS meeting in Valencia (Spain)

NEWFOCUS 8th WG and 7th MC meeting

On 19-20 June 2023, NEWFOCUS project organized the 8th WG together with the 7th MC meeting. The event was hosted by the Fraunhofer Institute for Telecommunication in Berlin (Germany). Discussion on recent advances in the Working Groups was carried out, together with new updates on Special Interest Groups, such as:

- ♦ SIG on “Quantum Key Distribution”, led by Alexis Dowhuszko
- ♦ SIG on “Communication & Sensing”, led by Panagiotis Diamantoulakis

NEWFOCUS attendants also visited the Fraunhofer HHI Optical Wireless Communications lab.

Just after the event, NEWFOCUS organized the Third Action Workshop, where interesting talks were delivered:

- **Invited talk on WG1:** “Advancing Optical Wireless Communications: Exploring the Potential of Photonic Integrated Circuits,” Prof Henrique Salgado, INESC-TEC, Portugal

- **Invited talk on WG2:** “Solar cell optical receivers,” Dr Iman Tavakolnia, University of Strathclyde, Glasgow, UK

NEWFOCUS 3rd Art Competition on OWC

The third Art Competition was carried out, intended to involve all the researchers and students working in the field of OWC and similar topics.

3rd Art Competition on Optical Wireless Communications

Be inspired, enter the contest, and share your passion for the art!

All research students working in the field of OWC are encouraged to participate by submitting their artworks in the form of photos, sketches and paintings to popularise OWC to the general public.

Prizes will be awarded to the best three artworks.

How to submit:

1. A single piece of work - which is most preferably related to your research work to be submitted.
2. Each submission must have a caption that best describes the photo and with a date.
3. Provide your full details (your name, supervisors, institution, country, etc.)
4. Submission to: Professor Z. Ghassemlooy, Email: z.ghassemlooy@northumbria.ac.uk. Please use the following subject in your email: "3rd OWC Art Competition."

Dates: Submission: 10 Sep 2023; and announcement: 10 Oct. 2023

To see all previous submissions visit:
<https://www.linkedin.com/groups/9064687/>

Winners of 2022:

Mr. Marc Amay
 Ms. K. Ali Mahmoodi
 Mr. C. M. Jurado Verdú

NEWFOCUS 9th WG and 8th MC meeting

The 9th WG and the 8th MC meeting were jointly hosted by Prof. Thomas Kamalakis in Athens, Greece, on 4-5 March 2024.

Discussion on recent updates on WGs has been carried out, such as upcoming tasks, deliverables, and the deadlines; statistics on input documents & publications; dissemination activities. Several invited talks were delivered, such as:

- ♦ “Energy Harvesting for Point-to-Point and Relay-Aided FSO Communications,” by Chadi Abou-Rjeily, Lebanese American University, Lebanon
- ♦ “Light Communication Alliance, mission and ecosystem” by Marc Fleschen





Pictures from NEWFOCUS meeting in Athens (Greece), March 2024.

NEWFOCUS *4th Training School*

The final NEWFOCUS training school was held on 22-23 April 2024 in Madrid (Spain). The event was hosted by Universidad Carlos III de Madrid, Campus Puerta de Toledo. The following lectures were delivered to the attendees:

- “Towards Visible Light Communication – assisted IoT networks including optical reconfigurable surfaces”, by Borja Genovés-Guzman, University of Virginia.
- “Optical Wireless transmission for wireless body-area networks”, by Ali Khalighi, Ecole Centrale Méditerranée
- Lab Session 1 “Design of a simple IoT monitoring system based on VLC,” by Juan Carlos Torres Zafra, Máximo Morales Céspedes, Universidad Carlos III de Madrid

- “Novel applications and signal processing of OCC,” by Rafel Pérez, Universidad de las Palmas de Gran Canaria
- “Intelligent Reconfigurable Surfaces for VLC,” by Anna María Vegni, Roma Tre University
- “Optical transmitters and signal processing for FSO,” by Luis Vallejo Castro, Bangor University
- “Artificial Intelligence for engineering problems: From theory to practice,” Jorge Pérez Aracil, Laura Cornejo Bueno. Universidad de Alcalá, Madrid.
- Lab Session 2 “Design of a simple IoT monitoring system based on VLC. ConneCLvity through MQTT,” Juan Carlos Torres Zafra, Máximo Morales Céspedes, Universidad Carlos III de Madrid.



NEWFOCUS attendees of 4th training school



Student presentation



Dr. A.M. Vegni's talk

NEWFOCUS 10th WG and 9th MC meeting

The last meeting of COST Action NEWFOCUS was held on 1-3 July, 2024, in Stockholm (Sweden). The event was host by Dr Xiaodan Pang at the KTH Royal Institute of Technology. Dr. Xiaodan Pang also delivered an invited talk, entitled “Unipolar Quantum Optoelectronics for High Speed Direct Modulation and Transmission in 8-14 μm Atmospheric Window”. Following the last meeting, the 4th NEWFOCUS workshop was held on July 4, 2024. During the event, the following talks were presented:

- ♦ **Invited Talk 1:** *Integrated Optical Phased Array for Free-space and Underwater Optical Communications*, Dr Hao Hu, DTU Electro, Denmark
- ♦ **Invited Talk 2:** *Radio-over-Free Space Optics (RoFSO) and Long-range FSO Links*, Dr Dong-Nhat Nguyen, TNO, Netherland
- ♦ **Invited Talk 3:** *OCC for positioning within the context of IoT*, Dr Luis Alves, Institute of Telecommunications, University of Aveiro, Portugal
- ♦ **Invited Talk 4:** *Visible Light Communications in Intelligent Transportation Systems*, Dr Anna Maria Vegni, Università degli Studi Roma Tre, Italy



Pictures from the last NEWFOCUS meeting in Stockholm

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

women_in_owc



@WomenOWC



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



Contact us: annamaria.vegni@uniroma3.it

Website: <https://www.newfocus-cost.eu/>

Acknowledgement

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