



Optical Circuit switched Time sensitive network architecture for high-speed Passive optical networks and next generation Ultra-dynamic & reconfigurable central office environments

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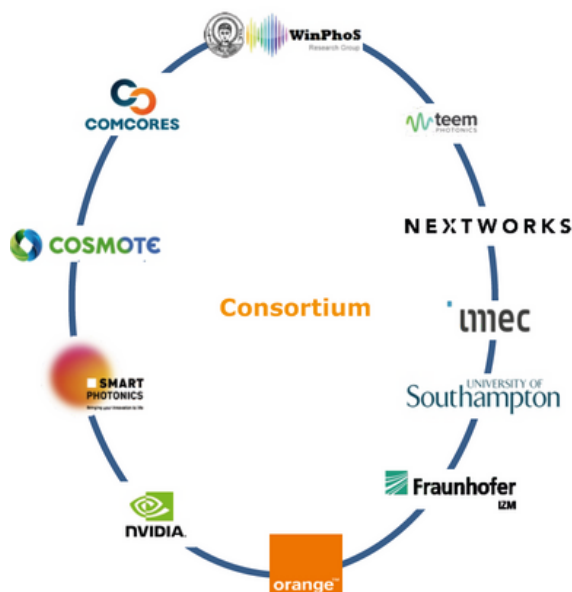
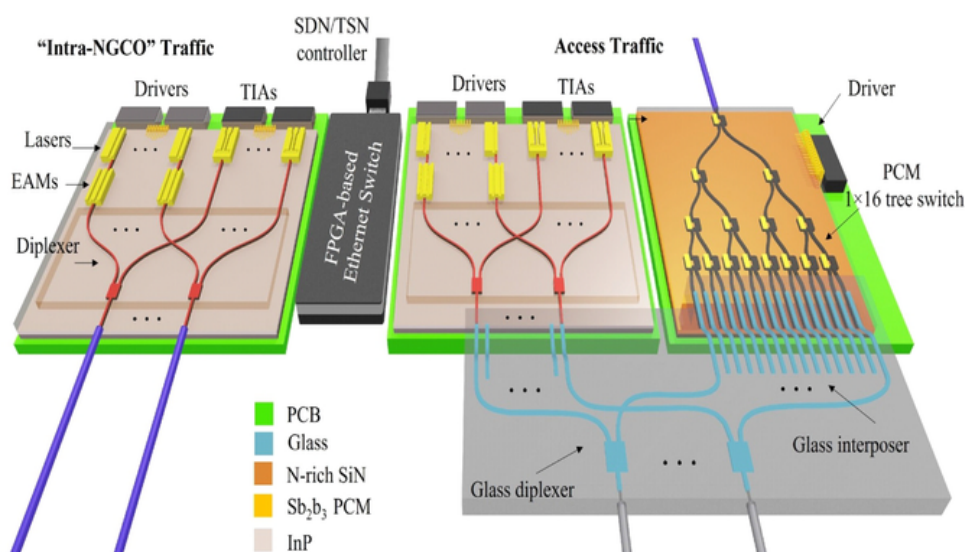
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The OCTAPUS vision

To deliver an agile, low-cost and energy efficient PIC technology framework that will re-architect the NGCO (Next Generation Central Offices) ecosystem, transparently upgrading its capacity to 51.2Tb/s and beyond, through an innovative optically switched backplane and transceiver toolkit allowing three layers of traffic provisioning; i.e., optically switched express path time-sensitive & best-effort traffic classes.



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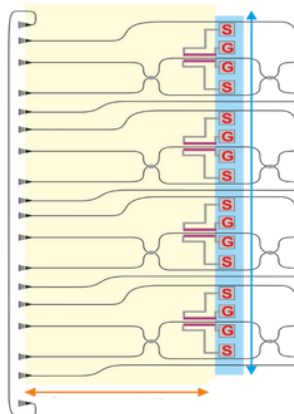
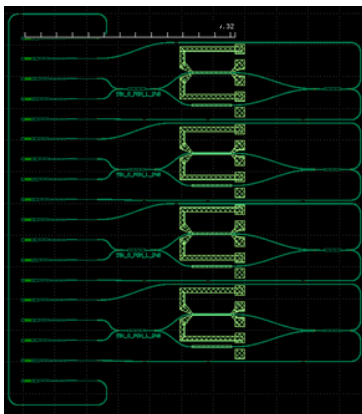
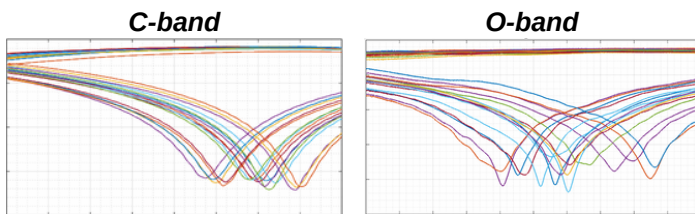
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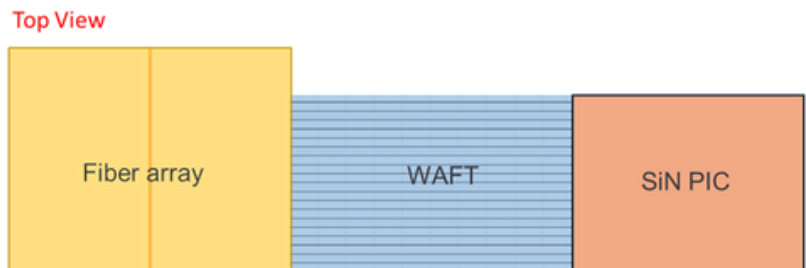
Development of Optical Switching Components

- The 2nd run of experimental measurements of an array of 16 glass-based O-band / C-band duplexers was completed by AUTH.



- The designs and masks of the 2nd generation of PCM switching components were completed. The fabrication process of the devices was launched by SOTON.

- TEEM is moving forward with the fabrication process of the EC-WAFT coupled to the SiN PIC for Assembly 2.



Dissemination activities

All dissemination activities can be found at the OCTAPUS [website](#)

- ✓ 6 Journal papers
- ✓ 32 Conference Presentations
- ✓ 5 presentations at Standardization body/Organization
- ✓ 2 presentations at exhibitions
- ✓ 17 Other publications

All publications can be found at zenodo.org

PAST PRESENTATIONS

OCTAPUS at ONDM 2025

OCTAPUS had a strong presence in the International Conference on Optical Network Design and Modeling (ONDM 2025). Partners from NEXTWORKS and AUTH presented the OCTAPUS vision and a video demonstration of multi-domain coordination in the NXW booth as well as an overview of the OCTAPUS control plane for TSN and optical domain coordination.



OCTAPUS at Joint EU UK Summer School on Optical Interconnect for AI, Hyperscale, Space and Quantum



The OCTAPUS project along with five more EU and UK projects co-organized successfully a 3-day Joint EU UK Summer School on "Optical Interconnect for AI, Hyperscale, Space and Quantum".

Partners from OCTAPUS presented lectures and tutorial talks covering aspects, such as:

- "Programmable Silicon Photonic MIMO systems for mmWave/FSO 6G ISAC networks"
- "Introduction to photonic packaging"
- "Silicon nitride for programmable photonics"
- "Photonic and electronic integrated circuits and technology supporting AI and ML applications"

The summer school attracted more than 70 attendees in the beautiful city of St Andrews, offering an exciting and highly informative summer activity with a lot of scientific interactions!



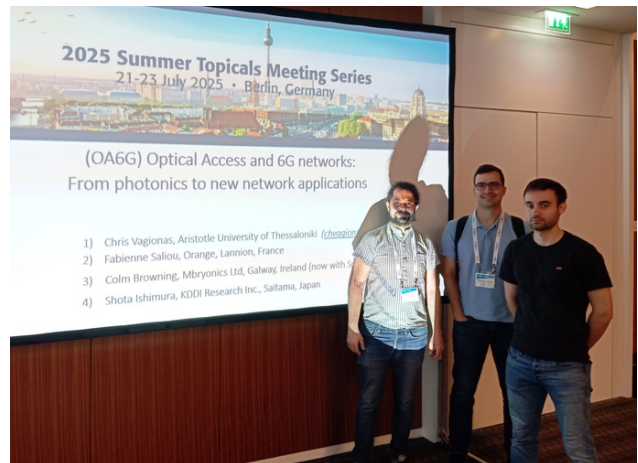
OCTAPUS at IEEE Summer Topicals 2025

OCTAPUS had a strong participation in the IEEE Summer Topicals 2025 organized by the IEEE Photonics Society that took place in Berlin, Germany between 21-23 July 2025.

Chris Vagionas from AUTH and Fabienne Saliou from ORAN co-organized a summer topical on "(OA6G) – Optical-Access and 6G networks: From Photonics to New Network-Applications", promoting the OCTAPUS solution to the scientific community and exploring collaboration with industry vendors and operators.

Esteemed speakers provided exciting overview talks on optical technologies ranging for PONs, Satellite communications, X-haul/6G-Networks networks, Fiber-Sensing, SDN-mechanisms and Deterministic traffic.

The OCTAPUS architecture was presented through an invited talk on "Flexible End-to-End Orchestrated Allocation of Computing and Fiber-Wireless FSO/mmWave Networking Resources for 6G Networks" by Mr. Argyrios Kokkinis.



OCTAPUS at the Advanced Photonics Congress

The OCTAPUS project was promoted by ORANGE Labs at the Advanced Photonics Congress that took place in Marseille, France between 13 July–17 July 2025.

In the Signal Processing in Photonic Communications session two papers were presented titled:

- *"Single Fibre Transmissions up to 25 Gbit/s with Twin Transceivers for Metro/Access/Datacom networks"*, Fabienne Saliou, Théo Huguenin, Mael Bideau, Philippe Chanclou, Gaël Simon, Jérémy Potet.
- *"Impact of Analog Feed-Forward Equalizer Cells Initialization and Optimization in 50G-PON"*, Dylan Chevalier, Pascal Scalart, Gaël Simon, Laurent Bramerie, Michel Joindot, Jérémy Potet, Mathilde Gay, Philippe Chanclou, Monique Thual.

In the Photonic Networks and Devices session an invited talk was given titled:

- *"Coexistence in future optical access networks"*, Gaël Simon, Jérémy Potet, Fabienne Saliou, Dylan Chevalier, Georges Gaillard, Joseph Zanduetta, Philippe Chanclou.

UPCOMING PRESENTATIONS

51st European Conference on Optical Communication - ECOC 2025



The following contributions will be presented at the ECOC 2025 conference:

- *"Digital vs Analog Equalization in FEC supported 50G-PON"*, Dylan Chevalier, Luiz Anet Neto, Pascal Scalart, Gaël Simon, Lucas Inglès, Jérémy Potet, Philippe Chanclou, Laurent Bramerie, Michel Joindot, Mathilde Gay, Monique Thual.
- *"Smartphone Camera Detection of ONU Identification Carried by Modulated 650 nm LED Integrated with ONU Optics"*, Jérémy Potet, Rania Boukheit, Dylan Chevalier, Gaël Simon, Georges Gaillard, Fabienne Saliou, Philippe Chanclou.
- *"Optical Frequency Excursion in the Context of VHSP-IMDD"*, Gaël Simon, Jérémy Potet, Fabienne Saliou, Stéphane Le Huérou, Philippe Chanclou.
- *"Evaluation of 50G-PON FEC Tolerance to Receiver Impairments"*, Luiz Anet Neto, Dylan Chevalier, Gaël Simon, Lucas Inglès, Jérémy Potet, Philippe Chanclou, R. Pyndiah .
- *"200G-PON based on 4x50Gbit/s NRZ LWDM Signals Coexisting with 50G-PON, XGS-PON and G-PON"*, Fabienne Saliou, Joseph Zanduetta, Stéphane Le Huérou, Jérémy Potet, Dylan Chevalier, Gaël Simon, Georges Gaillard, Philippe Chanclou.
- *"Field Trial of a Record-High Data Rate SDN-Controlled FiWi FSO/mmWave X-haul with Zero-Touch Handover for 6G"*, M. Vargemidou, C. Vagionas, A. Kokkinis, A. Ntanos, A. Stathis, P. Kourelas, G. Giannoulis, P. Piscione, A. K. Abdulwahed, M. Gatzianas, S. Dris, G. Kalfas, A. Mesodiakaki, H. Avramopoulos, K Siozios, N. Pleros, A. Miliou.
- *"Field Trial of 3x1 Distributed Fiber Wireless mmWave Xhaul with Coordinated Multi-Point Scheduling and Real-Time MEC"*, A. Kokkinis, M. Vargemidou, C. Vagionas, A. Ntanos, A. Stathis, P. Kourelas, G. Giannoulis, M. Gatzianas, P. Piscione, A. K. Abdulwahed, G. Kalfas, A. Mesodiakaki, S. Dris, H. Avramopoulos, K Siozios, N. Pleros, A. Miliou.

Communication activities

Communication channels

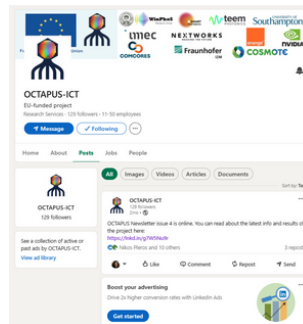
Website



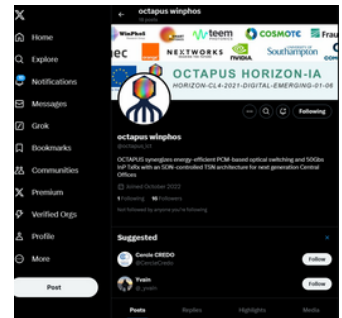
Meta (Facebook)



LinkedIn



X (twitter)



Website (<https://www.octopus-ict.eu>)

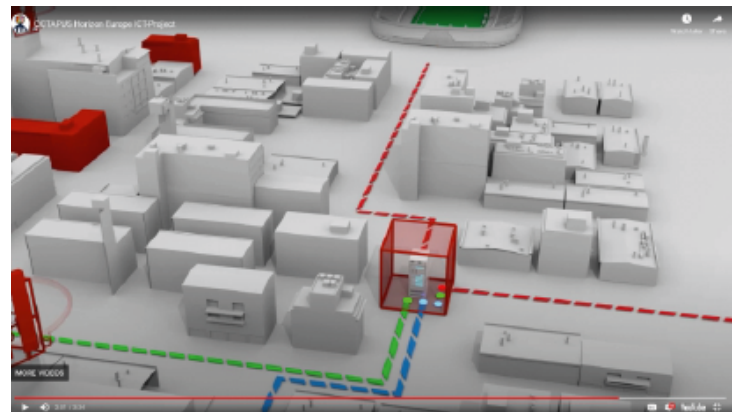
LinkedIn (<https://www.linkedin.com/company/octopus-ict/posts/?feedView=all>)

Meta (Facebook) (<https://www.facebook.com/octopus.ict/>)

X (Twitter) (https://x.com/octopus_ict)

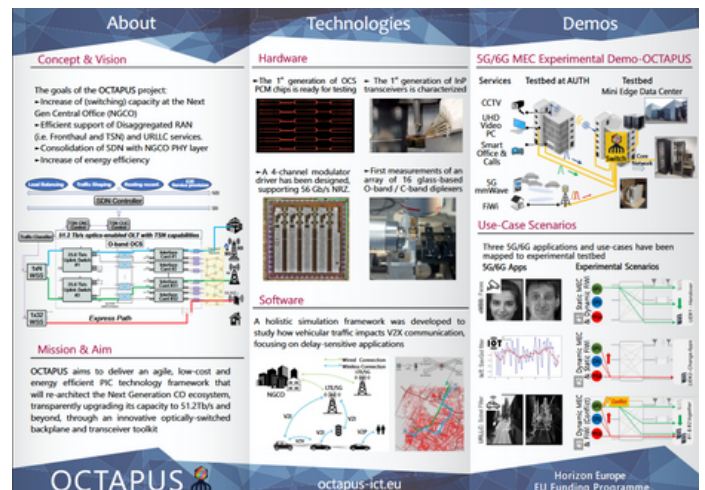
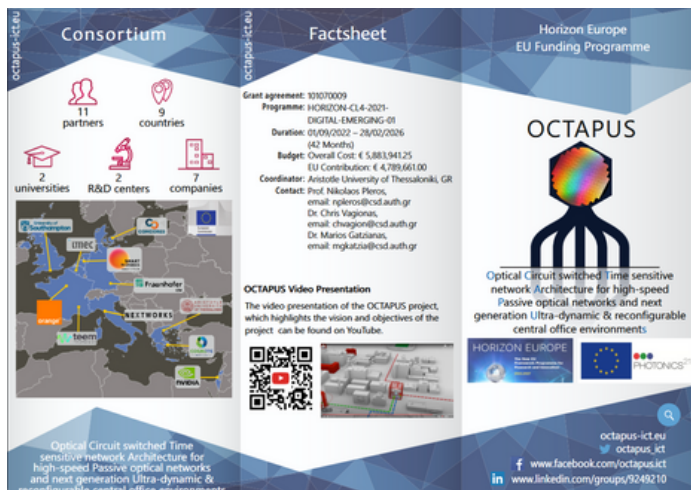
OCTAPUS Video Presentation

The video presentation of the OCTAPUS project, highlighting the vision and objectives of the project has been released on YouTube. Watch it here or scan the QR code:



OCTAPUS Brochure

The second OCTAPUS brochure has been released to enhance awareness of the project. It is available on the project's official [website](https://www.octopus-ict.eu).



Consortium and Review Meetings

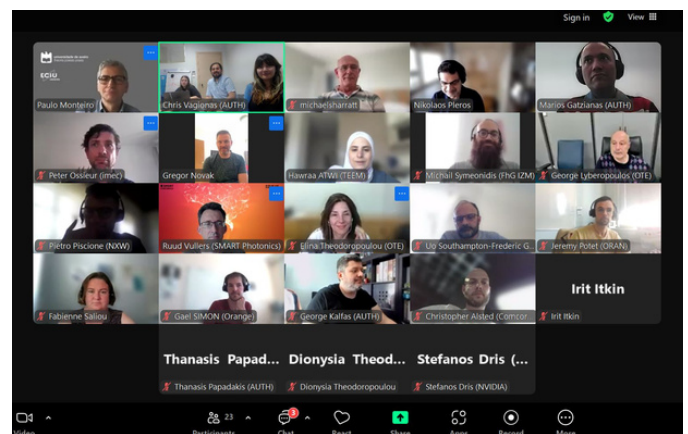
M31 Consortium Meeting

The 6th plenary meeting of the OCTAPUS project took place between 06-07 March 2025 in Southampton, UK. The meeting was organized by the University of Southampton. The consortium had the chance to discuss the technical progress of the project in preparation for the 2nd review meeting of the project.



2nd Review Meeting

The 2nd review meeting of the OCTAPUS project was held online via zoom on Wednesday 30/5/2025. The consortium presented a summary of the key achievements, the development of the prototypes and progress towards implementing the final demonstrators, which were greeted with enthusiasm by the reviewers, acknowledging the excellent execution of the project-review.



Upcomming Review Meetings

M39 Consortium Meeting

The 7th General Assembly meeting of the OCTAPUS project will take place on 19-20 of November 2025 in Lannion, France. The meeting will be hosted by ORANGE.