The 1st **Workshop on Trustworthiness and Physical Layer Security (TPLS)** is being organized in the frame of ICTON 2025 on July 6th to 10th 2025 in Barcelona, Catalunya, Spain,
websites: https://icton2025.upc.edu/; https://www.gov.pl/web/instytut-lacznosci/icton-2025.

We are delighted to invite you to join the TPLS workshop, a specialized forum devoted to advancing research, groundbreaking innovations, and practical applications in the field. This workshop addresses the critical aspects of physical layer trustworthiness and security, from information theory to practical implementation, emphasizing authentication, identification, and monitoring. It aims to contribute to creating robust and efficient security mechanisms that can shield optical networks from evolving threats. The insights gained from this workshop can pave the way for designing and implementing secure optical communication systems, ensuring the privacy and integrity of data transmission across diverse domains, including telecommunications, the Internet of Things (IoT), and critical infrastructure networks. This workshop will convene prominent experts, researchers, and engineers to delve into state-of-the-art advancements, promote collaboration, and tackle significant challenges in the domain. The program consists of invited talks and a primary panel discussion.

Workshop Topics
The workshop will cover a broad range of topics related to physical layer security, including but not limited to:

- **Security requirements from the perspective of operators and service providers:**
    - techniques for physical layer encryption in optical communications;
    - secure key establishment and management in optical communication systems;
    - physical layer authentication and identification in optical networks.
- **a security plane architecture:**
    - monitoring and intrusion detection at the physical layer in optical communication systems;
    - covert communication techniques in optical fiber networks;
    - secure and resilient optical access networks for next-generation communication.
- **Communication security: a vendor perspective:**
    - anti-eavesdropping techniques at the physical layer in optical networks;
    - security vulnerabilities and countermeasures in optical amplifiers and repeaters.
- **From information theory to information security:**
    - secure transmission of information through optical fiber channel modeling;
    - optical channel characterization and security analysis for quantum cryptography;
    - secure modulation and coding schemes for optical communications.

- **Security aspects in optical wireless communication:**
  - physical layer security for free-space optical communication systems;
  - beamforming techniques for secure optical wireless communication systems;
  - challenges and solutions for secure multi-hop optical networks.
- **Security aspects in fiberoptic communication:**
  - optical physical unclonable functions (PUFs) for device authentication;
  - secure modulation and coding schemes for optical communications;
  - enhancing physical layer security in optical communication systems.
- **PHY(QKD) or digital tween and security & QKD solution for PLS:**
  - optical quantum communications in support of quantum computing and quantum Internet;
  - QKD network design, optimization and techno-economics;
  - advances in quantum key distribution technologies and testbeds.
- **Practical approaches to PLS:**
  - innovative methods to enhance PLS;
  - secure optical sensing and monitoring systems for critical infrastructure protection.
- **Assessment of trustworthiness and required metrics:**
  - design and evaluation of trustworthy optical network infrastructure;
  - privacy and anonymity in optical communication networks.

This workshop offers:

A fresh perspective on network physical layer security, encompassing wireless and optical networks. It will bring together expertise spanning theoretical foundations to practical requirements from operators and service providers, providing a comprehensive understanding of PLS and its new solutions.

Workshop Date and Venue
- **Date**: July 6-10, 2025
- **Venue**: Barcelona, Catalunya, Spain
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  https://www.gov.pl/web/instytut-lacznosci/icton-2025

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