

Flexible Optical Networks

Background and challenges

Main challenges:

- Increase capacity;
- Reduce cost per bit;
- Reduce energy consumption;
- Enhance security.

Innovative approaches:

- Coherent detection;
- Digital signal processing;
- Elastic optical networks;
- MIMO transmission and processing;
- Quantum signals.

Description and main innovation

SARDANA - FP7 Project – Project Partner (2.6 M€)

Scalable Advanced Ring-based Passive Dense Access Network Architecture
Build a Network of the Future in the access domain



FIVER - FP7 Project – Project Partner (4.5 M€)

Fully-Converged Quintuple-Play Integrated Optical-Wireless Access Architectures
Integrated access network architecture for the provision of quintuple play services



FUTON - FP7 Project – Project Coordinator (9.85 M€)

Fibre-Optic Networks for Distributed Extendible Heterogeneous Radio Architectures and Service
Flexible architecture for wireless systems supported by a transparent fiber infrastructure



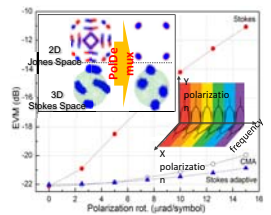
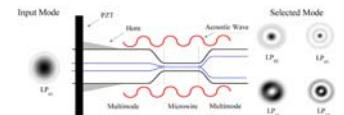
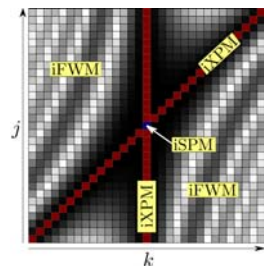
QREN/ADI Projects – With PT Inovação (12 M€)

PANORAMA, PANORAMA II
GPON-in-a-box, NG-PON II



EURO-FOS/BONE - FP7 Networks of Excellence – Project Partner (9.8 M€)

European Networks of Excellence with strong industrial collaboration



Achievements

World records:

- ✓ 1.9 Tbps PON capacity demonstrated at OFC 2013;
- ✓ >1500 km PM-64QAM reach demonstrated at ECOC 2014.

Awards:

- ✓ SARDANA: Global Telecoms Business Innovation Award.

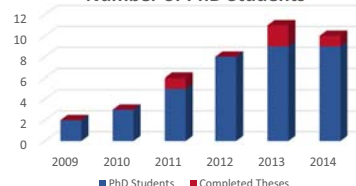
Prototypes:

- ✓ Real-time coherent receiver prototype;
- ✓ Extender box for long-reach PON;
- ✓ Software for coherent optical receivers.

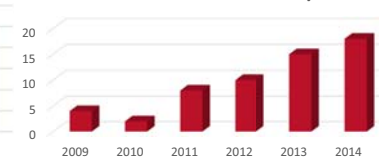
New line of products:

- ✓ GPON access network (PT Inovação);
- ✓ Coherent transceivers (PT Inovação).

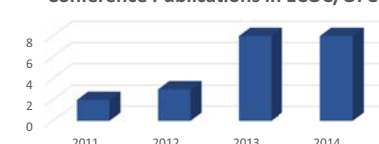
Number of PhD Students



Journal Publications in IEEE/OSA



Conference Publications in ECOC/OFC



Main partners:

