
Digicosme

Axe ComEx

Optical Communications Task Force (GT O'ComEx)

Elie Awwad & Catherine Lepers

Elie.awwad@telecom-paris.fr, Catherine.lepers@telecom-sudparis.eu

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General presentation of O'ComEx

- ❑ Funding started in 2017
 - ❑ Initial and **novel** research axes
 - ❑ Mitigation of non-linear effects
 - ❑ MIMO processing
 - ❑ Energy consumption in optical networks
 - ❑ **Machine learning for physical & network layers**
 - ❑ **Optical wireless communications (OWC)**
 - ❑ Visible light communications
 - ❑ Free-space communications
- } **Optical fiber communications (OFC)**

OFC: Machine learning for the physical & network layers

Leveraging automatic learning and AI solutions to

- ❑ Enhance the design of optical transmission systems allowing them to operate in the best possible conditions

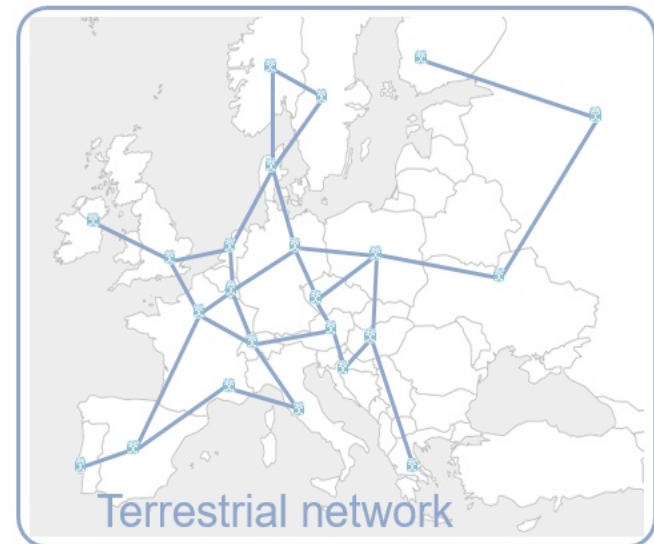
PhD thesis of Maria José Freire-Hermelo with C. Lepers

- ❑ Enhance monitoring schemes of the optical infrastructure to reduce allocated power margins

PhD thesis of Alix May with P. Ciblat & E. Awwad

- ❑ Mitigate non-linear effects

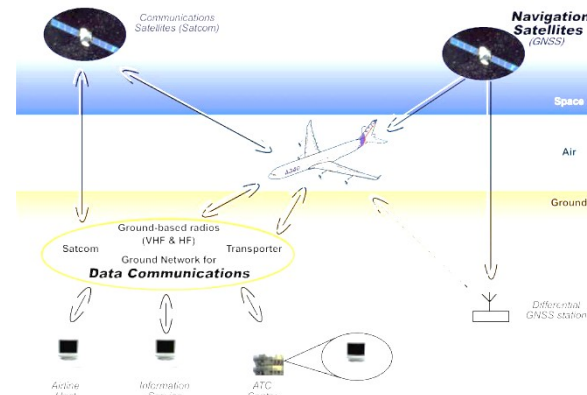
*European Industrial Doctorate FONTE
& REAL-NET projects with M. Yoosefi*



OWC: free-space and visible light communications

Recent revival motivated by simple deployment and high rates

- Ground-to-satellite/satellite-to-ground and inter-satellite comm.
PhD thesis of Laurie Paillier with Y. Jaouën
- Indoor applications: visible-light communication (VLC) to establish Light-Fidelity (LiFi) access and positioning
Participation to the Li-Fi consortium (C. Lepers)
- Free-space optical comm. for backhaul links between base stations
Study of capacity limits (M. Wigger) and implementation perspectives



Willing to contribute?

**Upcoming seminar on machine learning for
optical fiber transmission systems**

(on-line seminar)

March 2021

Stay tuned for more info!

Elie.awwad@telecom-paris.fr,
Catherine.lepers@telecom-sudparis.eu