

Advanced Broadband Communications Center (CCABA)

Broadband Communications Systems
Research Group (CBA)



ADVANCED BROADBAND
COMMUNICATIONS CENTER (CCABA)

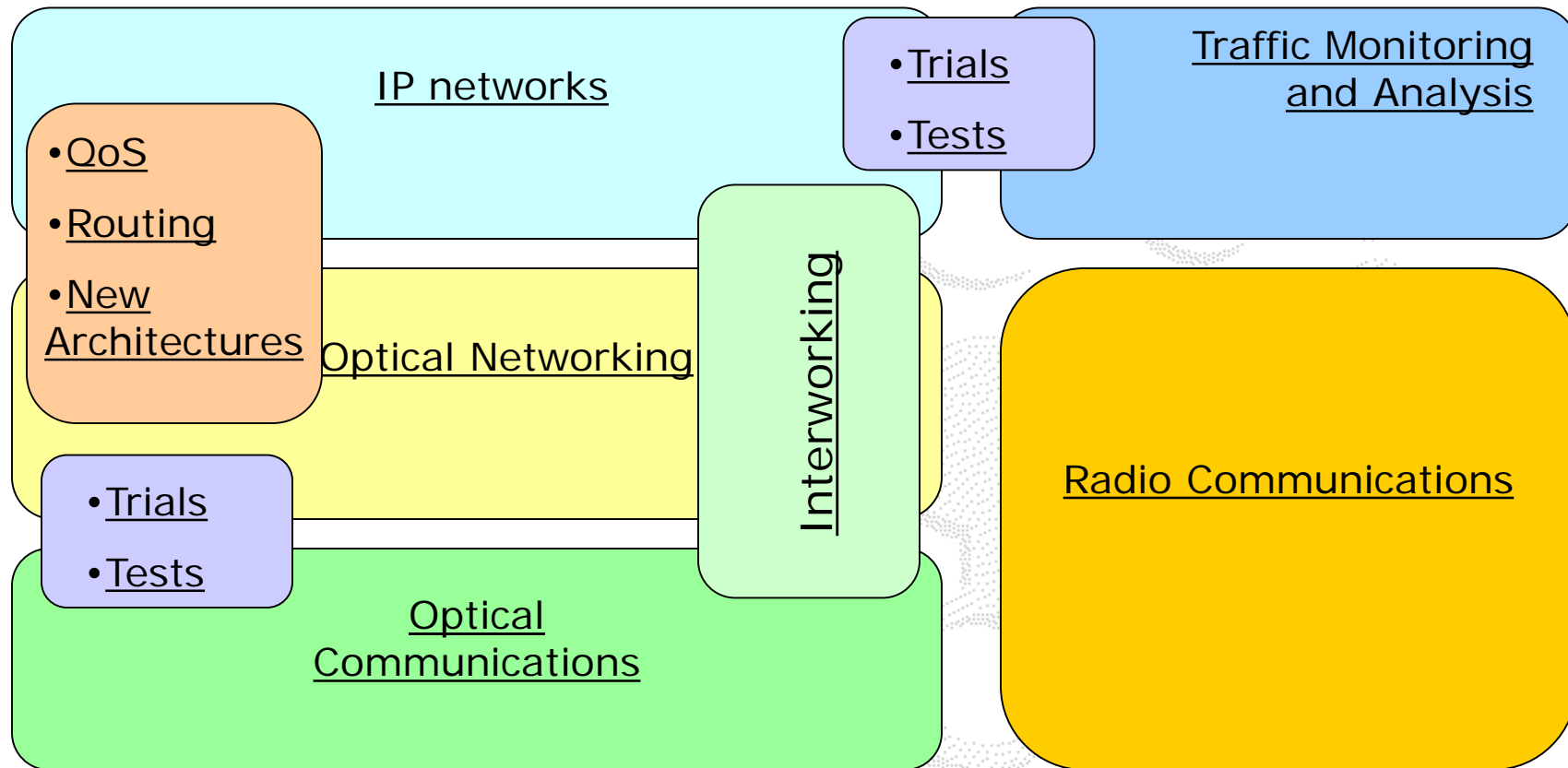
UNIVERSITAT POLITÈCNICA DE CATALUNYA
BarcelonaTECH (UPC)

About the CCABA

Director: Gabriel Junyent

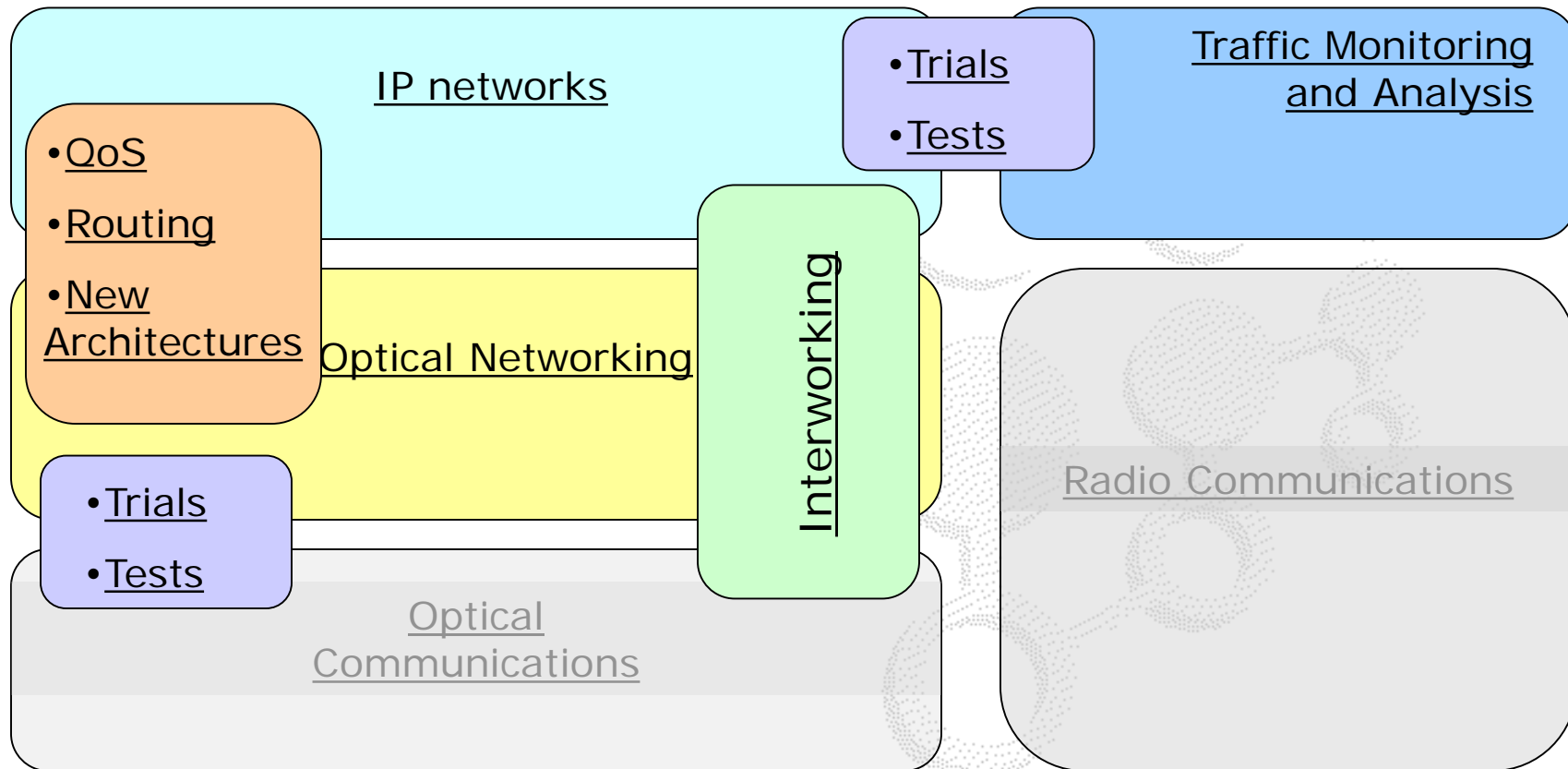
Academic staff: ~ 25

Students: ~ 40



About the CBA Group

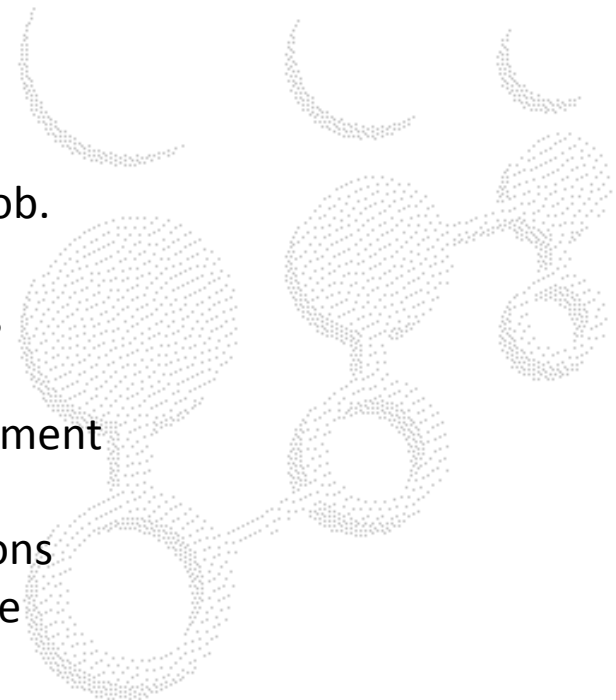
Leaders: Jordi Domingo, Josep Solé
Academic Staff (PhD): 10 Students: ~ 10



CBA research group

Topics

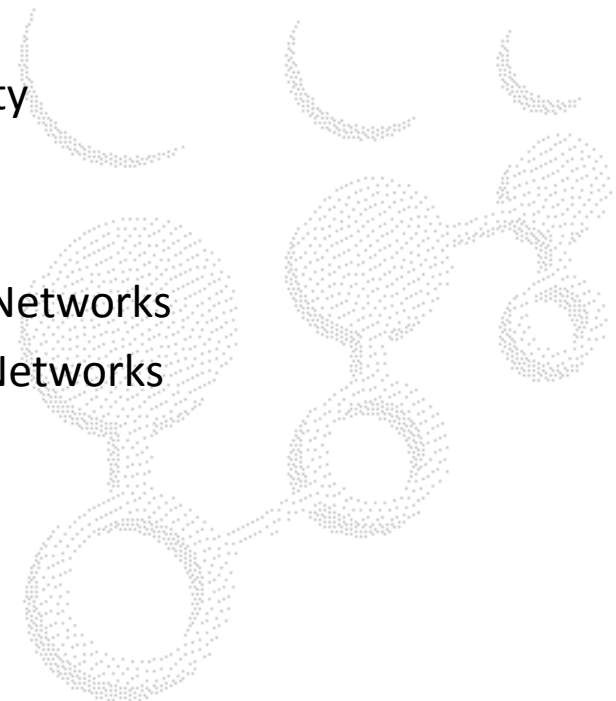
- **Network Architectures:**
 - Quality of Service in IP networks
 - IPv6 (coexistence and transition)
 - Mobility (Mobile IPv4 and IPv6)
 - MPLS and TE (QoS and Resilience)
 - Inter-domain routing
 - Future Internet Architectures
 - Locator/ID Split Protocol (LISP). LISPmob.
 - Software-Defined Networking (VNF)
 - Network Architecture for 5G Networks
 - Network Architecture for IoT
 - Machine learning for network management
 - Network Economics
 - Data privacy. Security of communications
 - Digital Identity and Electronic Signature



CBA research group

Topics

- Optical Networking
 - IP over ASON/GMPLS networks
 - Optical Packet Switching
 - Optical Burst Switching
 - Multilayer/technology Interoperability
 - Protection/restoration
 - Resource management
 - Physical Impairments aware Optical Networks
 - Energy Consumption aware Optical Networks
 - OF/SDN based optical Networks
 - Data Centers inter/intra connection



CBA research group

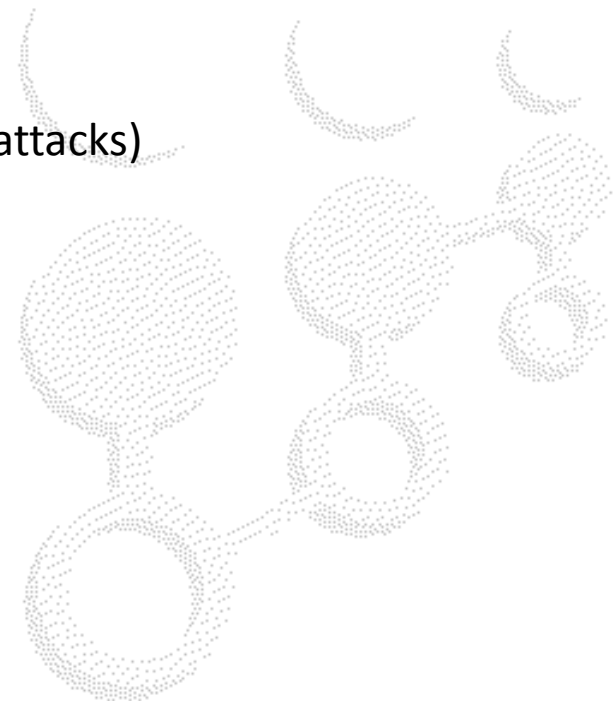
Topics

- Traffic Monitoring and Analysis:
 - Monitoring and measurement
 - Distributed platforms for monitoring and measurement
 - Traffic characterization
 - Classification of applications
 - Anomaly detection and classification (attacks)
 - Accounting and pricing
 - Spin-off: Talaia Networks

<http://www.cba.upc.edu/smartxac>

<http://loadshedding.ccaba.upc.edu/>

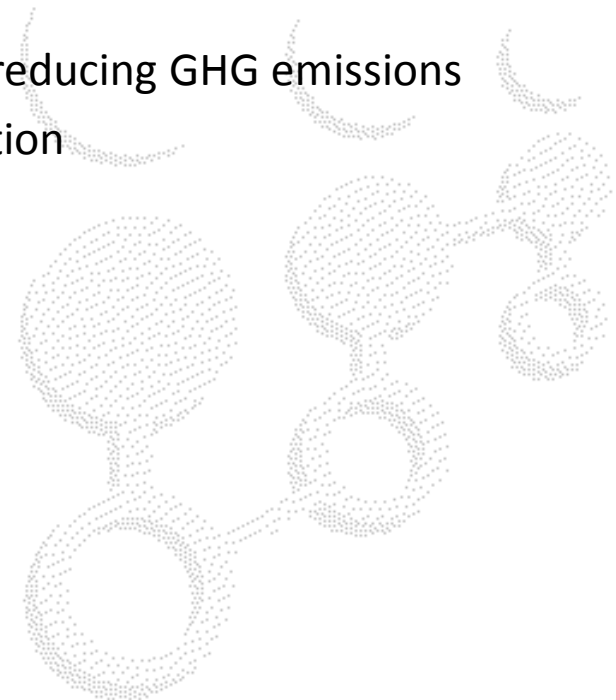
<http://www.talaianetworks.com/>



About the CBA

Topics

- Green Networking:
 - Energy-aware algorithms and protocols for telecommunication networks
 - Energy-aware Routing and Wavelength Assignment algorithms
 - Heuristics and ILP formulations
 - Energy-aware OSPF-TE extensions for reducing GHG emissions
 - Energy-oriented Network Re-optimization
 - Energy models
 - Renewable energy sources

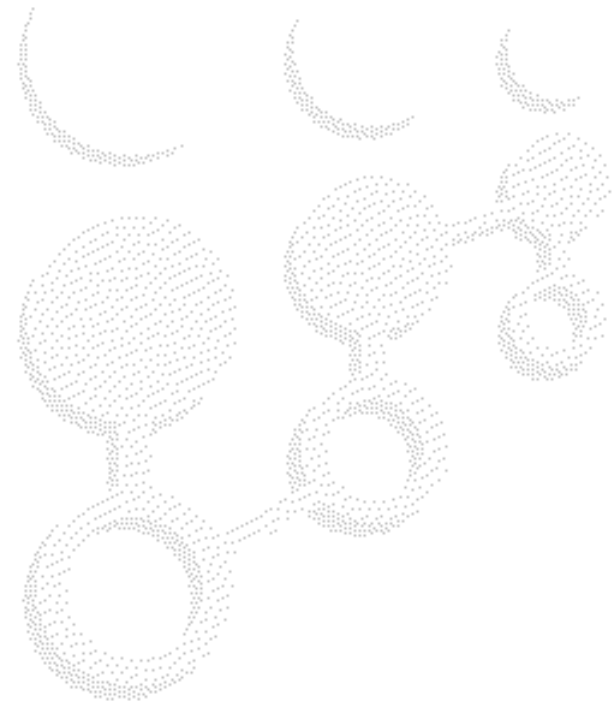


CBA research group

Topics

- Nanonetworking Communications:
 - Molecular communications
 - EM Nano-sensor networks (in the THz band)
 - Channel modeling
 - Nanonetwork architectures
 - General purpose simulator

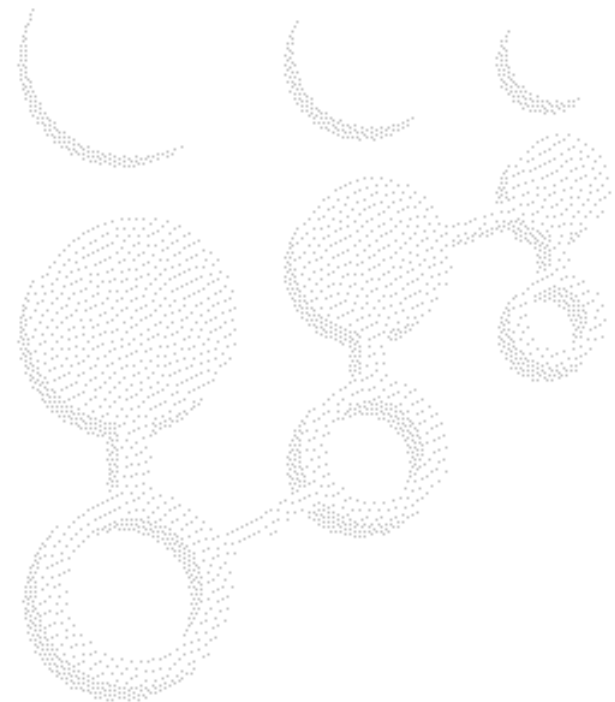
<http://www.n3cat.upc.edu/>



CBA research group

Topics

- Network-on-Chip:
 - Wireless Network-on-Chip
 - Graphene Wireless Communications
 - Coding and Modulation
 - MAC protocols for NoC



MONACO Testbed (MOnitoring & Advanced COmmunications)

