

**16 e 18 SETTEMBRE 2019**



# **Towards the ports of the Future: Le tecnologie 5G e IoT per le infrastrutture portuali**

Aula di Teledidattica, Plesso di Ingegneria

## **16 Settembre 2019**

**10:00-10:30** - Saluti Istituzionali ed Introduzione ai lavori

Prof. Tommaso Isernia (Direttore del Dipartimento DIIES)

Prof. Francesco Russo (Ordinario di Trasporti, DIIES)

**10:30-11:30** – Seminario informativo: “Ports of the Future: an instance in Livorno - State of the Art and On-going Initiatives”

Dr. Paolo Pagano (CNIT, Livorno)

**11:30-12:00** - Coffee break

**12:00-13:00** – Seminario specialistico: “Cooperative ITS: fundamentals and applications in sea ports”

Dr. Paolo Pagano (CNIT, Livorno)

## **18 Settembre 2019**

**10:00-11:00** - Seminario specialistico: “A 5G network and application prototypes for the general cargo”

Dr. Paolo Pagano (CNIT, Livorno)

**11:00-11:30** - Coffee break

**11:30-12:30** - Seminario specialistico: “Bathymetry and assisted marine navigation in port waters”

Dr. Paolo Pagano (CNIT, Livorno)

**12:30-13:00** - Conclusione lavori



**Abstract:** Seaports are genuine intermodal points of interest connecting seaways to inland transport facilities such as roads and railways; a seamless and structured way of interconnecting modes of transport is beneficial to both freight and passengers. In the former domain, seaports are intermediate nodes in the logistic chain: the availability of services pointing to a prompt and effective handling of goods is a good performance indicator to attract logistic operators and turn to be competitive in the market. Along the same line, in the latter domain, informational services can support passengers on the move (helping people with disabilities, offering Mobility as a Service, or promoting touristic offers).

In this course the design and implementation plan of novel ICT services for the Port of Livorno will be discussed as they are based on frontier technologies such as 5G, Cooperative ITS, and IoT-based distributed sensing. Specific pilot applications in the domains of connected vessels, vehicles, and e-Freight will be presented.



**Speaker:** PAOLO PAGANO received his Ph.D. degree in High Energy Physics from Trieste University having worked for the COMPASS collaboration at CERN. He holds a Master in IT from Scuola Superiore Sant'Anna in Pisa. From 2009 he is with the National Inter-University Consortium for Telecommunications (CNIT), leading the Networks of Embedded Systems area at the National Laboratory of Photonic Networks and Technologies in Pisa (<http://pntlab.cnit.it/>).

From October 2015 he is the director of the joint (CNIT / Port Network Authority of the Northern Tyrrhenian Sea) laboratory on advanced sensing and networking in sea ports. His research activities have a specific focus on ITS and Port of the Future.

He is participating (on behalf of CNIT) to the ETSI standardization committees for Cooperative ITS and maritime communication. From September 2018 he is member of the Working Group "Smart Roads", Technical Committee on Autonomous Driving at the World Road Association. He co-authored about 100 peer reviewed papers to international journals and conferences.

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