

Scuola di Dottorato in ICT

Doctoral School in ICT

Research project for a PhD curriculum in ICT – Curriculum: **Electronics and Telecommunications**

Tutor: Prof. Maria Luisa MERANI

Proposed Title of the research:

5G Networks

Keywords: (3)

5G, reliability, monitoring, multimedia

Research objectives: --(max 10 rows)

5G cellular networks will represent a major breakthrough, as they are expected to provide an unprecedented high wireless area spectral efficiency, an extremely dependable Internet service provisioning with very low service creation time cycles. Device-to-device communications, mmWave and the virtualization of radio access networks are some of the most promising approaches envisioned to guarantee high values to these Key Performance Indicators.

The main objective of the research project will be to selectively identify a reference scenario, focusing on the radio access network, and there to investigate the achievable performance, both from the user and the system perspective, so as to explore the issue of resiliency and understand what monitoring strategies are the most effective.

Proposed research activity --(max 10 rows)

During the first year, the most promising technologies envisioned for 5G will be thoroughly investigated, in order to put forth and then jointly develop with the funding company the research plan. Specific care will be taken in determining the possible opening within the field reliability and resilience monitoring in the 5G radio section.

During the second half of the first year and for all the second year, the research framework will be developed: the approach will be hybrid, and will encompass both analysis and simulation of the system.

During the final year, a significant contribution is expected in terms of journal publication.

Supporting research projects (and Department)

This project will be carried on at the Telecom Lab of the Department of Engineering “Enzo Ferrari” in strict collaboration with Empirix, the company that supports the project.

Possible connections with research groups, companies, universities.

A cooperation with BTH in Sweden and with the School of Information and Communication Engineering, Beijing University, China, is foreseen.