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She obtained her PhD with a work entitled “Adaptive multicarrier modulation in fading frequency selective channels”, about Orthogonal Frequency Division Multiplexing (OFDM) applied to fading channels, including the use of Adaptive OFDM.

*Summary of current research*

Currently, her main research interests include probabilistical QoS guarantees for wireless communications, end-to-end QoS over heterogeneous networks, cross-layer design, multi-user OFDM, and adaptive modulation and coding for fading channels. The complete project can be named as “Modelling for End-to-End Quality of Service in Heterogeneous Networks with Cross-Layer Cooperation and Adaptive Multichannel Wireless Access”.

The aim is developing an end-to-end Quality of Service (QoS) model to evaluate the performance of data services over heterogeneous networks. Multilayer modelling is necessary to explore the issues of inter-layer protocol interaction. Parametric modelling of low layers makes it possible to characterize data service performance as the cumulative performance degradation along each network element and protocol layer, including interfaces and protocol behaviour. The project focuses on wireless physical layers with adaptive modulation and coding and cross-layer collaboration. Channel multiplexing is based on Orthogonal frequency division multiplexing with multiple antennas (OFDM-MIMO). The studied scenario includes a set of mobile terminals that connect to a server through an All-IP radio access network. The whole system is divided into two segments: the radio network and the wired network. The protocol stack at the network layer is IP along the whole network, although several protocols such as UDP, TCP and the new TCP-Friendly Rate Control (TFRC) will be studied at the transport layer. The performance of the network is analyzed for distinct application information models.