



ERS POSITIONS AND INDIVIDUAL RESEARCH PROJECTS (IRP)

Fellow <i>ESR7</i>	Host institution IT-Covilhã	PhD enrolment Y	Duration <i>36 months</i>
Project Title: Licensed Shared Access in Heterogeneous Networks with Small Cells.			
Objectives: This ESR research explores the Carrier Aggregation technique to obtain high spectral efficiency, through the “massification” of SCs, together with new network technologies like C-RAN. Scenarios with exclusive spectrum access and spectrum sharing will be explored. Spectrum sharing assumes that two or more mobile operators/carriers have dedicated spectrum for macro cellular layer while SCs will use exclusive shared spectrum (by paying a fee) or share the access to non-licensed spectrum in an opportunist manner. Both terrestrial cellular scenarios and HetNets with drone-small cells will be investigated. Prototyping and some tests will be done with programmable electronic envisaging demonstrating the concept in real environments. Cost/revenue optimization of the HetNet considering both macro and SCs is one of the final goals of the research.			
Expected Results: Optimization of Carrier Aggregation in LTE-A HetNets with SCs; Implications of RRH and Small Cells in Spectrum Sharing; Optimization of SCell deployment and frequency Assignment (simulation, optimization tool and hardware demonstration with USRPs and OpenAirInterface); Optimization of the Cost/Revenue Trade-off of HetNets with SCs.			
Enrolment in Doctoral degree(s): Universidade da Beira Interior (UBI)			
Main (host) supervisor/Contact: Dr. Fernando Velez (IT-Covilhã)			