



## ERS POSITIONS AND INDIVIDUAL RESEARCH PROJECTS (IRP)

Fellow <i>ESR11</i>	Host institution <b>IHU</b>	PhD enrolment <b>Y</b>	Duration <b>24 + 9 months</b>
<p><b>Project Title:</b> New Interference-Based Dynamic Channel Access Algorithms for Ultra-Dense Small Cell Deployments.</p>			
<p><b>Objectives:</b> The current project focuses on Overlapping Basic Service Sets (OBSSs) in particular for IEEE 802.11ax deployments. The objective is to develop an algorithm that enhances spatial reuse (taking into account also fairness) in cases of ultra-dense deployments by combining simultaneously well-known techniques like the dynamic Carrier Sense Threshold (CST), the coloring scheme and the dynamic Transmit Power Control (TPC). This algorithm will consider the expected interference level at the receiver in order to further enhance spatial reuse by allowing a concurrent transmission to take place without provoking a collision when the reception level is greater than the maximum interference level that an inter-cell station concurrent transmission can cause. The new algorithm will be analysed under various residential, enterprise and outdoor dense scenarios.</p>			
<p><b>Expected Results:</b> Study and performance comparison of the dynamic CST, the coloring scheme and the dynamic TPC, channel access techniques that have been proposed by the IEEE 802.11ax Task Group. Development and performance evaluation of a new algorithm that enhances spatial reuse in ultra-dense OBSSs deployments by taking into account the receiver's expected interference level. Study and optimization of the per-station performance of all considered algorithms. Study and improvement of fairness between legacy and IEEE 802.11ax devices that coexist in the same network and implement the new algorithm under various residential, enterprise and outdoor dense scenarios. Contribution on standardization to the IEEE 802.11ax Task Group.</p>			
<p><b>Enrolment in Doctoral degree(s):</b> International Hellenic University (IHU)</p>			
<p><b>Main (host) supervisor/Contact:</b> Dr. Periklis Chatzimisios (IHU)</p>			