

Experimental Work

Responsible Postgraduate Student: Sotiris Karachontzitis

Title: "Resource Allocation in wireless systems employing OFDMA"

Scope:

OFDMA and MIMO technologies are becoming established techniques for modern wireless systems. They enrich the available resources by offering additional degrees of freedom in time, frequency, space, power allocation etc. The wise management of these resources can significantly improve the overall performance of the system. In the case of multiuser systems, these resources must be allocated to the users in an efficient manner in order to satisfy their QoS demands. In multicell systems, coordination among different cells, if possible, is one additional option that can lead to better performance by controlling undesirable phenomena such as interference.

We will simulate the performance of different resource allocation approaches for the multiuser, multicell OFDMA Downlink Channel. We will explore the benefits of inter-cell coordination and Space Division Multiple Access (SDMA) under a variety of criteria, such as the criterion of sum rate and proportional sum rate. We will compare the techniques in terms of complexity and suitability to different scenarios. By experimenting with the parameters of the system we will find out how different settings affect the performance.