

Wireless Telecommunications Laboratory (WTL)



3rd Week

Prof. Stavros Kotsopoulos

Course Programme

Theory

9:30 – 12:30

Experimental Work

14:30 – 18:00

Course Programme

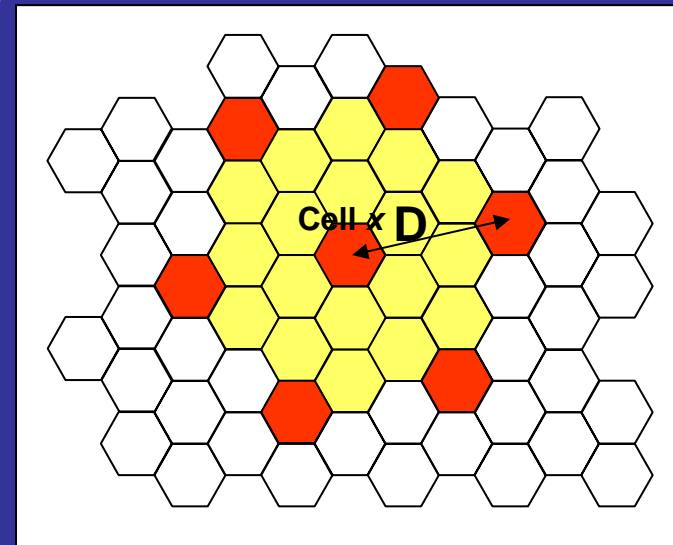
Theory

- | | | | |
|---------|---|--|------------------------|
| 1st Day | ✓ | Wireless Channel Characterization, RF Modeling and Embedded Diversity Techniques in Transceivers | Prof.S. Kotsopoulos |
| 2nd Day | ✓ | All-IP Network Architectures and Wireless Evolution | Prof. T. Dagiuklas |
| 3rd Day | ✓ | Design of Current Communications Systems and Future Trends | Prof. D-A. Toumpakaris |
| 4th Day | ✓ | Electromagnetic Compatibility for Wireless Networks | Lect. S. Koulouridis |

Course Programme

Experimental Work

First Day



- ✓ Dynamic Channel Allocation in Cellular Systems
I. Fraimis
- ✓ Site specific validation of RF modeling based on field measurements
T. Chrysikos

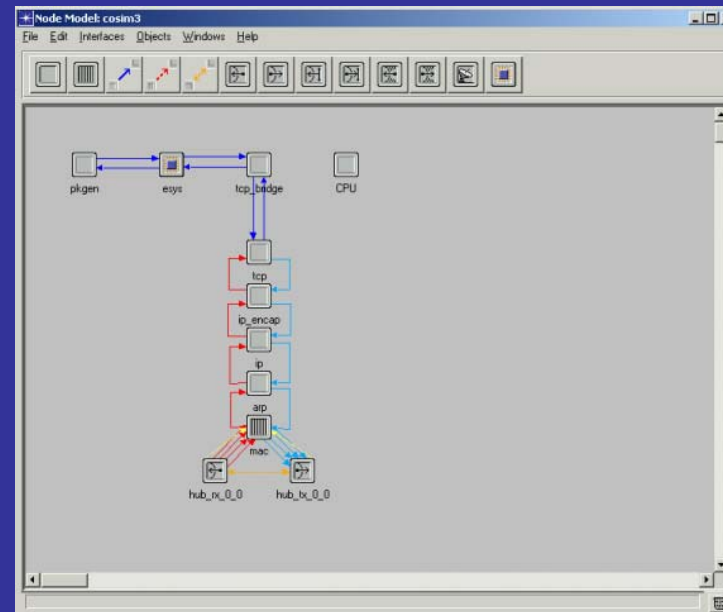
Course Programme

Experimental Work

Second Day

- ✓ Simulation of Wireless Communication Networks using the OPNET Modeler 14.0

A. Lykourgeotes



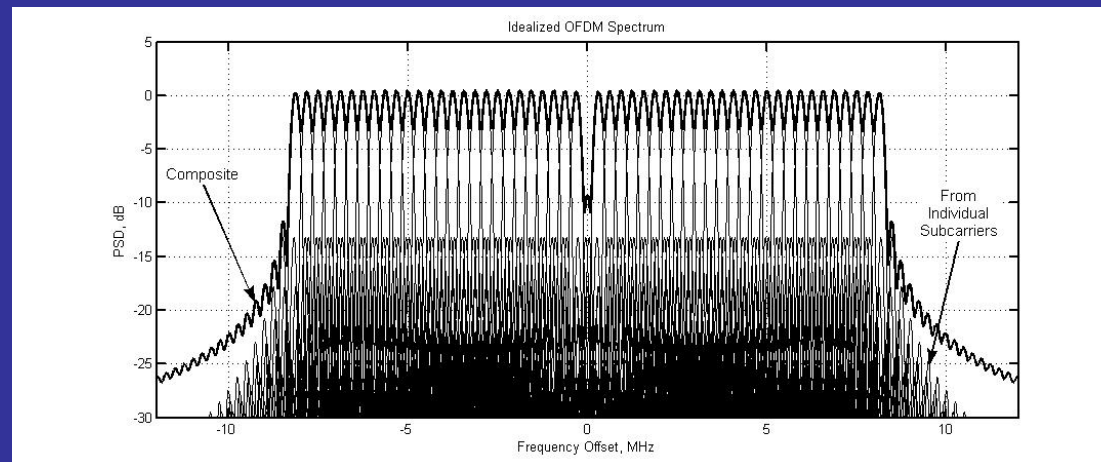
Course Programme

Experimental Work

Third Day

- ✓ Resource Allocation in wireless systems employing OFDM

Sotiris Karachontzitis



Course Programme

Experimental Work

Fourth Day

- ✓ Fairness – aware resource allocation for MISO downlink over frequency selective channels

V. Papoutsis

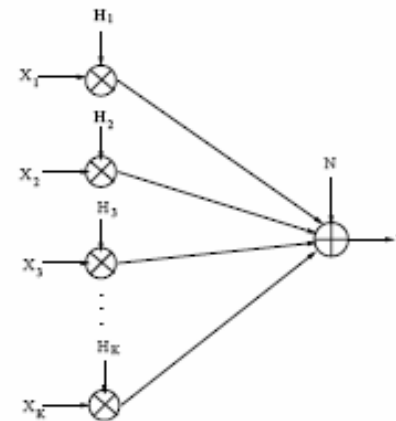
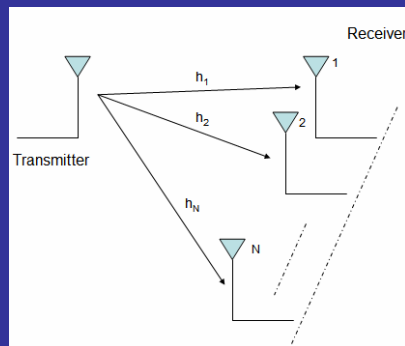


Fig. 1. Multiple input, single output system

✓ Wireless Channel Characterization, RF Modeling and Embedded Diversity Techniques in Transceivers

Teacher: Prof. Stavros Kotsopoulos

- Heterogeneous wireless systems
- the importance of Wireless Channel in the End-to-End QoS
- Path Loss Models
- Interferences
- Fading Phenomena vs receiving systems performance
- Diversity Techniques

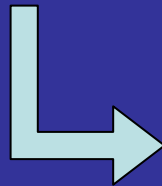


✓ All-IP Network Architectures and Wireless Evolution

Teacher: Assistant Prof. Tasos Dagiouklas

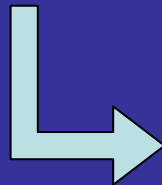
- Mobile Communications vs the connected everywhere, anytime and anyhow philosophy

Always **B**est **C**onected (**ABC**) Philosophy



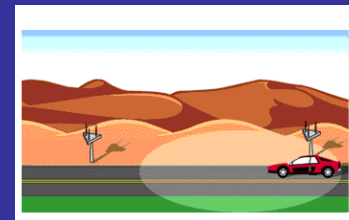
competing **R**adio **A**ccess **T**echnologies (**RATs**) can co-exists and have different requirements and capabilities

- **RATs: UMTS, WiMAX, 3GPP LTE**



Provision of mechanisms to select for a particular instant of time the “**best**” network and support functionalities associated with

“**seamless**” handover and
“**seamless**” connectivity



✓ Design of Current Communications Systems and Future Trends

Teacher: Assistant Prof. Dimitris-Alexandros Toumpakaris

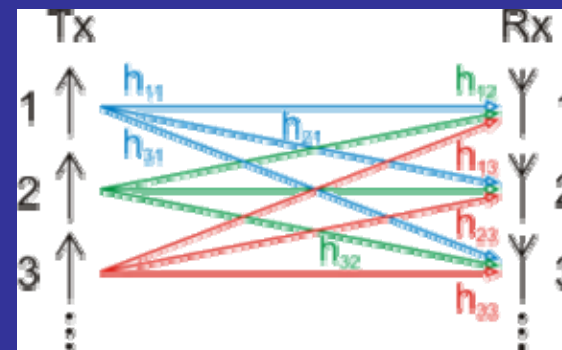
- Design principles of communication systems
- Trends and challenges for the design of NG Systems
- some common communication systems (design and principles on which it is based)
- Recent technologies:

multi user MIMO

Cooperative transmission

Cognitive radio

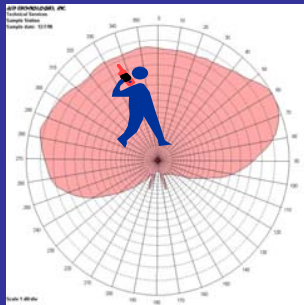
Cross Layer Design



✓ Electromagnetic Compatibility for Wireless Networks

Teacher: Lecturer Stavros Koulouridis

- the ability of any electrical and electronic system to operate without disturbance from other devices and without distressing other components of the environment
- in Wireless Networks an important aspect of EMC is the avoidance of adverse health effects to humans



microwave affects on biological tissues

quantities to be taken into account

study of wireless systems compliance with international limits

different aspects of EMC computational, laboratory and
Epidemiological studies