Passive and active
Reconfigurable antenna design

Doctoral course – Ulm, Germany - October 8-12 2012

Contents

Introduction - Drivers to the need for reconfigurable antennas (Software defined radio; Cognitive radio; Other needs including defence and space applications) - Types of Reconfigurable antennas - Practical Reconfigurable Antennas - Using reconfigurable antennas in Cognitive radio applications. Combining Photonics and RF to produce more versatile reconfigurable systems. Reducing complexity of reconfigurable systems and increase reliability for harsh environments using graph theory. Using machine learning on FPGAs to produce self-adaptive reconfigurable antennas in cognitive radio - Detecting of Failures in Switch Reconfigurable Antenna Arrays - Embedding Reconfigurable Filters in antennas -

Introduction to Components and Analysis for Reconfigurable Antennas - Introduction to components - Performance parameters for components - Microwave circuit and antenna analysis - System level behavioural models - Balanced to unbalanced converter technology - Active antennas - Types of Reconfiguration Devices and Technology (Semiconductors – MEMS) - Integration of devices into antennas (including surface mount, LTCC) - MMIC introduction and design flow - MMIC in antenna applications: system aspects and technology context - System integration - Semiconductor technologies and devices - MMIC design: MMIC simulation - Design examples - Layout generation

Registration fee

• Non-profit institution: €450
• Professional institution: €1150
• Grants will be offered to 4 students: €10 discount for IEEE, IET and EuMA members

Venue

Dr. Gabriele Gröger
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Grant application deadline: July 31, 2012

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Lecturers

Prof. Peter Hall (University of Birmingham, UK)
Prof. Christos Christodoulou (University of New Mexico, USA)
Prof. Hermann Schumacher (University of Ulm, Germany)
Prof. Wolfgang Menzel (University of Ulm, Germany)

Prof. Giandomenico Amendola (University of Calabria, Italy)
Prof. Bernd Tillack (IHP Microelectronics, Germany)
Dr. Mehmet Kaynak (IHP Microelectronics, Germany)
Dr. Tatiana Purtova (University of Ulm, Germany)
Dr. Luigi Boccia (University of Calabria, Italy)

Course general info

Schedule: 25hrs of teaching - 2hrs of laboratory - 5hrs of personal exercises
Availability: 20 students

Prerequisites: Antenna basic theory - Familiarity with RF Systems - Microwave Circuits - RHIC

Credits: 2 ECTS for attendance and exercises