

Industrial Workshop

Organiser: Jussi Rahola

Company/Organisation: Optenni Ltd

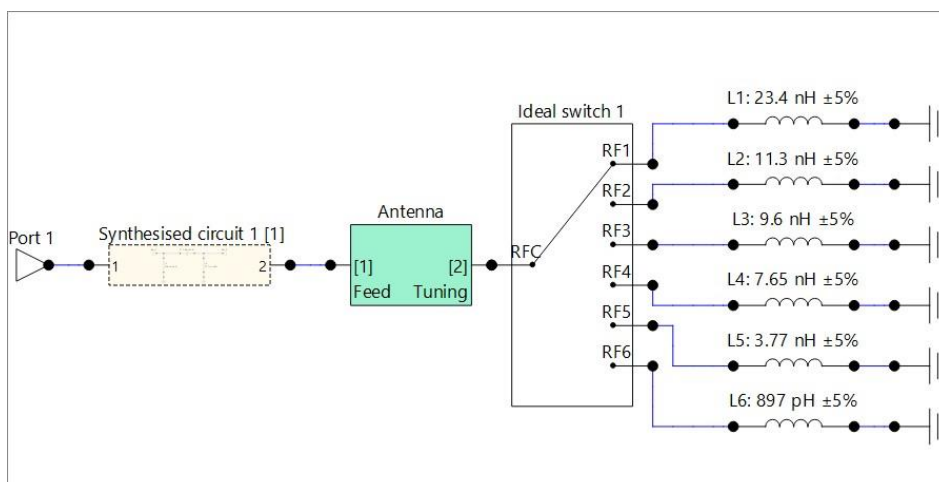
Title: Design of tunable antennas

Abstract: The number of wireless systems and frequency bands that need to be covered by modern handheld devices is growing dramatically. It is becoming increasingly difficult to cover all the necessary frequencies by a passive antenna and therefore mobile phones and other wireless devices are increasingly using tunable antennas to meet the requirements. Another application of tunable antennas is to adapt to the changing usage environment of the mobile devices. In the workshop we will present an overview of state-of-the-art tuning technologies and discuss modern design methods of tunable antennas.

The main topics of the workshop are:

- Overview of frequency tunable antenna concepts, especially aperture tuning
- Overview of closed-loop tuning to adapt to varying impedance environments
- Overview of tunable components: capacitor banks, switches and tuner chips
- Efficiency use of electromagnetic & circuit simulation tools for tunable antennas
- Discussion on the optimization goals and methods for tunable antenna design
- How to take layout effects into account in circuit optimization

The majority of presentation will be done by Optenni experts, but we are planning to include presentation from tunable component vendors.



Speaker:



Jussi RAHOLA obtained the M.Sc. (Tech.) and D.Sc. (Tech.) degrees in applied mathematics from Aalto University (former Helsinki University of Technology) in 1990, and 1996, respectively. The topic of his dissertation was the solution of large dense systems of linear equations of electromagnetics using iterative solvers and the fast multipole method. From 1989 to 1999 he was working as an application specialist and a development manager in CSC - IT Center for Science Ltd, Finland. During 1997-1998 he also worked in CERFACS, Toulouse, France as a post-doctoral researcher in the field of computational electromagnetics. From 2000 to 2009 he worked in Nokia Research Center and Nokia Devices R&D as a senior research engineer, research manager and principal scientist in the field of antenna research. In 2009 he founded Optenni Ltd for developing the Optenni Lab circuit synthesis software. He has over 30 publications in international journals and conference proceedings. His research interests include antennas, circuit simulation, impedance matching, computational electromagnetics and numerical mathematics.