



Abstract:

The necessity for early diagnose of diseases and continuous monitoring of physiological parameters in medicine has significantly increased, Therefore, the need for the development of wireless telemetry systems has attracted researchers in several disciplines. The key components of these telemetry systems are antennas and sensors since they establish the communication links between the patient and base station. Several researchers found that metamaterials could play an important role in the design of telemetry systems. In fact, they can have their electromagnetic properties altered to something beyond what can be found in nature. The question of coupling energy through metasurfacng is the key concept to unlock the full potential of metasurfaces applications and a new generation of devices. In this seminar, a novel metasurfaces waveguide-coupler is presented. The coupler has been designed using an electromagnetic band-gap structure. The structure is then inserted below a TEM slow-wave circuit. The initial schema and optimisation were simulated using full-wave simulations (CST Microwave StudioTM). A first prototype of a directional metasurfaces waveguide coupler was designed in order to be used in more advanced applications.