

Abstract:

Different imaging systems are currently used in clinical practice for visualizing the interior of the body. They are represented by X-ray, Ultrasound (US), Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET), each of them providing diagnostic information with different resolution, accuracy and costs, some of them requiring the use of ionizing radiation.

Microwave sensing and imaging represents an emerging alternative diagnostic methodology based on nonionizing electromagnetic signals covering the frequency range between hundreds of megahertz to tens of gigahertz. The desired advantages of using such method are represented by low health risks, low costs and ease of use. In particular it offers the possibility to study functional and pathological tissue conditions in a noninvasive way.

In this seminar I'll provide a comprehensive overview of the different medical applications of Microwaves sensing and Imaging, both qualitative and quantitative underlying potential advantages and challenges.