



University of Pavia
Ph.D. School of Electrical and Electronics Engineering and Computer Science

SEMINAR

Magneto Fluid Hyperthermia and application in tumor treatment

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07 June 2018, 15.00
Aula seminari ex Dipartimento di Elettronica, piano D

Abstract: Magnetic fluid hyperthermia (MFH) induces cell apoptosis by heating the tumor mass locally up to 42 °C. MFH is based on a magnetic fluid that generates a power density when a time varying magnetic field is applied. Finite-element models have been used to design the magnetic field source in order to have a uniform magnetic field in the treating volume. The temperature increment is due to the magnetic nanoparticles suspended in a magnetic fluid that generates heat when they are in a time varying magnetic field with suitable frequency and amplitude. The time varying magnetic field is generated by inductors that can be designed by means of suitable Finite Element (FE) numerical models.

Bio: Elisabetta Sieni received the degree in Electronic Engineering, PhD in Bioelectromagnetics and Electromagnetic Compatibility and PhD in Information Engineering, Bioengineering, from the Padova University respectively in 2002, 2006 and 2011. Actually she is working at the Department of Electrical Engineering of the Padova University as assistant professor. Her interests are in human exposure to electromagnetic field, optimization and biomedical application of electromagnetic fields like magnetic fluid hyperthermia and electrochemotherapy.

Organizers

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Seminar in English

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