



IUSS - FERRARA 1391

UNIVERSITA' DEGLI STUDI DI FERRARA



Dipartimento di Fisica e Scienze Della Terra
Sezione di Fisica Medica

Dipartimento di Morfologia, Chirurgia e Medicina Sperimentale
Sezione di Chirurgia e Medicina Traslazionale

Scuola di Dottorato in Fisica - Scuola di Dottorato in Scienze Biomediche
Centro Malattie Vascolari - Scuola di Specializzazione in Radiodiagnostica

Copernicus Visiting Scientists

E. Mark Haacke, PhD

Assoc Chair, School of Medicine, Dept of Biomedical Eng, Wayne State University, Detroit, MI, USA
Director of the WSU Program in Traumatic Brain Injury Research

ADVANCED COURSE IN MR imaging

Venue: Teaching Center - Azienda Ospedaliero-Universitaria
Arcispedale S. Anna - Cona - Ferrara

Program

29/04/2014

15.00-17.00 **An introduction to MRI and gradient echo imaging**

abstract: A brief introduction is given to the fundamental elements of magnetic resonance imaging ending with the Fourier transform and the role of phase. This is followed by a more in depth discussion of the gradient echo imaging sequence, image contrast and a few applications.

30/04/2014

15.00-17.00 **Susceptibility weighted imaging**

abstract: An introduction to the concepts of susceptibility weighted imaging and susceptibility mapping are presented. This includes the mathematical details of how both methods work. A few applications are also given.

05/05/2014

15.00-17.00 **Flow Imaging**

abstract: The basic concept of 2D phase contrast flow quantification is discussed. Signal-to-noise and accuracy of extracting cross sectional area and flow are presented. Finally, applications to multiple sclerosis and Parkinson's disease are given.

06/05/2014

15.00-17.00 **Clinical applications of SWI and SWIM**

abstract: The broad applications of SWI and SWIM for imaging neurovascular diseases are presented. Examples are given throughout the lifespan from the fetus to dementia.

This multidisciplinary course explores the most modern diagnostic techniques employing nuclear magnetic resonance. It is aimed at PhD student in Physics in Engineering and Biomedical Sciences, students of the Postgraduate Medical School, to physicians and medical physicists who perform their professional activities in the areas of Magnetic Resonance, Functional Magnetic Resonance Imaging, Hemodynamics and Biomagnetism.

L'evento sarà inserito nel programma di Educazione Continua in Medicina per Medici e Fisici.

