UNIVERSITA' DEGLI STUDI DI FERRARA

Dipartimento di Fisica e Scienze della Terra
Sezione di Chirurgia e Medicina Traslazionale

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

IUSS Copernicus Visiting Scientist

E. Mark HAACKE

Professor of Radiology, Wayne State University
Vice Chairman & Professor of Biomedical Engineering
Director of the WSU Program in Traumatic Brain Injury Research
Wayne State University – Detroit, MI, USA

ADVANCED COURSE IN MR imaging

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

PROGRAM

29/04/2014 An introduction to MRI and gradient echo imaging

15.00-17.00 **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 Susceptibility weighted imaging

15.00-17.00 **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.

06/05/2014 Flow Imaging

15.00-17.00 **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.

07/05/2014 Clinical applications of SWI and SWIM

15.00-17.00 **Abstract:** The broad applications of SWI and SWIM for imaging neurovascular disease 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.