

The course will offer:

Lectures – Up to 100 hours

Personal attendance – Minimum 120 cases

Hands-on scanning – 36 h

Clinical reporting – Minimum 150 cases

Specific clinical application project

Log book to be kept of cases attended

### Faculty

Lamia AIT ALI' MD, Ph.D.\*  
Giovanni Donato AQUARO MD °  
Andrea BARISON MD, Ph.D. °  
Valerio BARRA TR °  
Alberto CLEMENTE MD °  
Daniele DE MARCHI TR °  
Nicola MARTINI, Ph.D. °  
Pier Luigi FESTA MD °  
Luna GARGANI MD, Ph.D.\*  
Alessia GIMELLI MD °  
Chrysanthos GRIGORATOS MD °  
Serena TOMASSI Nurse °  
Petra KEILBERG TR °  
Antonella MELONI Ph.D. °  
Danilo NEGLIA MD °  
Cristina PETERSEN MD, Ph.D. °  
Alessia PEPE MD, Ph.D. °  
Vincenzo POSITANO MSc °  
Giancarlo TODIERE MD °

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## Three-months training course in CMR

3<sup>th</sup> April - 18<sup>th</sup> May 2018

1<sup>st</sup> October - 16<sup>th</sup> November 2018

Magnetic Resonance Lab  
Area della Ricerca CNR di Pisa  
Via Moruzzi, 1

This program is intended for cardiologists and radiologists wishing to gain in-depth knowledge of and experience in the principles of cardiac MR, its practical implementation in a clinical environment, and reading and interpretation of CMR images. In our MR Lab more than 2500 patients are clinically scanned every year in the whole field of the cardiology. Training is propaedeutic to obtain level 2 CMR accreditation.

### Objective

This program is intended for cardiologists and radiologists wishing to gain on basic cardiovascular magnetic resonance.

### Setting

The CMR Unit in Pisa is an international referral centre, performing more than 2500 cardiovascular CMR studies per year covering a wide range of clinical issues.

### The fee will cover:

- Tutor assistance
- Hands on CMR acquisitions and analysis
- Case reading
- Stress CMR and multimodality lectures
- Teaching material
- Lunch ticket
- Social dinner
- Attendance certificate

### Cost

€ 4500 euros + 22% VAT for each physician, € 4500 + 22% VAT for each accompanying technical radiologist or nurse Maximum 2 participants. CME credits will be provided if required with an extra-fee of € 1000 + 22% VAT for each participant.

### Location

Magnetic Resonance Lab  
Area della Ricerca CNR di Pisa  
Via Moruzzi, 1 Pisa, Italy



### Topics to be covered include:

#### *Serena Tomassi, Nurse – 2 h*

MRI safety  
MRI patient's preparation (basal and stress)

#### *Antonella Meloni, PhD – 7 h*

Basic principles of MRI / MRI hardware  
Image quality (SNR, CNR and resolution)  
Image artefacts / Heart, liver and pancreatic T2\* MR assessment

#### *Nicola Martini, PhD – 3 h*

T2\* mapping / T1 mapping / 4D flow

#### *Vincenzo Positano, Msc - 7 h*

Introduction to CMR image analysis and DICOM standard  
Heart function assessment by CMR  
3D visualization / Flow analysis  
Myocardial perfusion analysis  
LGE image analysis / CMR relaxometry

#### *Daniele De Marchi, TR - 7 h*

Sequence design  
K-space strategies and rapid imaging  
Parallel Imaging / Quality in CMR / Cardiac mapping

#### *Petra Keilberg, TR - 8 h*

Cardiac anatomy, imaging planes and appearances  
Quality in MR  
CMR Acquisition protocol: Thalassemia, Stress  
Cardiomyopathy / CMR Acquisition protocol: ARVC

#### *Valerio Barra, TR - 1 h*

CMR Acquisition protocol: Myocarditis

#### *Giovanni D Aquaro, MD – 7 h*

Ventricular volumes, mass and function  
Myocardial perfusion imaging  
ARVC / Stress MRI using Dobutamine  
Cardiac tumor and pericardial masses

#### *Andrea Barison, MD, PhD – 5 h*

T1 mapping / Laminopathies  
Cardiac Amyloidosis / Thoracic Aorta



#### *Alessia Pepe, MD, PhD – 8 h*

Stress MRI using dipyridamole and adenosine  
Iron overload cardiomyopathy  
Liver and pancreatic iron quantification by MR  
Contrast medium / CMR in LV non compaction  
CMR in rheumatologic disease  
CMR in oncology / CMR in CRT

#### *Giancarlo Todiere, MD – 5 h*

Hypertrophic cardiomyopathies / Myocarditis  
Ischemic CMP

#### *Chrysanthos Grigoratos, MD – 1 h*

CMR in vasculopathies / Extracardiac findings in CMR from a cardiologist's perspective

#### *Pierluigi Festa, MD, PhD and Lami Ait Ali, MD – 10 h*

Congenital heart disease: an overview / Bicuspid aortic valve and CMR study of aortic wall / Aortic coarctation and aortic arch anomalies / Dilatation of the right ventricle and anomalous pulmonary venous return / Post repaired Tetralogy of Fallot / Systemic right ventricle / Functionally Univentricular heart CMR evaluation pre and post palliation / CMR in congenital heart disease: Tips and tricks / CMR in pre and post interventional cardiac catheterization in congenital heart disease / Cases presentation of congenital heart diseases

#### *Cristina Petersen, MD Ph.D. - 1 h*

When and why Echo is better than MRI

#### *Luna Gargani, MD Ph.D. - 1 h*

Integrated cardio-pulmonary ultrasound: the physical examination of the III millennium

#### *Alessia Gimelli, MD - 1 h*

Myocardial scintigraphy: when and why

#### *Alberto Clemente, MD - 1 h*

Cardiac CT: when and why

#### *Danilo Neglia, MD - 1 h*

Multimodality imaging comparisons in CAE

