

**ONASSIS
HOSPITAL**



ONASSIS HOSPITAL ADVANCED CARDIOVASCULAR MAGNETIC RESONANCE IMAGING COURSE-HANDS ON TRAINING (SCMR WORKSHOP)

19-21 September 2025

Athens, Greece

Venue: Onassis Hospital

Registration at pr@onasseio.gr

Onassis Hospital Advanced Cardiovascular Magnetic Resonance Imaging Course-Hands on training (Level 1 plus SCMR Workshop)

Organizers

Evangelia Nyktari, M.D.

Cardiologist-Deputy Director, CMR Unit Adult
Clinical Lead, Onassis Cardiac Surgery Centre,
Athens, Greece

Thomas Vrachliotis, M.D.

Director, Department of Radiology, Onassis Hospital,
Athens, Greece

Directors

Professor Vassilios Vassileiou, M.D.

Professor in Cardiac Medicine, University of
East Anglia, Norwich, UK

Evangelia Nyktari, M.D.

Cardiologist-Deputy Director, CMR Unit Adult Clinical
Lead, Onassis Cardiac Surgery Centre, Athens,
Greece

Professor Theodoros Karamitsos, M.D.

Professor of Cardiology, Aristotle University
of Thessaloniki, Thessaloniki, Greece

Description

Onassis Hospital Advanced Cardiovascular MR Imaging Course-Hands on Training
A SCMR (Society of Cardiovascular magnetic resonance) certified course

Expectations and Goals

About the Course

This is a 3-day advanced course on CMR for Cardiology and Radiology trainees and clinicians. The course objective is to outline the role of CMR in diagnosis and clinical management of heart disease, including ischemia and heart failure, cardiomyopathies, congenital heart disease, in guiding medical treatment, coronary intervention and the use of medical devices. Lectures, interactive mentored interpretation of clinical CMR cases, live cases and post-processing sessions will link the theoretical knowledge with the application of CMR in daily clinical routine. **The course is given in Greek and English. Hands-on training on 50 cardiac MRI cases** will be included. A logbook of 50 cases will be reviewed and offered to all delegates.

The following subjects will be covered:

- CMR safety: magnetic fields, contrast agents, and contraindications
- MRI contrast agents; mechanisms and applications
- Flow imaging and quantitative analysis of velocity-encoded images
- CMR of cardiovascular structure and anatomy
- CMR of right and left ventricular function
- CMR of myocardial infarction, scarring, and viability assessment
- CMR of myocardial fibrosis and edema
- Pharmacologic stress testing with CMR
- CMR of vascular pathology, including aortic disease
- CMR of valvular heart disease
- CMR of pediatric and adult congenital heart disease
- CMR in cardiomyopathies and heart failure
- CMR in arrhythmia
- CMR of pericardial disease
- CMR for cardiac masses and tumors

DAY 1 – Friday 19th September 2025

09:00-9:30 Registration and Coffee

09:30 09:45 Welcome

Th. Vrachliotis, J. Papaparaskevas*, P. Minogiannis*, I. Boletis*¹

Back to the basics

Moderator: Thomas Vrachliotis

09:45 10:15 *CMR safety: magnetic fields, contrast agents, and contraindications*

Panagiotis Rozos, Spyridon Zarkadoulas

10:15 10:45 *Imaging sequences for cardiovascular anatomy, function, viability, perfusion, flow and angiography*

Marouska Douskou

10:45 11:00 *Basic CMR Protocol*

Theodoros Karamitsos

11:00 11:15 *Late Gadolinium Enhancement (LGE) for Myocardial Tissue Characterization*

Irini Velegraki

11:15 11:30 *CMR Parametric Mapping (T1/T2/ECV) for Myocardial Tissue Characterization*

Theodoros Karamitsos

11:30 11:45 Coffee Break

How We Do It: The Analysis

Moderators: Evangelia Nyktari, Dimitra Antonakaki, Eirini Velegraki, Vassilios Vassiliou, Theodoros Karamitsos, Maria Erato Zymatoura, Theodoros Efremidis

11:45 12:15 *CMR 42 post processing tools-Introduction of the software*

Anne Hui Sze Kwong

12:15 12:45 *CMR as an Imaging Gold Standard for Assessment of Cardiac Structure and Function- How to do measurements on CMR 42- showing live*

Theodoros Karamitsos

12:45 13:30 *Hands on: How to do measurements (small groups)*

LV and RV Contouring (6 cases)

2D flow analysis (6 cases)

All mentors on site

13:30 13:40 *T1/T2 /ECV analysis showing live*

Evangelia Nyktari

13:40 14:00 *Hands on: How to do measurements (small groups Of 6)*

T1/ T2/ ECV Analysis

All mentors on site

¹ *Have been invited

14:00 14:30 Lunch

How We Do It: The Reporting and Logbook

14:30 14:50 *CMR reporting – structured approach-results*

Evangelia Nyktari

14:50 15:50 *CMR reporting- every group of 4 present their dedicated case (a workflow scheme will be given)*

All mentors on site

Satellite Lecture (30 minutes)

16:00 16:30 *Scanning patients with Implantable Electronic Devices: When and how in AI era*

Evangelia Nyktari, Dimitris Verganelakis

16:30 16:45 *Q+A, closing remarks, feedback*

All mentors on site

DAY 2-Saturday September 20th 2025

Basic Physics

Moderator: Raad Mohiaddin

09:00 09:30 *Physics - Basic principles*

Dominik Gabbert

09:30 10:00 *Basic Physics for the Clinician- Image Formation and basic Pulses*

Vivek Muthurangu

10:00 10:30 *Recognizing and minimizing common CMR artifacts*

Dominik Gabbert

10:30 10:45 Coffee Break

10:45 11:00 *Welcome and Introduction to SCMR Advanced Workshop-How to get Certified in different levels of training*

Theodore Karamitsos, Evangelia Nyktari, Vassilios Vassiliou

Ischaemic Heart Disease

Moderator: Inga Voges/Eva Nyktari

11:00 11:20 *CMR in acute and chronic myocardial infarction-viability— Case-based training*
(reporting session of 4 cases)

Theodoros Karamitsos

11:20 11:30 *CMR in acute and chronic myocardial infarction-viability – key slides*

Theodoros Karamitsos

11:30 11:50 *MINOCA/INOCA Case-based training* (reporting session of 4 cases)

Evangelia Nyktari

11:50 12:00 *MINOCA/INOCA Key slides*

Evangelia Nyktari

12:00 12:20 *Assessment of myocardial ischemia with MRI– perfusion studies and pharmacological stress testing – Case-based training* (reporting session of 4 cases)

Theodora Zaglavara/Ioannis Palios

12:20 12:30 *Assessment of myocardial ischemia with MRI-key slides*

Theodora Zaglavara/Ioannis Palios

12:30 12:45 *Gender Difference in Response to Adenosine Stress Perfusion CMR*

Ioannis Palios

12:45 13:15 Lunch

Cardiomyopathies Moderators: Monika Radike/Dimitra Antonakaki

13:15 13:35 *Myocarditis case-based training* (reporting session of 4 cases)

Vassilios Vassiliou

13:35 13:45 *Myocarditis presentation- key slides*

Vassilios Vassiliou

13:45 14:05 *Infiltrative cardiomyopathies (amyloid, sarcoid, iron overload) case- based training* (reporting session of 4 cases)

Theodoros Karamitsos

14:05 14:15 *Infiltrative Cardiomyopathies-key slides*

Theodoros Karamitsos

14:15 14:35 *DCM /NDLV/ARVC case-based training* (reporting session of 4 cases)

Evangelia Nyktari

14:35 14:45 *DCM /NDLV/ARVC-key slides*

Evangelia Nyktari

14:45 15:00 Coffee Break

15:00 15:20 *Hypertrophic cardiomyopathy case-based training* (reporting session of 4 cases)

Dimitra Antonakaki

15:20 15:30: *HCM-key slides*

Dimitra Antonakaki

15:30 15:50 *Cardiomyopathies in children case-based training* (reporting session of 4 cases)

Sylvia Kuprichova

15:50 16:00 *Cardiomyopathies in children-key slides*

Sylvia Kuprichova

Quizzes Moderators: Vassilios Vassiliou, Evangelia Nyktari, Monica Radike, Inga Voges, Claudia Montanero

16:00 16:15 Quiz 1

16:15 16:30 Quiz 2

16:30 16:45 Quiz 3

16:45 17:00 Quiz 4

Prize: CMR textbook

17:00 17:15 Q+A, closing remarks, feedback

Vassilios Vassiliou, Evangelia Nyktari, Theodoros Karamitsos, Thomas Vrachliotis

DAY 3- Sunday September 21st, 2025

CMR in Vascular/Aortic cases and Tumors of the Heart

Moderator: Theodoros Karamitsos/Thomas Vrachliotis

09:00 09:20 *CMR of vascular pathology, including aortic disease-Case based training* (reporting session of 4 cases)

Raad Mohiaddin

9:20 09:30 *Key slides*

Raad Mohiaddin

09:30 10:00 *CMR for cardiac masses and tumours- Case based training* (reporting session of 6cases)

Raad Mohiaddin

10:00 10:10 *Key slides*

Raad Mohiaddin

10:10 10:30 *Pericardium and Extracardiac Findings Case-based training* (reporting session of 4 cases)

Monika Radike

10:30 10:40 *Key slides*

Monika Radike

10:40 11:00 *LGE Imaging: Present and Future. Safety in Children and Adults*

Vivek Muthurangu

11:00 11:15 Coffee Break

Flow analysis and Valve Disease

Moderator: Vivek Muthurangu

11:15 11:45 *CMR Phase Contrast/ Flow 2D and 4D flow analysis*

Vivek Muthurangu

11:45 12:15 *CMR in VHD- Case based training* (reporting session of 4 cases)

Vassilios Vassiliou

12:15 12:30 *Key slides*

Vassilios Vassiliou

Satellite Lecture (30 minutes)

12:30 13:00 *Gadobutrol: timing and dosage for optimal imaging and safety*

Theodora Zaglavara

13:00

13:30

Lunch

Congenital Heart Disease

Moderators: John Papagiannis, Maria Drakopoulou

13:30 13:50 *Congenital aortic /vascular cases- Case-based training* (reporting session of 4 cases)

Claudia Montanero

13:50 14:00 *Key slides*

Claudia Montanero

14:00 14:20 *CMR in shunts and most common simple lesions- Case-based training* (reporting session of 3 cases)

Vivek Muthurangu

14:20 14:30 *Key slides*

Vivek Muthurangu

14:30 14:50 *CMR in most common complex lesions- Case-based training* (reporting session of 2 cases)

Inga Voges

14:50 15:00 *Key slides*

Inga Voges

15:00 15:15 *CMR in children/ anaesthesia/simulation/challenges*

Sylvia Krupickova

15:15 15:45 *More Cases* (one each)

Vivek Muthurangu, Inga Voges, Claudia Montanero

15:45 16:00 Coffee Break

CMR in arrhythmia

Moderator: Michalis Efremidis

16:00 16:30 *CMR in planning EP procedures*

Konstantinos Letsas, Evangelia Nyktari

16:30 16:40 *Key slides*

Konstantinos Letsas

16:40 17:00 *Clinical case based MCQ*

Evangelia Nyktari, Dimitra Antonakaki, Monika Radike

17:00 17:10 *Safety in the MRI environment MCQ*

Dimitros Verganelakis

17:10 *Q+A, closing remarks, feedback and certificates*

All mentors on site

Course Material

Handouts of presentations

Recommended Reading

1. Myerson, S.G., Francis, J., & Neubauer S. (Eds), (2010). *Oxford Specialist Handbooks in Cardiology. Cardiovascular Magnetic Resonance*. Oxford University Press
2. Danias, P. G. (2008). *Cardiovascular MRI: 150 Multiple-Choice Questions and Answers*. Humana Press
3. Varghese A., Pennell, D.J., (2007). *Cardiovascular Magnetic Resonance Made Easy*. Churchill Livingstone Elsevier
4. Syed, M.A., Mohiaddin, R.H. (Eds), (2012). *Magnetic Resonance Imaging of Congenital Disease*. Springer
5. Vassiliou, V.S., Cameron, D., Prasad, S.K., Gatehouse, P.D. (2018). *Review paper: Magnetic Resonance Imaging: Physics basics for the cardiologist*.

Useful links

- <https://scmr.org/>
- <https://www.escardio.org/Guidelines/Recommended-Reading/Cardiovascular-Imaging/CMR>

Faculty members

Antonakaki Dimitra, MD, Consultant-Cardiologist, Inherited Cardiac Conditions, CV Imaging & Sports Cardiology, CMR Unit Consultant, Onassis Hospital, Athens, Greece

Douskou Marousa, MD, Consultant Radiologist, Liverpool Heart and Chest NHS Foundation Trust, Liverpool, UK

Drakopoulou Maria, MD, PhD, FESC, Consultant Cardiologist, Structural Heart Disease and Adult Congenital Heart Disease, 1st University Department of Cardiology, Hippokration General Hospital, Athens, Greece

Efremidis Michalis, MD, Cardiologist, Coordinator Director, Cardiology Department, Director, Cardiac Electrophysiology Unit, Onassis Hospital, Athens, Greece

Efremidis Theodoros, MD, Cardiology Resident, CMR Fellow, Onassis Hospital, Athens, Greece

Gabbert Dominik, MR Physicist, University Hospital Schleswig-Holstein, Campus Kiel, Germany

Karamitsos Theodoros, MD, Professor of Cardiology, Aristotle University of Thessaloniki, Thessaloniki, Greece

Kuprickova Sylvia, MD, Consultant, Paediatric Cardiology and Lead in Paediatric Cardiovascular Magnetic Resonance, Royal Brompton NHS Foundation Trust, London, UK

Kwong Anne Hui Sze, Eng (FR), Clinical Applications Specialist-EMEA/LATAM, Circle Cardiovascular Imaging

Letsas Konstantinos, MD, Deputy Director, Cardiac Electrophysiology Unit, Onassis Hospital, Athens, Greece

Mohiaddin Raad, MD, Professor of Cardiovascular Imaging at the National Heart and Lung Institute Imperial College London and Royal Brompton Hospital, London, UK

Montanaro Claudia, Consultant Cardiologist, Lead of Adult Congenital Heart Disease, Bambino Gesù Hospital, Rome, Italy

Muthurangu Vivek, MD, Professor of Cardiovascular Imaging and Physics at UCL ICS, Head of the Research Department, Children's Cardiovascular Disease at Great Ormond Street Hospital (GOSH), London, UK

Nyktari Evangelia, M.D, Deputy Director, CMR Unit Adult Scientific Supervisor, Onassis Hospital, Athens, Greece

Palios Ioannis, M.D., Cardiologist, Head, Heart MRI Department, Metropolitan Hospital, Chair, Working Group Cardiovascular Imaging, Hellenic Society of Cardiology, Athens, Greece

Radike Monika, MD, Consultant Cardiothoracic Radiologist and Clinical Tutor, Liverpool Heart and Chest NHS Foundation Trust, Liverpool, UK

Rozos Panagiotis, Senior Cardiac MRI radiographer, CMR Unit, Onassis Hospital

Vassiliou Vassilios, MD, Professor in Cardiac Medicine, University of East Anglia, Norwich, UK

Velegraki Irini, MD, Consultant Cardiologist, Specialized in Advanced Cardiac Imaging, Hygeia Hospital

Verganelakis Dimitris, Ph.D., Physicist, Department of Radiology, Onassis Hospital, Athens, Greece

Voges Inga, M.D, Professor of Congenital Heart Disease and Pediatric Cardiology, Kiel University Kiel, Germany

Vrachliotis Thomas G., MD, Director, Department of Radiology, Onassis Hospital, Athens, Greece

Zaglavara Theodora, MD, PhD, Deputy Chair, Hellenic CMR working group, European Interbalkan Medical Center, Thessaloniki, Greece

Zarkadoulas Spyridon, Senior Cardiac MRI radiographer, CMR Unit, Onassis Hospital, Athens, Greece

Zymatoura Maria Erato, MD, Cardiology Resident, CMR Fellow, Onassis Hospital, Athens, Greece