

**Coronary arterial and microvascular fluid-structure interactions:
Evolving concepts and investigative approaches**

**National Heart and Lung Institute,
Guy Scadding Building, Dovehouse Street, London SW3 6LY**

17 September 2012

Symposium Coordinator

Dr. Philip Kilner, Royal Brompton Hospital and Imperial College, London, UK



ERCOFTAC, a leader in applied fluid mechanics, is proud to announce a one day symposium on

Coronary arterial and microvascular fluid-structure interactions:

Evolving concepts and investigative approaches

This one day symposium is intended for cardiologists and trainees interested in the investigation and management of coronary vascular disease, and for scientists in related biomedical fields.

The aims will be:

To consider the current investigative and management approaches to coronary artery disease.

To illustrate the dynamic interactions between coronary blood flow, arterial boundaries, myocardial tissue dynamics and spatio-temporal pressure variations.

To consider how these can be altered in coronary artery and myocardial disease.

To apply understanding of these principles to the pathophysiology of coronary disease with a view to achieving more appropriate interventions based on novel investigative approaches.

To consider the evolving investigative approaches of non-invasive cardiovascular magnetic resonance (CMR), invasive coronary optical coherence tomography and high fidelity pressure wire measurements of the adenosine independent instantaneous wave-free ratio (iFR).

The meeting includes presentations and discussions on two important recent studies on:

Adenosine-independent evaluation of coronary stenoses: <http://www.ncbi.nlm.nih.gov/pubmed/22154731>

The assessment of myocardial perfusion by CMR: <http://www.ncbi.nlm.nih.gov/pubmed/22196944>

Each could be considered potentially game-changing, but controversial. The symposium offers opportunities to hear from and question the leading authors of these studies.

Lecturers

Dr Justin E Davies, National Heart and Lung Institute, Imperial College, London, UK
Dr Javier Escaned, Cardiovascular Institute, Hospital Clínico San Carlos, Madrid, Spain
Dr Ricardo Petraco, National Heart and Lung Institute, Imperial College, London, UK
Professor Yun Xu, Department of Chemical Engineering, Imperial College, London, UK
Professor Kim Parker, Department of Bioengineering, Imperial College, London, UK
Dr Philip Kilner, Royal Brompton Hospital and Imperial College, London, UK
Dr Christian Poelma, Delft University of Technology, the Netherlands
Dr Eliana Reyes, Royal Brompton Hospital and Imperial College, London, UK
Dr Sven Plein, Multidisciplinary Cardiovascular Research Centre, University of Leeds, UK
Dr Sayan Sen, National Heart and Lung Institute, Imperial College, London, UK
Dr Ranil De Silva, National Heart and Lung Institute, Imperial College, London, UK

Monday 17th September 2012

8:30 Registration and coffee

9.00	Introductory remarks	Dr R. Seoud and Dr P. Kilner
9.15	Coronary artery disease investigation and management: overview	Dr R De Silva
9.45	Angiography versus functional flow reserve: Introduction	Dr J. Davies and Dr S. Sen
9.55	Experimental work:	Dr R. Petraco
10.15	Fluid dynamic analysis:	Prof. Y. Xu
10.30	Questions and panel discussion	Chair: Dr P. Kilner
10.45	Refreshments	
11.15	Arterial wave intensity analysis and coronary flow	Prof. K. Parker
11.40	The dynamic structure of the myocardium	Dr P. Kilner
12.00	Measuring adenosine-independent flow reserve (iFR)	Dr J. Davies
12.40	Questions and panel discussion	Chair: Dr J Escaned
1.00	Lunch	
2.00	Myocardial perfusion and diffusion dynamics	Dr C. Poelma
2.20	Methods for evaluating myocardial viability and perfusion	Dr E. Reyes
2.50	Viability and perfusion by Cardiovascular Magnetic Resonance	Dr S. Plein
3.30	Refreshments	
4.00	Towards a comprehensive assessment of the coronary circulation	Dr J. Escaned
4.30	Questions and panel discussion	Chair: Dr R. De Silva
5.00	Close	

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