Inserm U1253 Imaging and Brain

Lundi 28 Novembre 2022l 11H à 12H

Faculté Médecine, Salle Conférence 1

Dr Alberto Marzo

Le Studium visiting researcher, University of Sheffield - UK

« Blood flow modelling and clinical applications »

Neurological and cardiovascular diseases are the leading cause of death globally. The use of computer models to simulate the functioning of the human body is viewed increasingly as one of the most promising tools to embrace and better understand the complexity of human pathophysiology, and therefore improve prevention, diagnosis, and treatment of human disease. A significant motivating factor for deployment of biomedical codes in clinical management of cardiovascular disease is the development of human digital twins. Such models would allow personalized guidance for healthcare, disease diagnosis and treatment, and wellbeing for specific individuals. The talk will focus on characterization of blood flows using modelling as well as imaging tools (e.g., ultrasound) and its links to vessel wall mechanics and cardiovascular disease. This is an area that sees participation and expertise from different fields including vascular biology, fluid mechanics, computer science, medicine for translation into healthcare.

Biosketch:

Alberto Marzo is Associate Professor in Cardiovascular Biomechanics at the Department of Mechanical Engineering, University of Sheffield, UK. He has a five-year degree in Mechanical Engineering from the University of Cagliari, Italy, and a PhD from the University of Sheffield. In the early stages of his PhD he was awarded the David Crighton Fellowship, and spent one year of his doctoral studies at the Department of Applied Mathematics and Theoretical Physics of the University of Cambridge. He has participated in several EU and UK projects, focusing on vascular flow characterisation and development of computational frameworks aimed at improving prevention, diagnosis, and treatment of vascular disease. His expertise has a strong focus on clinical interpretation and translation, spending time as a Clinical Scientist for the UK National Health Service to support technology development, dissemination, and adoption, for people with long-term disabilities. He is now in Tours as part of Le Studium Programme, and in collaboration with the iBrain research unit, is using blood flow models to understand the causes behind post-intervention complications that arise when treating intracranial aneurysms with flow-diverter stents.

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