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Ottawa Section

IEEE 125th EMBS Seminar Series

Modeling in cardiovascular mechanics

Dr. Michel Labrosse

Associate Professor, Department of Mechanical Engineering and Division of Cardiac Surgery, Heart Institute, University of Ottawa

The analogy between the heart and a pump is well known, but is not where our mechanical insight into the cardiovascular system should stop. Indeed, shape, mechanical properties and function are strongly inter-related, often reflecting the evolution between health and pathological conditions. The talk will present recent and on-going research topics addressed by the speaker and his team. Theoretical and experimental aspects of mechanical modeling at both the organ and cellular levels will be considered as follows. Firstly, the mechanical role of aortic root movement in the development of aortic dissection will be clarified. Secondly, a geometric analysis of the aortic valve will point to ways to possibly improve reparative surgeries of the aortic valve. Next, more fundamental aspects of cardiovascular tissue characterization will be discussed in the context of the finite element analysis of the aortic valve dynamics. Finally, a novel mechanical model for the micropipette aspiration of platelets will be presented which allows for the evaluation of the platelet membrane elasticity and strength.

Wed Sept 15, 2010

admission is free

18:00 – 19:30 pm
ME-3328
Carleton University

Light refreshment will be served

Dr. Labrosse obtained a Diplôme d'Ingénieur from the École Centrale de Nantes, France, in 1993, with a specialization in structural engineering, and earned a PhD in Mechanical Engineering from the same institution in 1998. He then went to the USA and worked for 6 years as a researcher in a Biomedical Engineering laboratory specialized in Cardiovascular Mechanics. Dr. Labrosse arrived in Canada and joined the University of Ottawa in January 2005. He is the director of the Ottawa-Carleton Institute for Biomedical Engineering.

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