



UNIVERSITÀ
DI PAVIA

Esame finale di dottorato in

Ingegneria Civile e Architettura (ciclo XXXI)

Curriculum:

“Meccanica Computazionale e Materiali Avanzati” e “Strutture”

11 Febbraio 2019

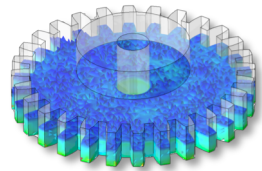
Aula Scarpa, Università degli Studi di Pavia

Ore 9:30

Alberto Cattenone

Analysis and simulation of additive manufacturing processes

Powder Bed Fusion (PBF) and Fused Deposition Modeling (FDM) are two of the most diffused Additive manufacturing (AM) technologies. In this thesis we have developed numerical tools to evaluate residual stresses and deformations during the production process. The results have been validated through the comparison with experimental tests.

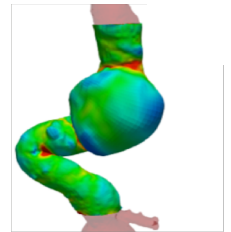


Ore 10:10

Margherita Coda

Advanced patient-specific modeling and analysis of complex aortic structures by means of Isogeometric Analysis

The goal of the thesis is the creation of a set of computational tools based on Isogeometric Analysis (IgA) to provide support and "predictive medicine" to vascular surgeons during the pre-operative planning phase. The main area of interest is the establishment of healthy and pathologic thoracic aorta, with a focus on stent devices both for TEVAR (Thoracic Endovascular Aortic Repair) and for CAS (Carotid Artery Stenting).

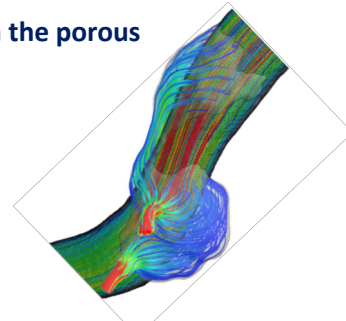


Ore 10:50

Marco Fedele

Modeling and patient-specific simulation of the fluid-dynamics through the porous Multilayer Flow Modulator (MFM) stent in aortic aneurysm

In the treatment of aortic aneurysm, the porous MFM stent acts in a completely different manner compared to standard covered stents. The aim of the thesis is to propose a modeling framework able to perform patient-specific hemodynamic simulations of the implanted MFM, giving a different perspective of the follow-up analysis and guiding faster clinical decisions.

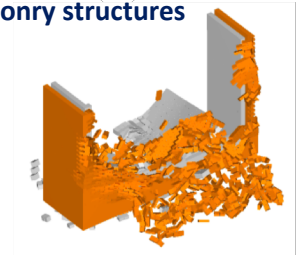


Ore 11:30

Daniele Malomo

Discrete Element models for the seismic assessment of unreinforced masonry structures

Representing explicitly damage propagation and collapse modes of unreinforced masonry assemblies subjected to earthquake loading is still an open challenge. This research aims at enhancing and developing discontinuum-based modelling strategies, whose adequacy is evaluated through comparison with several static and dynamic full-scale test outcomes.



Ore 12:10

Umberto Tomassetti

Tools and strategies for combined local and global seismic vulnerability assessment of URM structures

This dissertation in its entirety attempts to take a step forward in the development of robust yet light computational models calibrated with full scale dynamic tests and capable of assessing simultaneously the performance of URM structures both globally and locally.



Membri della Commissione:

E. Sacco (Federico II), G. de Felice (Roma Tre), C. Chiastra (PoliTo)

Esperto invitato:

R.L. Taylor (UC Berkeley)