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Seminar 11:00 A.M.

CRS4 - BUILDING 1 - ROOM D130

Loc. Piscina Manna - 09010 Pula (CA)-Italy



Multiscale Modelling of Biological Materials and Bioartificial Systems

Speaker
Marco Deriu
Politecnico di Torino

Recent research on biological materials and bioartificial systems has created one of the most dynamic field at the confluence of physical sciences, molecular engineering, cell biology, materials sciences, biotechnology and (nano)medicine.

This field concerns better understanding of living systems, design of bio-inspired materials, synthesis of bioartificial technologies with new properties depending on their multi-scale architectures. Biological and man-made systems show the first level of organization at the nanoscale, where the fundamental properties and functions are settled. The nanoscale properties reflect on larger scales: mesoscale, microscale, continuum level, etc.

To get insights into the progressive cascade effects across scales -from molecular to macroscale level and from nanoseconds to life expectancy duration- multi-scale/multiphysics models are required, dealing with inorganic, biological and hybrid matter.

The definition of the interactions between artificial and biological components needs to incorporate the "time" variable, in order to reproduce the evolution of the overall system, and to simulate complex phenomena such as biodegradation and tissue remodelling.

Contacts

Giacomo Cao

e-mail: cao@crs4.it