



סמינר - SEMINAR

הנך מוזמנת/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות, שתתקיים ביום ג' 8.11.16 (ז' בחשוון, תשע"ז), בבניין דן-קאהן, קומה 0, אודיטוריום 1, 13:00.

ירצה:

Prof. M. Domingos

School of Mechanical Aerospace and Civil Engineering (MACE)
at the University of Manchester, UK

על הנושא:

3D Bioprinting of cells and tissue analogues

להלן תקציר ההרצאה:

The most common strategy in bone Tissue Engineering (TE) comprises the use of 3D scaffolds in combination with human cells and biological molecules to promote guided bone regeneration. The success of this strategy is strongly dependent on the ability of the 3D engineered scaffolds to mimic the native biomechanical environment enabling cells to adhere, proliferate and differentiate. The essential requirements for these 3D structures have evolved during the years, and nowadays they are no longer expected to act only as passive structural matrices capable of supporting cell adhesion/proliferation but also to act as 3D carriers for the delivery of bioactive molecules to enhance tissue regeneration. In this context, the introduction of Biomanufacturing techniques have allowed for the automated production of highly reproducible 3D matrices with well designed internal/external geometries and spatial definition of functional gradients. Despite the great success and increasing importance of these techniques in the field of TE, there are still some issues that need to be properly addressed. This lecture aims to provide a clear overview of the manufacturing techniques, strategies and biomaterials currently used in skeletal tissue engineering as well as to discuss innovative routes in terms of bioprinting of cell-laden constructs with augmented cell-matrix interactions that can ultimately lead to neo tissue formation.

Dr. Domingos is a Lecturer in Advanced Manufacturing at the School of Mechanical Aerospace and Civil Engineering (MACE) at the University of Manchester. At the University of Manchester, Marco Domingos is PI at the Manchester Institute of Biotechnology, Head of the Design and Manufacturing Teaching group and Deputy Programme Director for Mechanical Engineering. He holds PhD Cum Laude in Mechanical Engineering (2013), awarded by the University of Girona, Spain, with a thesis on "Mechanical and Biological Characterization of scaffolds produced with Biocell Printing" and a first degree (5 years) in Mechanical Engineering from the Polytechnic Institute of Leiria (Portugal). In 2008 he was awarded with a research grant from the Italian Government for research in polymeric materials for industrial and biomedical applications. In 2010 he joined the Centre for Rapid and Sustainable Product Development (CDRSP, Portugal) as an Assistant Researcher. In 2014 he was awarded by the University of Girona with the prize for best PhD thesis in Production Technologies. Since January 2015 he is honorary member of the Italian Society of Biomechanics in Orthopedics and Traumatology (SIBOT). He is currently Visiting Researcher at the Institute of Composite and Biomedical Materials, University of Naples, Italy. Since 2010, he has been engaged in more than 20 research projects funded by the Portuguese Foundation for Science and Technology, the Portuguese Agency for Innovation, European Commission, MRC (UK) and the Industry. The global funding of these projects is higher than 20 Million Euros. Marco Domingos has authored or co-authored more than 60 publications, including international journals, books and book chapters, gave more than 30 lectures in national and international conferences and serves as advisory board member for several international conferences and journals.

בברכה,

פרופ' אורי איתן

מרכז הסמינרים

המארח: פרופ' דניאל ריטל