



DOTTORATO DI RICERCA IN INGEGNERIA INDUSTRIALE

PhD Course on

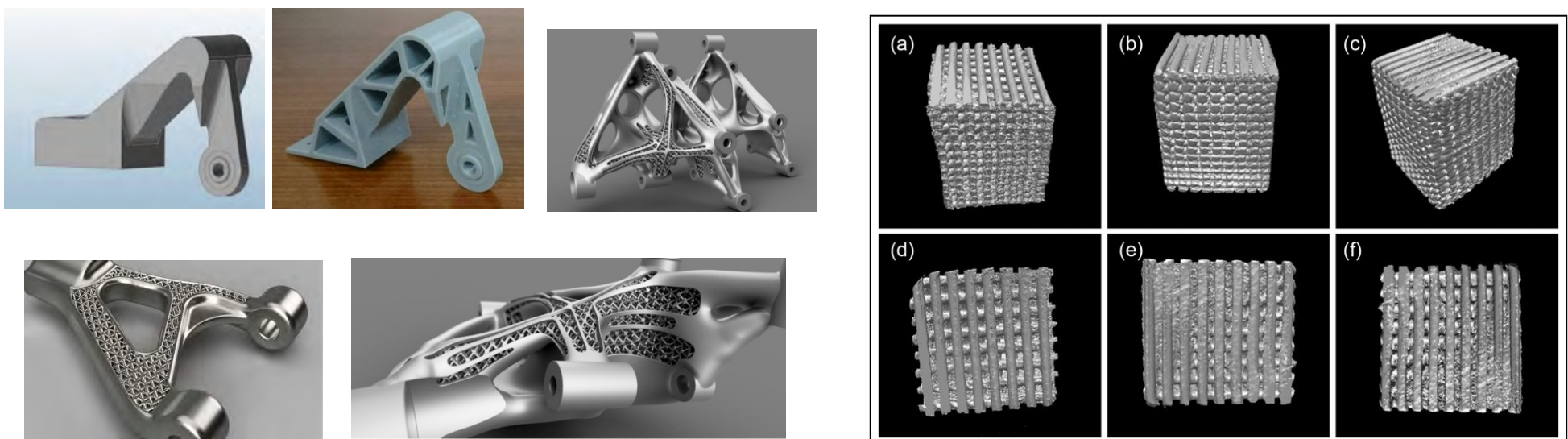
DESIGN OF 3D ADDITIVE MANUFACTURED STRUCTURES WITH TAILORED PROPERTIES

Prof. Marco Andre Neves Domingos

Senior Lecturer in Advanced Manufacturing at the School of Mechanical,
Aerospace and Civil Engineering, University of Manchester, UK

October 24th – 26th, 2018 – Time: 9:00 – 13:00

Fraunhofer JL IDEAS - School of Engineering and Basic Sciences – P.le V. Tecchio 80



Course Contents

Even though many attempts have been made to define the “Design for Additive Manufacturing” (DfAM), it has been widely used in the literature. Different levels of abstraction have been considered to define DfAM. In particular, at the highest level DfAM may be seen as the exploration of the relationship between manufacturing and design, as well as of its impact on the design practice, designer and design process.

On the other hand, Additive Manufacturing technologies allow the direct fabrication of lightweight structures with tailored properties. In the course the applicability of topologically optimized structures and of lattice structures in different field of applications (industrial, biomedical, etc.) will be discuss with a special focus on the design and fabrication of scaffolds for tissue regeneration. With regard to tissue engineering, lattices may be properly optimized for cell attachment and growth, as well as in terms of biocompatibility, degradation, bioresorbability, mass transport and mechanical properties.

Speaker:



Senior Lecturer in Advanced Manufacturing at the School of Mechanical, Aerospace and Civil Engineering, University of Manchester, UK

Roles within the University of Manchester:

- Champion for Additive Manufacturing and Bioprinting at the Henry Royce Insitute for Advanced Materials.
- Deputy Programme Director for Mechanical Engineering at the School of MACE, University of Manchester.
- MECD responsible for Polymer Processing Laboratory at the School of MACE, University of Manchester.
- Head of the Design and Manufacturing Teaching group at the School of MACE, University of Manchester.

Course Organizers:

Prof. Antonio Lanzotti
Director of Fraunhofer JL IDEAS
University of Naples Federico II
Department of Industrial Engineering
e-mail: antonio.lanzotti@unina.it

Prof. Massimo Martorelli
Scientific Responsible of CREAMI Lab
University of Naples Federico II
Department of Industrial Engineering
e-mail: massimo.martorelli@unina.it

Prof. Antonio Gloria
Member of JL IDEAS Scientific Advisory Board
Institute of Polymers, Composites and Biomaterials
National Research Council of Italy
e-mail: antonio.gloria@cnr.it