

Keynote Speech 2

The Magic World of 3D Printing

Ferdinando Auricchio

University of Pavia, Italy

Wednesday, 20 September 2017, 10:00-10:30

Abstract – Additive manufacturing (AM), also known as 3D printing, is a disruptive technology spreading in many different fields, changing design, distribution chains and economical paradigms. Born as a prototyping technology, additive manufacturing started to spread also as a production technology, thanks to the great evolution that materials and technologies knew in the last few years. Additive manufacturing applications cover nowadays various sectors from education to architecture, from mechanics to food industry and the whole value chain from prototypes to spare part management. Applications in medicine are booming, including customized implants, prosthetics, medical models and medical devices that revolutionize healthcare and may even disrupt many areas of traditional medicine. More recently, also microwaves field started to benefit from additive manufacturing technologies for the production of components and systems with unprecedented flexibility, paving the way to a completely new design scenario.

Some applications are extremely surprisingly: for example, NASA sent a 3D printer up to the space station to allow astronauts to build tools rather than have to launch them into space and it is also funding research into 3D-printed food. The next step would be to feed astronauts, delivering a 3D printer able to print food!



Ferdinando Auricchio - After a Bachelor degree in Civil Engineering (University of Napoli, Italy) and a Ph.D. at the University of California at Berkeley, USA, since 2001 Ferdinando Auricchio is professor of Solids and Structural Mechanics at the University of Pavia, Italy, where he started to develop strong collaborations with the Department of Mathematics (being also a Research Associate at IMATI-CNR Pavia) and with several medical institutions.

He received the Euler Medal by ECCOMAS (European Community of Computational Methods in Applied Sciences) and he is Fellow Award by IACM (International Association for Computational Mechanics). Since 2013 he is Vice-President of ECCOMAS (European Community of Computational Methods in Applied Sciences).

Major research interests are the development of numerical schemes (in particular, finite element methods, both for solids and fluids, with a particular attention to innovative materials), the development of simulation tools to support medical decision (in particular, for cardiovascular applications), and more recently everything that is related to additive manufacturing. In fact, he has organized a 3D-printing lab, exploring new materials, new printing technologies, new uses of 3D printing, ranging from civil engineering 3D printed concrete beams to bio-manufacturing.