

**TMElab Invited lecture**  
**October 07, 2022 at 09:30**

**Title of the lecture:**

## **Microelectromechanical organ-on-chip devices and platforms**

**Abstract:** Stemming from the convergence of tissue engineering, microfluidics and microfabrication, organ-on-chip (OoC) technology can reproduce in vivo-like dynamic microphysiological environments for tissues in vitro. The possibility of realistic recapitulation of tissue and organ (patho)physiology in OoC devices may hold the key to bridge the current translational gap in drug development, and foster personalized medicine.

In this talk I will underline the biotechnological convergence at the root of OoC technology, and outline research tracks under development in my group at TU Delft along two main directions: fabrication of innovative microelectromechanical OoC devices, integrating stimulation and sensing of tissue activity, and their embedding within advanced for pre-clinical research. I will conclude with remarks on the role of open technology platforms for the brplatformsoader establishment of OoC technology in pre-clinical research and drug development.

**Speaker: Dr. Massimo Mastrangeli**

**Affiliation and CV Summary :**

Assistant Professor, Electronic Components, Technology and Materials, Department of Microelectronics, Delft University of Technology.

**Biosketch.** Massimo Mastrangeli is tenured Assistant Professor at TU Delft's Electronic Components, Technology and Materials laboratory, where he is developing innovative silicon/polymer-based organ-on-chip devices and advanced chip interconnect and packaging technology. Prior to joining TU Delft, Dr. Mastrangeli held research appointments at the Max Planck Institute for Intelligent Systems (Stuttgart, Germany) for soft small-scale robotics and self-assembly of granular matter, at Université Libre de Bruxelles (ULB, Belgium) for micromechanics and capillary micromanipulation, at École Polytechnique Fédérale de Lausanne (EPFL, Switzerland) for micro/nanofabrication and distributed robotics, and at imec Belgium (Leuven, Belgium) for fluidic microsystems integration and microelectronic packaging. Dr. Mastrangeli holds a B.Sc. and M.Sc. degree (both cum laude) in Electronic Engineering from University of Pisa (Italy) and a Ph.D. degree in Materials Engineering from University of Leuven (Belgium).

**Organizers:** Grupo de Investigación **TISSUE MICROENVIRONMENT LAB (TME LAB)**. Instituto de Investigación Sanitaria Aragón (IIS Aragón), I3A Universidad de Zaragoza, CIBER-BBN

**VENUE:** I3A Seminar, R&D building 2nd floor. Rio Ebro Campus, Mariano Esquilor s.n street