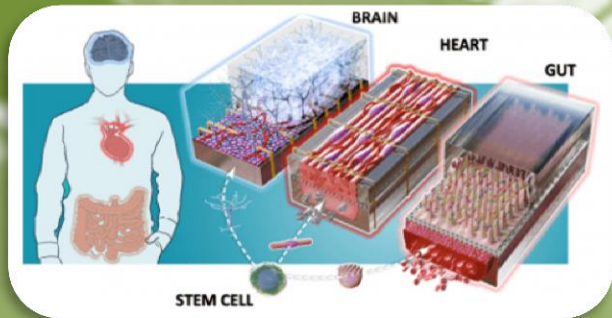


Electronic Components, Technology and Materials (ECTM)
Department of Microelectronics, Delft University of Technology

**Open PhD student positions in
Si/polymer-based Organs-on-Chip technology**

Within the Netherlands Organ-on-Chip Initiative (NOCI) funded by NWO, the ECTM lab of TU Delft is currently looking for enthusiastic and motivated PhD students to investigate & develop novel wafer-scale microfabrication technologies for advanced silicon- & polymer-based Organs-on-Chip (OOC) platforms.



OOC systems are microfluidic cell culture devices that emulate *in vivo*-like microenvironments to support the expression of properties and functions of human tissues and organs. Compared to existing *in vitro* cell cultures, such microphysiological systems represent more realistic models that should enhance pre-clinical screening of the effect of drugs and other compounds on the human body. The Cytostretch previously developed at TU Delft is an optically- and electrically-addressable platform where cell tissues can be grown, perfused with nutrients and subjected to mechanical stresses. Our grand, multi-disciplinary challenge is building on top of the knowledge and expertise matured through the Cytostretch, and going beyond it by devising novel integrated sensing, actuation and readout devices to stimulate and monitor organ properties in wafer-scale microfabricated platforms.

The research will eminently entail the technological development and integration of:

1. 2D/3D Si/polymer structures and surface treatments to promote cell organization
2. Multiple sensor types to on-line monitor tissues & microenvironmental conditions
3. Electronic readout and peripheral circuitry to extract relevant physiological signals
4. Alternative cell motion and stimulation mechanisms (e.g., electric, magnetic)
5. Optimized flow/structure interactions

Candidates with strong interest and experience in micro/nanofabrication, material engineering and bioengineering are encouraged to apply or enquire by contacting Prof. Sarro (p.m.sarro@tudelft.nl) and Dr. Mastrangeli (m.mastrangeli@tudelft.nl).

A master degree in electronic or biomedical engineering, material science or related fields is required to apply for these positions.

Applications should include the candidate's curriculum vitae, motivation letter and list of potential references.