

Faculty Club - February 25, 2022

12:00 - 1:30 pm, Virtual lecture (45 min) with detailed discussion

Prof. Laura De Laporte, RWTH Aachen University

Growing functional tissue – providing the right architecture to drive cells

The field of tissue engineering emerged about 25 years ago with the aim to grow tissues by combining biomaterials, cells, and bioactive factors. This technology can be employed as regenerative treatment inside the body after disease or injury, or to create ex vivo human tissue models to study pathologies and test drugs. However, scientists are still struggling to grow functional complex tissues due to many open questions about which biochemical, mechanical, and physical cues are required at which time points during the healing process or during cell culture. To elucidate and control these processes, synthetic materials can be designed and produced to form 3D scaffolds with variable pre-programmed, interactive, responsive and dynamic properties. We focus on injectable systems, which can be administered into sensitive tissues in a low invasive manner, or could be pipetted in an automated manner to build high-throughput screening platforms. To generate novel macroporous, aligned, and actuating 3D architectures, we replace polymer molecules with smart anisometric microgels that are 1,000 to 100,000 times larger, changing the way of making soft hydrogels for tissue engineering.



Laura De Laporte is a Chemical Engineer from the University of Ghent (Belgium), where she got the tissue engineering microbe. To follow her dream, she did her PhD with Prof. Lonnie Shea at Northwestern University (Evanston, US) and engineered guiding implants for nerve regeneration. At EPFL (Lausanne, Switzerland), she learned about regenerative hydrogels in Prof. Jeffrey Hubbell's group during her post-doctoral research. From 2013 to 2018, Laura De Laporte led a junior group at the DWI - Leibniz Institute and was awarded a Starting Grant from the European Research Council in 2015. In October 2017, she finished her Habilitation in the Chemistry Department of the RWTH and has been an associate professor in the same department with an additional affiliation to the University Hospital in Aachen since December 2020. In 2018, she was one of five excellent female researchers who have received funding from the Leibniz Programme for female Professors.

Registration

Please send an informal e-mail to facultyclub@ers.rwth-aachen.de by Thursday, February 24, 2022.

The lecture with subsequent discussion will be held via zoom conference.