

Lecture and Workshop

Cristian Piciooreanu

Delft University of Technology

“The IP Sustainable Biotechnology and Bioeconomy is very grateful that Cristian as a world leading expert in the area of biofilm modelling agreed to visit the UFZ for a lecture and also to run a workshop. I am convinced we will greatly benefit from his visit and I am cordially inviting all interested colleagues to join.”

PD Dr. Falk Harnisch - Host

Lecture

27 September 2018, 9:00 am,
UFZ Leipzig, KUBUS

From micro to macro and from single species to communities: linking science and engineering of biofilms by modelling

After a brief introduction into the mathematical modelling of biofilms the presentation will be centered around micro-scale numerical models for the development of spatial patterns in microbial communities. It will show on selected examples how fundamental laws of physics and chemistry in combination with an individual-based representation of microorganisms can reveal insights into biofilms processes and allow to deduce guidelines for biofilm based environmental technologies.

Workshop (registration required)

27 September 2018, 10:30 am - 4:00 pm &
28 September 2018, 9:00 am - 1:00 pm
UFZ Leipzig

Modelling using the software COMSOL-multiphysics

Aim of the workshop is to give an insight in modelling using the software COMSOL-multiphysics with a special focus on biotechnology, especially biofilms. Principles introduced in the lecture will be elaborated with selected examples. There will be room for addressing "challenges" brought by the participants.

For participation basic knowledge on COMSOL-multiphysics is desirable and knowledge on (biofilm) microbiology as well as basics in physics and chemistry are essential.

Link to registration: <http://www.ufz.de/index.php?en=44403>

Cristian Picioreanu



Cristian Picioreanu's research focuses on the numerical modelling of complex interactions between physical, chemical and biological processes starting from first principles and by applying engineering and computational methods. He is one of the world leading experts in the area of biofilm modeling and he is also one of the most well-known and well perceived teachers on numerical modelling in this area. Thereby he promotes a rigorous, systematic and quantitative approach, rather than using empirical, descriptive or rule-of-thumb methodologies. He is particularly fascinated by solving practical problems from life science, chemical and biochemical engineering by using multidisciplinary approaches.

Cristian Picioreanu received his master's degree as a chemical engineer at the University of Bucharest. He went on to the Delft University of Technology, where he developed his doctoral thesis on the multidimensional modelling of biofilm structures. He continued to work in Delft where he currently is Associate Professor in the Department of Biotechnology. Cristian Picioreanu is a dedicated teacher with regular contributions in environmental biotechnology, microbial community engineering and in several international postgraduate courses. In 2017, he received the "Teacher of the Year" award in the category Life Science and Technology at the TU Delft.