Organization

The following partners contribute to the organization of the course.

Prof. Harald Horn (KIT, DVGW)
✎ horn@kit.edu

Dr. Michael Wagner (KIT)
✎ michael.wagner@kit.edu

KIT Karlsruhe Institute of Technology
DVGW

Dr. Thomas R. Neu (UFZ)
✎ thomas.neu@ufz.de

HELMHOLTZ CENTRE FOR ENVIRONMENTAL RESEARCH – UFZ

Dr. Cristian Picioreanu (TU Delft)
✎ c.picioreanu@tudelft.nl

TUDelft Technische Universiteit Delft

Prof. Michael Kühl
(University Copenhagen)
✎ mkuhl@bio.ku.dk

UNIVERSITY OF COPENHAGEN

Registration Details

Send your application including your CV and a motivation letter (max. 1/2 page) as a single PDF to:

advancedbiofilmcourse@gmail.com

Application deadline: July 31st, 2016

Confirmation of
acceptance: August 31st, 2016

To provide high-value lessons, the number of participants is limited to twelve.
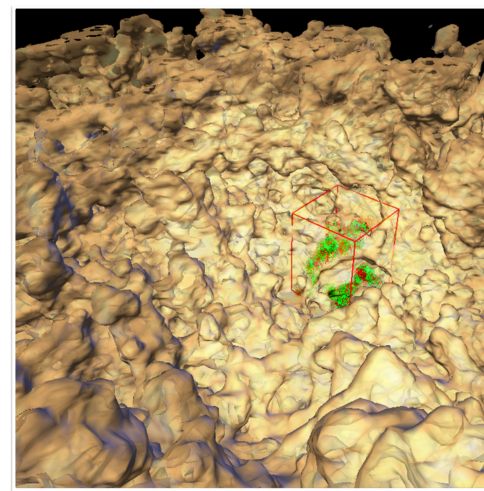
Fee

The course fee is 600 € and includes course materials as well as coffee, tea and lunch breaks. Fee also includes taxes.

follow us on Google+

11th
Advanced Biofilm Course

October 2016
10th - 15th

Engler-Bunte-Institut
Water Chemistry and Water Technology

Karlsruhe, GERMANY

Welcome Note

In 2005 the idea came up to offer a course with theoretical and practical basics in biofilm research comprising an innovative approach. Last year the 10th ABC was held in Delft and as successful as the previous courses.

The aim of the course is to explore a given biofilm with advanced methods to gain information about the structure and function. This included microsensor measurements, fluorescence and confocal laser scanning microscopy as well as biofilm modeling. As optical coherence tomography is an emerging imaging technique for biofilms, the Advanced Biofilm Course 2016 will introduce this method to explore the mesoscale of biofilms.

The course is intended for PhD students and Post-doctoral researchers in microbiology, environmental technology, bioengineering and related areas, who are going to apply the presented tools for characterizing of their own microbial biofilms.

The course is a hands-on course. Attendees should feel free to communicate to the organizers whether their personal samples could be analyzed or not.

Please bring your own computer (windows operating system) for use in the modeling session.

Scope and Key Issues

The course aims to teach the basics of biofilm as well as the major tools used in biofilm research:

► biofilm growth and composition
► biofilm imaging at the micro- and mesoscale
► microelectrode technique
► mathematical modeling

Topics in Detail

Cultivation of Biofilms

► growth devices and reactors
► processes (e.g. substrate metabolism)
► development (e.g. growth and decay)

Microsensors

► substrate gradients, diffusion and kinetics
► theoretical and practical aspects of micro-environmental analyses

Biofilm Imaging

► microscopic imaging, fluorescence microscopy
► theory and application of optical sectioning at the *microscale* by means of confocal laser scanning microscopy (CLSM)
► theory and application of optical sectioning at the *mesoscale* by means of optical coherence tomography (OCT)

Digital Image Analysis and Quantification of CLSM and OCT Data Sets

Theory and Practice of Biofilm Modeling

► biofilm modeling principles, building blocks and applications
► computer practicals with 1-d, 2-d and 3-d models (COMSOL Multiphysics)

Location

Engler-Bunte-Institut
DVGW Research Laboratories
Water Chemistry and Water Technology

Karlsruhe Institute of Technology
Campus South

Engler-Bunte-Ring 9
Building 40.04
76131 Karlsruhe
GERMANY

Engler-Bunte-Institut (building 40.04)
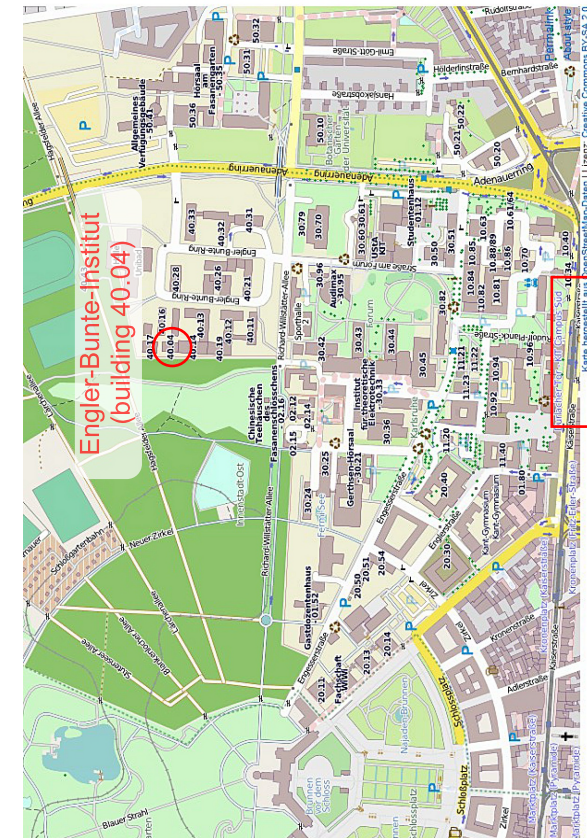
main entrance "Durlacher Tor" (stop of tram 1, 2 & 4, S4, 5 & 41)