Organization

The following partners contribute to the organization of the course.

Prof. Harald Horn (KIT, DVGW)
✉ horn@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

TU Delft
Technische Universiteit Delft

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

UNIVERSITY OF COPENHAGEN

Registration Details

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

advancedbiofilmcourse@gmail.com

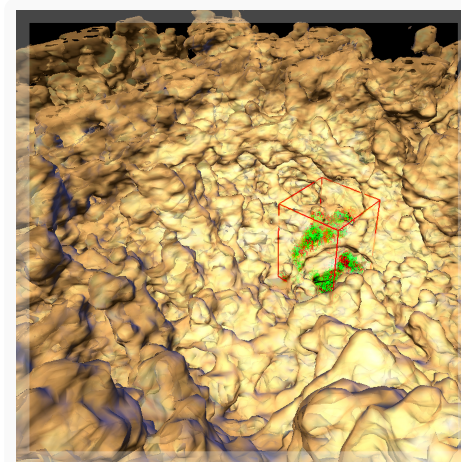Application deadline: July 31st, 2012

Confirmation of
acceptance: August 31st, 2012

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

Fee

The course fee is 500 € and includes course materials as well as coffee, tea and lunch breakes. Fee includes taxes.

7th
Advanced Biofilm Course

October 2012
8th – 13th

Engler-Bunte-Institute
Chair of Water Chemistry and
Water Technology

Karlsruhe Institute of 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.

The aim of the course is to explore a given biofilm with advanced standard methods applied to gain information about the structure and function of biofilms. This included so far microsensor measurements, fluorescence and confocal laser scanning microscopy as well as modeling of the data acquired. As optical coherence tomography is an emerging imaging technique for biofilms, the Advanced Biofilm Course 2012 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 use this combined and sophisticated approach for characterisation of their own microbial biofilms.

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

Please bring your own computer (windows operating system).

Scope and Key Issues

The course aims to teach the major tools used in biofilm research:

► 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 with 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 3-d Imaging 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

Location

Engler-Bunte-Institute
Chair of Water Chemistry and Water Technology

Karlsruhe Institute of Technology
Campus South

Engler-Bunte-Ring 9
Building 40.04
76131 Karlsruhe
GERMANY

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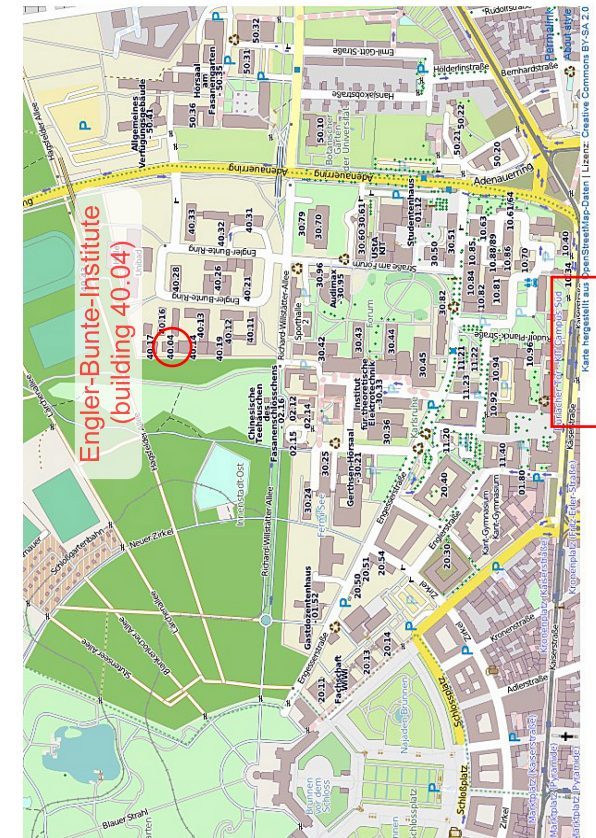
main entrance "Durlacher Tor" (stop of tram 1, 2 & 4, S4, 5 & 41)