Fluorescence microscopy,CLSM, image analysis...

Biomarker design...

OligoFISH, PolyFISH, CARDFISH, PNA FISH, LNA FISH

MAR-FISH, mRNA FISH, RAMAN..., nanoSIMS...

Single cell technology...specific cell enrichment

International Course on:

In Situ Detection of Microbial Structure and Function in the Environment
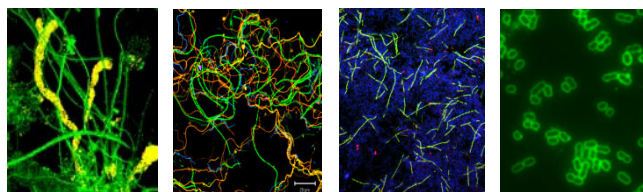
Dates: 2015/2016 (final dates to be announced).

Location:
Techn. University Munich in Freising, Germany,
or, upon wish at your own location.

Contact info:
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Background:

A major limitation for understanding the microbes in the environment is our scarce knowledge about the microbes and their activities, because the majority of these have not yet been cultured. For an andvanced understanding of the principles of microbial ecology & sustainable applications, fundamental knowledge about the structure and function of microbial consortia in different environments is needed.

During the last decades, a plethora of different techniques based on molecular and radioactive markers have become available. These provide increased possibilities to detect microbes that have not yet been cultured. This international workshop aims to bring students and researchers to-gether to learn, practice and discuss current state-of the art in situ detection and single cell techniques (with a focus on microscope based tools) and future developments for novel applications in microbial ecology, geobiology and environ-mental biotechnology.

Theoretical part (~15 h):

- Overview of detection methods in microbiology.
- Microscopy based *in situ* detection tools, such as fluorescence *in situ* hybridization: standard and advanced tools from oligo /polynucleotide FISH to DOPE-FISH, CARD-FISH, FISH-MAR, PNA-FISH, LNA-FISH, mRNA FISH, RING-FISH, EM-FISH, clone-FISH, nano-SIMS,F/H-ISH, RAMAN-FISH, quantum dot FISH, and cell-fishing (e.g. flow cytometry and magneto-FISH).
- Overview of different softwares and databases for FISH applications, bioinformatics, sequence data handling, probe and primer design.

Practical part (~25 h)*:

- Application of standard FISH tools.
- Introduction to advanced FISH tools.
- Bioinformatics – sequence data handling, probe design.
- Fluorescence microscopy and digital image analysis.

*You are welcome to bring 2 own samples to practice on.If there is a wish to analyse more samples, you are welcome to stay after the official FISH course to analyse them further.

Fees: 900 € for academia. 1100 € for industry. The price includes lectures and laboratory consumables. Reduced fees possible after negotiation. A special adapted course or single services can be made to meet specific demands.