

Advanced Biofilm Course (ABC)

07 - 12th October 2019

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday				
	07 October 2019	08 October 2019	09 October 2019	10 October 2019	11 October 2019	12 October 2019				
	MICROSCOPY AND IMAGING	MICROSCOPY AND IMAGING	REACTORS AND MICROENVIRONMENTAL ANALYSIS	REACTORS AND MICROENVIRONMENTAL ANALYSIS	MODELING	MODELING				
09:00-09:45	Welcome <i>Cristian Picioreanu</i> Introduction to biofilms and laser microscopy <i>Thomas Neu</i>	Laser microscopy: instrument and sample aspects <i>Michael Wagner</i>	Microenvironmental analysis of biofilms: theory & applications I <i>Michael Kühl</i>	Biofilm development and detachment <i>Harald Horn</i>	Biofilm processes and modeling principles <i>Cristian Picioreanu</i>	Applications of 2-d / 3-d biofilm modeling <i>Cristian Picioreanu</i>				
09:45-10:30	Fluorescence staining and safety <i>Michael Wagner</i>	Practical aspects of laser microscopy <i>Michael Wagner</i>	Microenvironmental analysis of biofilms: theory & applications II <i>Michael Kühl</i>	Online monitoring by magnetic resonance microscopy <i>Harald Horn</i>	Biofilm models and biomass representation <i>Cristian Picioreanu</i>	PRACTICAL 2-d biofilm models with COMSOL <i>Picioreanu</i>				
10:30-11:00	Coffee/Tea break	Coffee/Tea break	Coffee/Tea break	Coffee/Tea break	Coffee/Tea break	Coffee/Tea break				
11:00-11:45	Introduction to optical coherence tomography <i>Michael Wagner</i>	Beam path, resolution, pixels, voxels <i>Michael Wagner</i>	Biofilm growth devices and reactors <i>Harald Horn</i>	Chemical imaging approaches I <i>Michael Kühl</i>	Biofilm models: calculation of solutes distribution <i>Cristian Picioreanu</i>	PRACTICAL Step by step 2-d / 3-d biofilm models with COMSOL <i>Picioreanu</i>				
11:45-12:30	Optical coherence tomography: Examples <i>Michael Wagner</i>	Digital images, image analysis and visualization <i>Michael Wagner</i>	Biofilms and bio-aggregates: gradients and diffusion <i>Harald Horn</i>	Chemical imaging approaches II <i>Michael Kühl</i>	Introduction biofilm modeling COMSOL <i>Cristian Picioreanu</i>					
12:30-13:30	Lunch	Lunch	Lunch	Lunch	Lunch	Presentation of group results, evaluation and certification				
13:30-17:30	PRACTICAL (BN Lab) Group 1 & 2: Laser microscopy <i>Kuhlicke</i>	PRACTICAL (ChemE Lab) Group 3 & 4: Image analysis <i>Wagner</i>	PRACTICAL (ChemE Lab) Group 1 & 2: image analysis <i>Wagner</i>	PRACTICAL (BN Lab) Group 3 & 4: Laser microscopy <i>Kuhlicke</i>	PRACTICAL (BT Lab) Group 1 & 2: Optical coherence tomography <i>Wagner</i>	PRACTICAL (BT Lab) Group 3 & 4: Microsensor profiling & analysis <i>Kühl, Horn</i>	PRACTICAL (BT Lab) Group 1 & 2: Microsensor profiling & analysis <i>Kühl, Horn</i>	PRACTICAL (BT Lab) Group 3 & 4: Optical coherence tomography <i>Wagner</i>	PRACTICAL 1-d biofilm modeling with COMSOL <i>Picioreanu</i>	Ending with lunch and drinks (X-TU, Mekelweg 8, Delft)
18:30			Course Dinner							