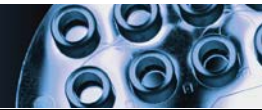




# PolyNano@DTU

Summer School 14 August - 1 September 2017



Week 1 - August 14-18		Monday Aug 14	Tuesday Aug 15	Wednesday Aug 16	Thursday Aug 17	Friday Aug 18
Morning: room 344/105	09.00-12.00	<b>Welcome:</b> Breakfast, Introduction and practical issues - Jenny Emnéus (group division for clean room exercise). 09-09.45  <b>Start up stories:</b> (1) BlueSense Diagnostics, DK (Filipo Bosco). 09.45-10.45 (2) NIL technologies (Theodor Nielsen) 10.45-11.45	<b>Lecture 2:</b> Introduction to downscaling and microfluidics, Rodolphe Marie. 09-10.00  <b>Lecture 3</b> Introduction to microfabrication. Anders Jørgensen, Danchip. 10.00-12.00.	<b>Invited talk 1:</b> Point of care blood gas analyzer, Frank Nielsen, Radiometer. 09.00-10.00  <b>Lecture 6:</b> Optical manipulation of biomolecules and cells, Kirstine Berg-Sørensen. 10.00-11.00  <b>Lecture 7:</b> Manipulation by light and sound in microfluidic systems, Kirstine Berg-Sørensen. 11.00-12.00	<b>Invited talk 2:</b> Photonics-enhanced polymer optofluidic chips: from high-tech prototyping platform to applications. Heidi Ottevaere, Free University of Brussels. 09.00-10.00  <b>Lecture 10:</b> DNA nanofluidics part 1. Rodolphe Marie. 10.00-11.00  <b>Lecture 11:</b> DNA nanofluidics part 2. Rodolphe Marie. 11.00-12.00	<b>Lecture 12:</b> Introduction to chip fabrication and applications - Three parallel sessions 09.00-11.00  <b>Clean-room safety course,</b> Majken Becker, Danchip. 11.00-12.00
	12.00-13.00	Lunch	Lunch	Lunch	Lunch	Lunch
Afternoon: room 344/105	13.00-18.00	<b>Lecture 1:</b> Overview of fast prototyping and industrial production of LOC system, Jenny Emnéus. 13-14.  <b>Poster session:</b> presentation of students own research projects. 15-17 Room 344/105  <b>Welcome party-BBQ 17-?</b>	<b>Lecture 4:</b> Introduction to microfabrication. Anders Jørgensen, Danchip. 13.00-14.00  <b>Lecture 5:</b> Interfacing issues Electroanalytical Lab-on-a-chip devices, Arto Heiskanen. 14.00-15.00  Demonstration: micro-milling and laser ablation. Arto Heiskanen. 15.00-18.00	<b>Lecture 8:</b> Electrochemical bioanalysis using Lab-on-a-chip devices I, Arto Heiskanen. 13.00-14.00  <b>Lecture 9:</b> Electrochemical bioanalysis using Lab-on-a-chip devices II, Arto Heiskanen. 14.00-15.00  <b>3D printing workshop.</b> Arto Heiskanen. 15.00-18.00	<b>Journal paper writing,</b> Jenny Emnéus. 12.00-13.30  <b>3D printing workshop</b> continued. Arto Heiskanen. 14.00-18.00	<b>Introduction to practical clean-room work</b> (Anders Jørgensen, Danchip) in Building 347 seminarroom. 13.00-13.30  <b>Cleanroom work</b> Block I 13:30-15:30  <b>Social event:</b> Boat trip and dinner at "Papirgen". The bus will depart at 16.00 from Ørstedes Plads in front of DTU Nanotech.
	12.00-13.00	Lunch	Lunch	Lunch	Lunch	Lunch
	13.00-18.00	<b>Cleanroom work</b> Block II 13:30-15:30 Break 15:30 - 16:00 <b>Cleanroom work</b> Block III 13:30 - 15:30	<b>Cleanroom work</b> Block IV 13:00 - 15:00 Break 15:00-15:30 <b>Cleanroom work</b> Block V 15:30 - 17:30 Wrapup 17:30 - 18:00	<b>Clean room exercise on NIL.</b> 13.00-16.00 <b>Class-room exercises on NIL,</b> Anders Kristensen. 16.00-17.00	Lab  Lab  Lab	Lab  Lab  <b>Social event:</b> Tivoli. Bus pick up at 16:30 in Ørstedes Plads in front of DTU Nanotech.
Week 2 - August 21-25		Monday Aug 21	Tuesday Aug 22	Wednesday Aug 23	Thursday Aug 24	Friday Aug 25
Morning: room 344/105	08.30-12.00	<b>Lecture 13:</b> Introduction to Metrology on the micro- and nanoscale. Guido Tosello-DTU-MEK. 09.00-10.00  <b>Invited talk 3:</b> State of the art of Biosensors, Anthony Turner, Linköping (SE)/Cranfield (UK) Universities. Lecture held together with Anja Boisens summer schools. Lecture hall Auditorium Skylab in building 373A. 10.30-12.30	<b>Lecture 14:</b> Introduction to polymer injection molding, including how to make shims. Claus Højgård Nielsen, Danchip. 08.30-09.30  <b>Cleanroom work Q&amp;A</b> 11:00 - 12:00	<b>Lecture 15:</b> Introduction bonding. Anders Wolff. 08.30-09.30.  <b>Lab exercise on bonding.</b> Arto Heiskanen/Krishna Kant. 09.30-11.00  <b>embossing and imprinting,</b> Anders Kristensen. 11.00-12.00	<b>Introduction to labs</b> (three parallel sessions).	Lab
	12.00-13.00	Lunch	Lunch	Lunch	Lunch	Lunch
Afternoon: room 344/105	13.00-18.00	<b>Cleanroom work</b> Block III 13:30 - 15:30	<b>Cleanroom work</b> Block V 15:30 - 17:30	<b>Class-room exercises on NIL,</b> Anders Kristensen. 16.00-17.00	Lab  Lab  Lab	<b>Social event:</b> Tivoli. Bus pick up at 16:30 in Ørstedes Plads in front of DTU Nanotech.
	12.00-13.00	Lunch	Lunch	Lunch	Lunch	Lunch
	13.00-18.00	Lab	Lab	<b>Presentation workshop.</b> Debasish Chakraborty on how to give a pitch talk. <b>Two pitch talk examples??</b>	Preparation report and presentations  <b>Feedback from trainers</b>	Presentations  <b>Course evaluation</b>
Week 3 - August 28-September 1		Monday Aug 28	Tuesday Aug 29	Wednesday Aug 30	Thursday Aug 31	Friday Sept 1
Morning: room 344/105	09.00-12.00	Lab	Lab	<b>Presentation workshop.</b> Debasish Chakraborty on how to give a pitch talk. <b>Two pitch talk examples??</b>	Preparation report and presentations  <b>Feedback from trainers</b>	Presentations  <b>Course evaluation</b>
	12.00-13.00	Lunch	Lunch	Lunch	Lunch	Lunch
Afternoon: room 344/105	13.00-18.00	Lab	Lab	Preparation report and presentations: Poster, scientific talk and pitch talk <b>Feedback from trainers</b>	Preparation report and presentations  <b>Feedback from trainers</b>	<b>Social event:</b> Lunch at restaurant Riz Raz in Copenhagen. Bus pick up at 12 in Ørstedes Plads in front of DTU Nanotech
	12.00-13.00	Lunch	Lunch	Lunch	Lunch	Lunch
	13.00-18.00	Lab	Lab	Preparation report and presentations: Poster, scientific talk and pitch talk <b>Feedback from trainers</b>	Preparation report and presentations  <b>Feedback from trainers</b>	<b>Social event:</b> Lunch at restaurant Riz Raz in Copenhagen. Bus pick up at 12 in Ørstedes Plads in front of DTU Nanotech