

**Summer School on**  
**Methods in Micro – Nanotechnology & Nanobiotechnology**  
**22 - 26 June 2009**

PROGRAM

<b>MONDAY 22 JUNE - at NCSR “DEMOKRITOS”</b>	
<b>09:00-09:30</b>	<b>Welcome</b>
<b>09:30-10:15</b>	<u>Lecture 1.1</u> : Cell biology principles - Part 1 (Dr Dimitris Mastellos)
<b>10:15-11:30</b>	<u>Lecture 1.2</u> : Structure of biological macromolecules (Invited: Prof. Elias Eliopoulos)
<b>11:30-11:45</b>	<b>Coffee Break</b>
<b>11:45-12:30</b>	<u>Lecture 1.1</u> : Cell biology principles - Part 2 (Dr Dimitris Mastellos)
<b>12:30-13:15</b>	<u>Lecture 1.3</u> : Microelectronic Materials and Device Technology (Dr Spyros Gardelis)
<b>13:15-14:15</b>	<b>Lunch break</b>
<b>14:15-15:00</b>	<u>Lecture 1.3</u> : Microelectronic Materials and Device Technology (Dr S. Gardelis)
<b>15:00-15:45</b>	<u>Lecture 1.4</u> : Introduction to nanobiotechnology (Invited: Prof. Yossi Shacham-Diamand)
<b>15:45-16:00</b>	<b>Coffee Break</b>
<b>16:00-17:00</b>	<u>Lecture 1.4</u> : Introduction to Sensors for nanobiotechnology (Prof. Y. Shacham)
<b>17:00-18:30</b>	<u>Lecture 2.2.4</u> : Imaging with Scanning Probes (AFM, STM, SNOM) (Invited: Dr Martin Bennink)
<b>TUESDAY 23 JUNE - at ACADEMY OF ATHENS</b>	
<b>09:00-10:30</b>	<u>Lecture 2.3.1</u> : Gel-based protein analysis methods (Dr Antonia Vlahou)
<b>10:30-11:15</b>	<u>Lecture 2.3.2</u> : Non-gel based protein analysis methods (Dr Spiros D. Garbis)
<b>11:15-11:30</b>	<b>Coffee Break</b>
<b>11:30-13:30</b> <b>(shift 1)</b>	<u>Laboratory 2.3.8</u> : State of the art fluorescence imaging & confocal microscopy of biological samples (Dr Stamatis Pagakis) <u>Laboratory 2.3.1</u> : Protein separation by two-dimensional electrophoresis (Dr Antonia Vlahou) <u>Laboratory 2.3.2</u> : Mass spectrometry (Dr Spiros D. Garbis) <u>Laboratory 2.3.3</u> : Fabrication of protein microarrays using nanoplotter (Dr George Tsangaris) <u>Laboratory 2.3.6</u> : Bioinformatics basic theory & laboratory (Dr Sophia Kossida) <u>Laboratory 2.3.7</u> : Structural Bioinformatics: Molecular Simulations and Visualization (Dr George Spyrou)
<b>13:30-14:30</b>	<b>Lunch break</b>
<b>14:30-16:30</b> <b>(shift 2)</b>	<u>Laboratory 2.3.8</u> : State of the art fluorescence imaging & confocal microscopy of biological samples (Dr Stamatis Pagakis) <u>Laboratory 2.3.1</u> : Protein separation by two-dimensional electrophoresis (Dr Antonia Vlahou) <u>Laboratory 2.3.2</u> : Mass spectrometry (Dr Spiros D. Garbis) <u>Laboratory 2.3.3</u> : Fabrication of protein microarrays using nanoplotter (Dr George Tsangaris) <u>Laboratory 2.3.6</u> : Bioinformatics basic theory & laboratory (Dr Sophia Kossida) <u>Laboratory 2.3.7</u> : Structural Bioinformatics: Molecular Simulations and Visualization (Dr George Spyrou)

<b>16:30-18:30</b> <b>(shift 3)</b>	<u>Laboratory 2.3.8:</u> State of the art fluorescence imaging & confocal microscopy of biological samples (Dr Stamatis Pagakis) <u>Laboratory 2.3.1:</u> Protein separation by two-dimensional electrophoresis (Dr Antonia Vlahou) <u>Laboratory 2.3.2:</u> Mass spectrometry (Dr Spiros D. Garbis) <u>Laboratory 2.3.3:</u> Fabrication of protein microarrays using nanoplotter (Dr George Tsangaris) <u>Laboratory 2.3.6:</u> Bioinformatics basic theory & laboratory (Dr Sophia Kossida) <u>Laboratory 2.3.7:</u> Structural Bioinformatics: Molecular Simulations and Visualization (Dr George Spyrou)
--	--

### WEDNESDAY 24 JUNE - at NCSR "DEMOKRITOS"

<b>09:00-10:15</b>	<u>Lecture 2.1.1:</u> Conventional patterning schemes for hard substrates for bioanalytical microdevices (Dr Evangelos Gogolides)
<b>10:15-11:30</b>	<u>Lecture 2.1.2:</u> Microfabrication technologies for plastic analytical microfluidics (Dr Angeliki Tserepi)
<b>11:30-11:45</b>	<b>Coffee Break</b>
<b>11:45-12:45</b>	<u>Lecture 2.1.3:</u> Patterning of biomolecules and other biological substances (Dr Panagiotis Argitis)
<b>12:45-13:45</b>	<u>Lecture 2.3.3:</u> Binding Assays and Immunosensors (Dr Sotirios Kakabakos)
<b>13:45-14:45</b>	<b>Lunch break</b>
<b>14:45-15:30</b>	<u>Lecture 2.3.4:</u> DNA and Protein arrays: fabrication, detection and applications (Dr Panagiota Petrou)
<b>15:30-16:15</b>	<u>Lecture 3.1:</u> Principles of Integrated Biosensing Devices (Dr Konst. Misiakos)
<b>16:15-17:00</b>	<u>Lecture 2.1.4:</u> Molecular bioelectronics (Dr Eleni Makarona)
<b>17:00-23:00</b>	<b>Excursion &amp; Dinner</b>

### THURSDAY 25 JUNE - at NCSR "DEMOKRITOS"

<b>10:15-12:45</b> <b>(shift 1)</b>	<u>Laboratory 2.1.1:</u> Fabrication of microfluidic devices on plastic substrates by soft lithography and deep polymer plasma etching (Dr A. Tserepi, Dr E. Gogolides) <u>+2.1.2</u> <u>Laboratory 2.1.3:</u> SPM Techniques for molecular devices (Dr E. Makarona, Dr D. Velessiotis) <u>Laboratory 2.3.4:</u> Fabrication of protein microarrays using lithography (Dr A. Douvas) <u>+2.3.5</u> Fluorescence detection of protein arrays (Dr P. Petrou) <u>Laboratory 3.1:</u> Operation of a lab-on-a-chip optical device using model assays and real time measurements (Dr K. Misiakos)
<b>12:45-13:45</b>	<b>Lunch break</b>
<b>13:45-16:15</b> <b>(shift 2)</b>	<u>Laboratory 2.1.1:</u> Fabrication of microfluidic devices on plastic substrates by soft lithography and deep polymer plasma etching (Dr A. Tserepi, Dr E. Gogolides) <u>+2.1.2</u> <u>Laboratory 2.1.3:</u> SPM Techniques for molecular devices (Dr E. Makarona, Dr D. Velessiotis) <u>Laboratory 2.3.4:</u> Fabrication of protein microarrays using lithography (Dr A. Douvas) <u>+2.3.5</u> Fluorescence detection of protein arrays (Dr P. Petrou) <u>Laboratory 3.1:</u> Operation of a lab-on-a-chip optical device using model assays and real time measurements (Dr K. Misiakos)
<b>16:15-16:30</b>	<b>Coffee break</b>

<b>16:30-19:00</b>  <b>(shift 3)</b>	<u>Laboratory 2.1.1:</u> Fabrication of microfluidic devices on plastic substrates by soft lithography and deep polymer plasma etching (Dr A. Tserepi, Dr E. Gogolides) <u>+2.1.2</u> <u>Laboratory 2.1.3:</u> SPM Techniques for molecular devices (Dr E. Makarona, Dr D. Velessiotis) <u>Laboratory 2.3.4:</u> Fabrication of protein microarrays using lithography (Dr A. Douvas) <u>+2.3.5</u> Fluorescence detection of protein arrays (Dr P. Petrou) <u>Laboratory 3.1:</u> Operation of a lab-on-a-chip optical device using model assays and real time measurements (Dr K. Misiakos)
<b>FRIDAY 26 JUNE - at NCSR "DEMOKRITOS"</b>	
<b>09:00-09:45</b>	<u>Lecture 2.2.1:</u> Drug Delivery and Targeting Systems - Focus on Liposomes ( <b>Invited:</b> Prof. Sophia Antimisiaris)
<b>09:45-11:00</b>	<u>Lecture 2.2.2:</u> Drug Delivery and Targeting Systems - Focus on cyclodextrin delivery, studied by NMR and XRD (Dr Konstantina Yannakopoulou, Dr Irene Mavridis)
<b>11:00-11:15</b>	<b>Coffee Break</b>
<b>11:15-12:00</b>	<u>Lecture 2.2.3:</u> Magnetic nanoparticles for bioapplications (Dr Ioannis Rabias)
<b>12:00-13:00</b>	<b>Lunch break</b>
<b>13:00-15:30</b>  <b>(shift 1)</b>	<u>Laboratory 2.2.2:</u> Drug inclusion in cyclodextrins: monitoring in situ by NMR spectroscopy, X-ray diffraction characterisation of drug inclusion and 3-D visualisation (Dr K. Yannakopoulou, Dr A. Paulidou) <u>Laboratory 2.2.1:</u> Liposomes: preparation and characterisation by dynamic light scattering and $\zeta$ -potential (Dr D. Tsiourvas, Dr Z. Sideratou) <u>Laboratory 3.2:</u> Demonstration of a capillary fluoroimmunosensor (Dr S. Kakabakos)
<b>15:30-18:00</b>  <b>(shift 2)</b>	<u>Laboratory 2.2.2:</u> Drug inclusion in cyclodextrins: monitoring in situ by NMR spectroscopy, X-ray diffraction characterisation of drug inclusion and 3-D visualisation (Dr K. Yannakopoulou, Dr A. Paulidou) <u>Laboratory 2.2.1:</u> Liposomes: preparation and characterisation by dynamic light scattering and $\zeta$ -potential (Dr D. Tsiourvas, Dr Z. Sideratou) <u>Laboratory 3.2:</u> Demonstration of a capillary fluoroimmunosensor (Dr S. Kakabakos)
<b>18:00</b>	<b>Closing ceremony</b>