

	HERCULES Specialized Course: Surfaces, Interfaces and Nanostructures studied with Neutrons and Synchrotron Radiations				
	Monday October 9, 2006	Tuesday October 10, 2006	Wednesday October 11, 2006	Thursday October 12, 2006	Friday October 13, 2006
08:55 09:00	<p>Welcome</p> <p>The physics of surfaces and growth on surfaces -1- <i>G. Rossi - Italy</i></p> <ul style="list-style-type: none"> * Thermodynamics/ Crystal structure * Electronic structure/* Phase transitions * Kinetics and dynamics * Growth of (on) surfaces * Surface reactions/ * Epitaxy * Interfacial defects 	<p>Nanoparticles - an introduction <i>J.M. Gérard - France</i></p> <ul style="list-style-type: none"> * Technological and fundamental importance of nanoparticles * Quantum Dots; Magnetic Dots * Elaboration of Nanoparticles: physical, chemical, technological * Correlations between structure, morphology and physical properties 	<p>Practicals after introductory tutorial 5 groups Full day</p> <p>ILL/ID32 / ID01/BM02/BM32</p>	<p>Practicals after introductory tutorial 5 groups Full day</p> <p>ID32 / ID01/BM02/BM32</p>	<p>Practicals after introductory tutorial 4 groups Full day</p> <p>ID32 / ID01/BM02/BM32</p>
10:30 11:00	<p>COFFEE</p> <p>Structure of surfaces and growth processes studied with X-rays <i>E. Vlieg - Netherland</i></p> <ul style="list-style-type: none"> * Photon/matter interaction * Grazing incidence * Surface diffraction * X-ray Standing Waves * Surface X-ray Absorption Spectroscopy 	<p>COFFEE</p> <p>Neutron reflectivity of magnetic heterostructures <i>H. Zabel - Germany</i></p> <ul style="list-style-type: none"> * Basics (cross section) * Thin films and superlattices * Exchange bias systems * Lateral magnetic nanostructures 	<p>ILL : Andy Wildes</p> <p>Neutron reflectometry spin polarisation/ time of flight measurements</p> <p>ID32: Jorg Zegenhagen Surfaces studied with the X-ray Standing Wave Technique</p>	<p>ILL : Andy Wildes</p> <p>Neutron reflectometry spin polarisation/ time of flight measurements</p> <p>ID32: Jorg Zegenhagen Surfaces studied with the X-ray Standing Wave Technique</p>	<p>ID32: Jorg Zegenhagen Surfaces studied with the X-ray Standing Wave Technique</p> <p>ID01: T.-H. Metzger "Nanotomography" of quantum dots</p>
12:30 14:00	<p>LUNCH</p> <p>Structure of surfaces and growth processes studied with X-rays <i>G. Renaud - France</i></p> <ul style="list-style-type: none"> * Application of the above techniques <ul style="list-style-type: none"> -surface and interface structure -growing surfaces and interfaces -growing nanoparticles * Real-time studies 	<p>LUNCH</p> <p>Surfaces/interfaces/nanoparticles magnetism / x-rays and n <i>S. Ferrer - Spain</i></p> <ul style="list-style-type: none"> * Magnetic X-ray scattering - resonant * Polarisation * Induced magnetism * Magnetic nanostructures * Magnetic thin films * Exchange coupling interaction 	<p>LUNCH</p> <p>ID01: T.-H. Metzger "Nanotomography" of quantum dots</p> <p>BM02: H. Renevier "Diffraction Anomalous Fine Structure Study of Quantum dots"</p>	<p>LUNCH</p> <p>ID01: T.-H. Metzger "Nanotomography" of quantum dots</p> <p>BM02: H. Renevier "Diffraction Anomalous Fine Structure of Buried Quantum dots"</p>	<p>BM02: H. Renevier "Diffraction Anomalous Fine Structure of Buried Quantum dots"</p>
15:30 16:00	<p>COFFEE</p> <p>Surface and nanoparticle Chemistry <i>J.W.M. Frenken - Netherland.</i></p> <ul style="list-style-type: none"> * Introduction/applications * Chemisorption/ Oxidation * Catalysis-alloys-nanoparticles * EXAFS and X-ray diffraction in real conditions 	<p>COFFEE</p> <p>Nanoparticles studied with hard X-rays <i>V. Holy - Tcheck</i></p> <ul style="list-style-type: none"> * X-ray scattering by nanostructures * Grazing Incidence Small Angle Scatt. * X-ray absorption spectroscopy * Coherent scattering * Quantum wells, wires and dots * Strain induced self-organization * "Nano-tomography" of dots 	<p>BM32: O. Robach - J.-S. Micha - F. Rieutord X-Ray Reflectivity and Surface X-Ray Diffraction</p>	<p>BM32: O. Robach - J.-S. Micha - F. Rieutord X-Ray Reflectivity and Surface X-Ray Diffraction</p>	<p>BM32: O. Robach - J.-S. Micha - F. Rieutord White Beam Diffraction X-Ray Reflectivity and Surface X-Ray Diffraction</p>
17:30	<p>Hard -x ray Nanofocusing: techniques and applications for research on the nanoscale <i>C. Mocuta - France</i></p> <ul style="list-style-type: none"> * Focusing Devices 	<p>Diffraction anomalous fine structure spectroscopy for studying nanostructures <i>H. Renevier - France</i></p> <ul style="list-style-type: none"> * Introduction to anomalous diffraction 			
18:00	<ul style="list-style-type: none"> * Applications * Microdiffraction on individual objects <ul style="list-style-type: none"> - Semiconductor rolled nanotubes - Ge micro-pyramids on Si * Outlook 	<ul style="list-style-type: none"> * Diffraction Anomalous Fine Structure in grazing incidence * Application to the study of quantum dots and quantum wires 			<p>Conclusions and perspectives Farewell party</p>
	Restaurant "La Panse" 20h00				