

MASTER MODULE	SEMESTER	CREDITS	COURSE TYPE
Nanotechnology: Physics and Aplications	1	6	Optative
PROFESSOR(S)	CONTACT DETAILS		
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	TUTORIALS TIMETABLE		
	http://fisicaaplicada.ugr.es/pages/profesorado		
MASTER DEGREE			
University Master in Physics: Radiations, Nanotechnology, Particles and Astrophysics, University of Granada			
TEACHING DATES AND TIMES			
PRE-REQUISITES FOR REGISTRATION			
Basic knowledge on • General Physics • General Chemistry • Mathematics • Electrostatics • Statistics • Thermodynamics			
BRIEF CONTENTS DESCRIPTION			
Interaction on nanoparticles in fluids. DLVO theory on colloidal stability. Non-DLVO interactions: ionic correlations. Biotechnological applications of polymers, gels and lipid systems. Fluid interfaces: foams and emulsions.			



PROGRAM

- Unit 1. DLVO Theory. Kinetics and thermodynamics
 - Van der Waals interactions
 - Electrostatic interactions
 - DLVO
 - Electrokinetic interactions
- Unit 2: Non-DLVO interactions
 - Ionic correlations
 - Polymer stability
 - Applications: gels and lipidic systems
- Unit 3: Fluid interfaces: foams and emulsions
 - Surface tension
 - Interfacial Rheology
 - Colloidal dispersions

BIBLIOGRAPHY

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- HUNTER R.J. Introduction to modern colloid Science, Oxford, Oxford University Press, 1993
- RUSSEL, W,B,; SAVILLE, D.A.; SCHOWALTER WR, Colloidal dispersions. Crambridge Univ. Press, 1995.
- SONNTAG, H.; STRENGE, K. Coagulation and Stability of Disperse Systems. N Y, Halsted Press, 1972.
- TADROS, Th. F. Solid/Liquid Dispersions. London, Academic Press, 1987.
- VAN DE VEN Th.G.M.. Colloidal Hydrodynamics. London , Academic Press, 1989
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- OHSHIMA, H. Theory of Colloid and Interfacial Electric Phenomena. Ed. H. Ohshima, Interface Science and Technology-Volume 12, Elsevier, Amsterdam, 1st edition, 2006.
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