



Iván Navarro Arrebola

A. EDUCATION AND TRAINING

10/2018 – 25/9/2020 – Granada, Spain

MASTER IN PHYSICS: RADIATION, NANOTECHNOLOGY, PARTICLES AND ASTROPHYSICS – Escuela Internacional de Posgrado, Universidad de Granada (UGR)

Subjects studied (84 ECTS credits):

Core subjects

Mathematical and numerical complements

Approximate methods in physics

Electron Microscopy and characterization techniques

Data processing

Guests seminar

Final master's work (TFM)

Specialty in Nanotechnology: Physics and Applications

Design and Characterization of Nanomaterials

Nanostructured fluids. Rheological properties

Colloids and Interfaces: Applications to nanosystems of biotechnological interest

Physical properties of matter. Scale effects

Optoelectronic nanodevices

Nanostructures for Energy generation and storage

Module in Biomathematics (Master in Physics and Mathematics - Fisymat)

Biostatistics and bioinformatics

Physics of complex networks and interdisciplinary applications

Biomat guest seminar and industrial problems in biotechnology

Courses and extracurricular activities

III Conference on Bioinformatics and Biostatistics (25h)

Field(s) of study

- Nanotechnology

- Physics

Microgels as emulsion stabilizers | EQF level 7 | ECTS | 60

9/9/2019 – 3/7/2020 – Pau, France

MASTER MATERIALS SCIENCE AND ENGINEERING - CHEMISTRY AND PHYSICO-CHEMISTRY OF MATERIALS PATH (SGM-CPCM) – Université de Pau et des pays de l'Adour (UPPA)

Obligatory (22 ECTS credits)

Specific English for communication (2 ECTS credits)

Optical properties of materials (4 ECTS credits)

Modeling of materials with specific properties (4 ECTS credits)

Physical chemistry of surfaces and interfaces (4 ECTS credits)

New materials (4 ECTS credits)

Materials for Energy (4 ECTS credits)

Optional (8 ECTS credits)

Processes and techniques for the elaboration of polymer-based materials (2 ECTS credits)

Theoretical chemistry and spectroscopy (4 ECTS credits)

Polymers for the living (2 ECTS credits)

Entrepenauriat

Stage (30 ECTS credits)

Introduction to the laboratory

Microgels as emulsion stabilizers

Field(s) of study

- Chemistry
- Physicochemistry
- Polymers

Microgels as stabilizers of emulsion | EQF level 7 | ECTS | 60

9/2013 – 12/2018 – Granada, Spain

DEGREE IN PHYSICS – Fac. de Ciencias, Universidad de Granada (UGR)

Final Degree thesis: Fabricación de nanopartículas magnéticas - Preparación de fluidos magnéticos y estudio físico-químico de los mismos. Estudio en hidrogeles de agarosa [Synthesis of magnetic nanoparticles - Preparation of magnetic fluids and physical-chemical study of them. Study in agarose hydrogels]

Representation of students as:

- Class delegate (courses 2013/14 and 2015/2016)
- Student member of the Physics Teaching Council (13/14 15/16)
- Student Member of the Faculty of Science Council (courses 2016/17 and 2017/18)
- Student member of the Applied Physics Department Council
- Member of the Student Delegation of the Faculty of Science (2016/17 and 2017/18)
- Member of the General Delegation of Students (2017/18 academic year)

Member of the Board of the Physics and Electronics Students Association (EFE)

- Member (from 2014 to 2017) and in charge of several projects
- President (2017/19)

Field(s) of study

- Physics
- Fluids
- Biophysics

Synthesis of magnetic nanoparticles | EQF level 6 | ECTS | 248

9/2011 – 7/2013 – ILLORA, Spain

SCIENTIFIC-TECHNICAL BACCALAUREATE – IES Diego de Siloé

Specialization in Physics, Chemistry and Technical Drawing

Linguistic exchange with the Lycée Saint-Joseph de Thônes (France)

Summer Scientific Campus Scholarship. "DISCOVERING THE UNIVERSE" Instituto Astrofísico de Canarias- ULPGC

9/2018 – 2019 – Granada, Spain

DEGREE IN FRENCH STUDIES (UNFINISHED) – Fac. de Filosofía y Letras, Universidad de Granada (UGR)

Part-time enrollment (24 ECTS credits)

23/9/2020 – CURRENT – Granada, Spain

DOUBLE DEGREE IN PHYSICS AND MATH (UNFINISHED) – Fac. de Ciencias, Universidad de Granada (UGR)

C. PERSONAL SKILLS AND COMPETENCES

LANGUAGE SKILLS

Mother tongue(s): ESPAÑOL

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
INGLÉS	B2	B2	B1	B1	B2
FRANCÉS	C1	C1	B2	B2	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Work

Work in team | High sense of responsibility | Work Independently | Scientific Paper Writing | Interdisciplinary research | Persevering and proactive | scientific communication

Computing

C C++ | Windows - Linux - macOS operating systems | Microsoft Office (Word Excel Power Point) and office suites | Root-cern | LAMMPS | Fortran90 | Python | Latex and Lyx | Mathematica | Rstudio | MatLab 2018A | HTML + CSS basic

Science

Physics | Biophysics | Synthesis | Polymers | Material characterization | Nanotechnology | Data Science Data Analytics Data Visualization | Pendant Drop Technique

COMMUNICATION AND INTERPERSONAL

Communication and interpersonal skills

- Experience in scientific popularization activities, participating under contract with the University of Granada and in collaborations with both the Faculty of Sciences and the UGR in various scientific popularization events (European Researchers' Night, Science Week, "Aula Científica Permanente de la Fac. de Ciencias", among others)

Organisational skills

- Organisational and teamwork skills acquired through experience in Student Associations

Others

- Possibility of national and international mobility and travel
- Ability to adapt to new jobs, circumstances and rhythms, as well as to work in a team
- Great motivation to perform new challenges where to develop all the skills as well as to acquire new ones
- Driving Licence: B

B. WORK/RESEARCH EXPERIENCE

1/4/2021 – CURRENT – Bilbao, Spain

RESEARCH TECHNICIAN –BASQUE CENTER FOR APPLIED MATHEMATICS (BCAM)

Research Technician position in "Friction and contact forces from the Theory of CoarseGraining"

15/2/2021 – CURRENT – Granada, Spain

RESEARCHER ON A PROJECT (CONTRATO INVESTIGADOR CON CARGO A PROYECTO) DEPARTMENT OF THEORETICAL PHYSICS AND COSMOLOGY | UNIVERSITY OF GRANADA (UGR)

Research Project "Fundamental physics and multi-messenger astronomy with neutrino telescopes at the UGR"
Ref. PGC2018-096663 C44/AEI/10.13039/501100011033

Research activities in the framework of the Research Project focused on neutrino physics with underwater telescopes. Specifically, analysis tasks related to the KM3NeT and ANTARES experiments, such as the optimization of the search for Dark Matter and the characterization of the solar atmospheric neutrino flux, based on the data collected by these telescopes and Monte-Carlo simulations of the physical processes involved.

9/3/2020 – 3/7/2020 – Pau, France

INTERNSHIP – CNRS-IPREM | E2S UPPA

E2S UPPA, CNRS, Institut des Sciences Analytiques & de PhysicoChimie pour l'Environnement & les Matériaux, UMR5254

A bibliographic search and elaboration of a scientific review on biocompatible microgels as Pickering stabilizers

2016 – CURRENT – Spain

PRIVATE TEACHER

High school, college and university levels

Other publications relevant for the vacancy call - ICMATE/07/2021/GE

Iván Navarro Arrebola

Final degree thesis "Manufacture of magnetic particles - Preparation of magnetic fluids and physico-chemical study of them. Study in agarose hydrogels"

Abstract: Magnetic hydrogels are presented as a research area of great interest. Agarose hydrogels are studied in tissue engineering and transport and drug release due to their biocompatibility. On the other hand, maghemite is also studied as a drug transport vehicle due to its low toxicity and that it can be controlled by external fields. It is therefore Maghemite / agarose magnetic hydrogels a good candidate for the controlled release of drugs or to build controlled polymer structures. In the next study, maghemite nanoparticle synthesis will be studied from two different routes with control over size. The influence of the functionalization of the surface of the nanoparticles will be analyzed. And it will be confirmed in macro and micro agarose gels.

In this work I got acquainted mainly with the techniques:

- Synthesis of nano and macro particles.
- Dynamic light scattering characterization: size and electrophoretic mobility.
- Hydrogel formation and particle encapsulation.
- Electron microscopy.

Final master thesis "Microgels as Stabilizers of Emulsions. A theoretical and experimental study of pNIPAM microgels and alternatives."

Abstract: Smart materials are a very interesting target for research thanks to their mechanical response to external stimuli. Among them are sensitive microgels that respond to external stimuli with a rapid change in volume between states of swelling and collapse. This represents a great potential for application ranging from encapsulation and transport of molecules or drugs to use as a surfactant in the stabilization of emulsions.

This work comprises two parts. First, a review of the works published so far on the use of the most common and biodegradable microgels —pNIPAM— in the stabilization of emulsions and the interfacial properties and parameters that influence their behaviour. Likewise, and as a first step for a more complete study in emulsions, it contains an experimental study of pNIPAM-based thermosensitive microgels at air-water interface. To complement classical characterization techniques such as DLS and Langmuir monolayers, dilatational rheology is used to unravel and understand the interfacial properties of these microgels in relation to temperature, particles concentration and oscillation frequency.

Finally, the use of biocompatible and thermally and pH-sensitive alternatives based on oligo-(ethylene glycol) methacrylate is proposed.

This work was developed in two parts. In 2019, experimental measurements were performed at the UGR Applied Physics laboratories using Pending Drop technique at air/water interface coated with PNIPAM microgels. In 2020, the theoretical work on which my first publication (<https://doi.org/10.1016/j.cis.2020.102333>) is based, a review relating emulsion stabilization to the interfacial properties, was carried out at UPPA.

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sembly at liquid/liquid Interface as stabilizers of emulsion: Past, present & future

oid and Interface Science (2020): 102333
.1016/j.cis.2020.102333
illon, L., & Aguirre, G. (2020). Microgels self-assembly at liquid/liquid Interface as stabilizers of
present & future. Advances in Colloid and Interface Science , 102333.

WARDS

nts Academy Scholarship - Dialogo Association | E2S - UPPA

o study a master's degree in science at the University of Pau (UPPA)