UNIVERSIDAD DE GRANADA

Departamento de Física Aplicada

María Pedrosa Bustos

I obtained my Bachelor’s Degree in Physics from the University of Granada (UGR) in 2018. During the bachelor studies, I performed a stay at Radboud University Nijmegen (Netherlands) within the ERASMUS+ Mobility program, where I had the opportunity to participate in a research project on the magnetic moment of clusters of atoms with high vacuum Stern-Gerlach experiments, specifically my duty was to create slow clusters of atoms for best magnetic deflection.

I collaborated with the Department of Applied Physics as a beneficiary of a Collaboration Grant funded by the Ministry of Education, Culture and Sports of the Government of Spain, under the supervision of Prof. María José Gálvez Ruiz. I studied the interactions between anticancer drugs and different models of healthy and tumor cell biological membrane using Langmuir monolayers, within the framework of the project "Design of smart olive oil nanocapsules for oral administration: synthesis, physical-chemical characterization and in-vitro digestion (MAT2015-63644-C2-1-R) ". Such research was the basis of my Final Degree Project (TFG), which was awarded the "Xavier Domingo" award by the Spanish Committee for Detergency and the University of Barcelona.

When I finished my Bachelor's degree, I spent a period at the Institute of Photonic Sciences ICFO (Barcelona, Spain) through the "ICFO Summer Fellowship", in the group "Functional Optoelectronic Nanomaterials", led by Prof. Gerasimos Konstantatos. I studied the change with temperature of the intraband and excitonic transition energies in doped colloidal quantum dots photodetectors using FTIR spectroscopic techniques. The results were published in the journal ACS Nano (doi: 10.1021/acsnano.0c02033). Later, I participated in the "nanoGune Winter School" (San Sebastián) on nanoscience and cutting-edge experimental techniques, and in various courses on electronics and web design. In addition, I worked as an agro-environmental data analyst for the Japanese company ListenField.

I completed the Master degree FisyMat at the UGR, Biomathematics specialization, in 2020, where I learned about mathematical and computational modeling of physical systems. During the máster, I worked as an investigation support technician for the Institute Carlos I (iC1) of the UGR where, among other tasks, I helped with the maintenance of the supercomputer PROTEUS.

Currently, I am a member of the group of Physics of Interfaces and Colloidal Systems holding a predoctoral PFU fellowship. My research focuses on the analysis of the interaction of anticancer drugs and their nanocarriers with healthy and cancer cell membranes, mainly using Langmuir monolayers, and combining experimental techniques with computer simulations. This study continues with the research performed during my TFG and is part of the project "Synthesis and characterization of nanoghosts as novel drug delivery system (GHOSTNANOMAT, RTI2018-101309-B-C21)", led by Prof. María José Gálvez.