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Ms.C. in Quantum Science and Technology
Universitat de Barcelona - Facultat de Física

21 de marzo de 2021

Dear Sir/Madam,

My name is Alejandro Andrés Juanes, I am a Physics Bachelor student at Universidad de Salamanca. In the last four years I have gained experience in many fields, mainly classical and modern physics and mathematics; and learned how to code and the use of scientific software such as Mathematica and Matlab. But mostly, I have developed a persistent ‘thirst’ for scientific knowledge. This thirst is driven by a profound belief in the potential a physics’ student has in the future of our society. In the following lines, I will talk a bit about my previous experiences and why I think I am eligible for this master.

I am about to receive my bachelor’s degree with outstanding marks, positioning in the top 5 of my class and having obtained 10 High honours grades. I have always tried to find new challenges and hobbies. I studied my 3rd year of bachelor in the Universitat de Barcelona with a SICUE scholarship. That year helped me to realize that Barcelona is a city with great opportunities if I want to pursue a career in science, in special in quantum science. Lately, I participated with a group of friends in a Hackathon organised by the EU to find solutions to many pandemic’s related problems. Then, in summer, I had been chosen to be a summer intern in the CIC Nanogune, inside Luis Hueso’s Nanodevices group. There I studied during 2 months the properties of novel 2D materials (MoS2 and Graphene), trying to change its electrical properties. I manufactured samples and performed electrical measurements and Raman spectra on them looking for a superconductive phase change. Unfortunately, the project was not very successful but I could get to know the tough of the Experimental work, how the group was organized and motivated my desire to apply to your internship this summer. Now, I am working on my bachelor thesis within the Nanotech USAL group under the supervision of my tutors. We are trying to improve an optical characterization technique for monolayers of TMDs inside our lab and will study light-matter interaction with Raman scattering techniques and how they are allowed or forbidden by quantum selection rules.

We are embarking on the second technological revolution based on the power of Quantum Mechanics. It is astonishing what a myriad of devices would not exist without the theory of quanta, and in these days the design of quantum computers, networks and sensors will make us advance as a society. My aim is to follow a Ph.D. programme in one of these challenging problems.

I am readily available via email or phone if you wish to contact me for any further question. I appreciate your consideration and look forward to hearing from you.

Yours Sincerely,

Alejandro Andrés Juanes