



UNIVERSITAT DE BARCELONA



Dep. de Física Quàntica i Astrofísica  
and  
Institut de Ciències del Cosmos

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7 March 2021

## TO WHOM IT MAY CONCERN

Dear Colleague,

I was asked by **Joan Pareras Velasco** to write a recommendation letter in support of his application for the master programme you organize.

Joan will graduate with high marks this year at the Physics Faculty of the University of Barcelona.

I have known Joan since winter 2017, when I have been nominated his tutor during the degree of Physics. Moreover, in 2019, Joan attended my classes of Electrodynamics. The course comprised the theory of relativity and Maxwell equations in covariant formalism. Joan mastered well the theoretical concepts and was good in dealing with problems. As a final score of my course he got a good mark.

Since the first year, Joan has looked well determined and promising in academic and research project. He has collaborated with senior staff of our Faculty in several computational projects such as in biophysics (with Prof. Ricardo Mayol) and in cold atoms (Dr. Luca Tagliacozzo). He has particularly skillful in informatics and numerical stuff. As his tutor for the last 4 years, he takes in serious all the projects where he has been involved and works independently and hard.

Now, as very promising young physicist, Joan is looking for the best option to pursue his career.

Your master programme is a very good opportunity for him to improve his knowledge in Physics.

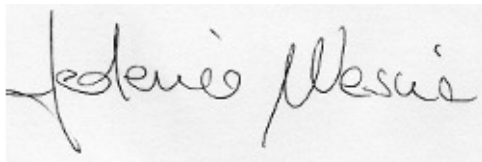
Summarizing, Joan is a fast-learner, pleasant to communicate with, and well motivated. For all of the

To:

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above I support his application for your master programme.

Yours Sincerely  
Federico Mescia

A handwritten signature in black ink on a light-colored background. The signature is written in a cursive style and reads "Federico Mescia".



March 16, 2021

### Reference Letter for Joan Pareras Velasco

This letter is to recommend Mr. Joan Pareras Velasco for his application to the Inter-university Master in Quantum Science and Technology coordinated by the University of Barcelona (UB).

I have known Joan for one semester as a student of two different undergraduate courses in the Physics Degree at the University of Barcelona (UB):

1. **Micro and Nanotechnology**, academic year 2020-21 (1<sup>st</sup> semester). This is an optional course of 6 credits (60 lecture hours) of the Physics Degree at the UB, partially imparted in English, where I taught during the first third of the course. My share consisted on lectures and exercises (17 h) and laboratory work (3 h). The lectures and exercises focused on a general introduction to the nanoscience and nanotechnology problems, length scales, and the effect of nanoscale confinement in various physical properties (electrical, optical, magnetic etc.). The laboratory work consisted on a hands-on tutorial on atomic force microscopy and image processing and analysis of magnetic nanoparticles.
2. **Solid State Physics**, academic year 2020-2021 (1<sup>st</sup> semester). This is an obligatory course of 6 credits (60 lecture hours) of the Physics Degree at the UB, where I taught during the last third of the course. My share consisted on lectures and exercises (20 h) focused on the semiclassical model of electron dynamics, classification of solids, and lattice vibrations and phonons.

During the two semesters I have had the opportunity to observe Joan's abilities and overall progress, I would rate his overall attitude on learning and performance as very good. I would rank him in the top 15% of the students that I have taught in the past years in both courses. Joan was proficient in applying the courses material and in analyzing the problems situations. His written Micro and Nano lab essay was excellent.

At a personal level, Joan demonstrated a continuous willingness to learn and was proactive asking questions throughout the class and afterwards. He seems dedicated and perseverant and to have initiative and drive to pursue ideas of his own. He has a genuine interest in Nanoscience and Nanotechnology.

For all the above reasons, I believe Mr. Joan Pareras Velasco would be a very positive asset to your Master program and I therefore highly recommend him. If I can be of any further assistance, or provide you with any further information, please do not hesitate to contact me.

Sincerely,

Arantxa Fraile Rodríguez, PhD.  
Assoc. Professor.

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