

Valencia, 31st march 2021

To whom it may concern,

I know Alberto Rodríguez-Moldes Sebastián from tutoring his final degree project during the 2020-2021 academic year at the University of Valencia. The subject of the work is “Simulation of neutrino oscillations using quantum computers”. It is a rather complicated subject, which combines theoretical aspects of quantum mechanics and quantum information, together with the experimental realization of the simulations on quantum computers from the IBM company.

Alberto is doing this work in a highly autonomous way. His ability to seek solutions has allowed the content initially proposed in the final degree project to be expanded. My opinion on Alberto's capabilities is unbeatable. My relationship with him has been fruitful, and has led to very interesting academic discussions, denoting a rare scientific maturity in students on this course.

For all the above reasons, I unconditionally support his application for enrollment in the master's degree in quantum sciences and technology at Barcelona.

Sincerely yours,



Armando Pérez, full professor
Departamento de Física Teórica e IFIC
Universidad de Valencia-CSIC



VNIVERSITAT D VALÈNCIA

Departamento de Física Teórica
IFIC

March 19th 2021

To whom it may concern,

I have been asked by Alberto Rodríguez-Moldes to write a letter of recommendation to support his application to be accepted as student in Graduate Studies at your University and I do so with pleasure.

Alberto was my student in two courses, Calculus I and Quantum Physics Laboratory. The freshmen courses are much influenced by their high school background, and usually even good students do not perform as well as they should. Alberto was a very inquisitive student, asking interesting questions and performing well in the tutoring hours. However, his examination was not as brilliant as I expected and I attribute that to the freshmen syndrome, not being used to long examinations and with thought exercises instead of classified by type exercises, as is customary in Spanish high schools. Despite these inconveniences he still got a B, which means that he ended up in the top 20% of the class. The second time he came across my tutoring was in the Quantum Physics Laboratory. This is a beautiful course to get to know the students. They are supposed to perform eight beautiful experiments, each lasting five hours, and the tutor goes around asking questions, and looking at how they develop the experiment based on their study and imagination. One can discover in the laboratory the work of nine Nobel Laureates and other brilliant physicists. Alberto showed all his intellectual power in that course. His questions were always brilliant and inquisitive and his answers always to the point. Together with his partner, they did excellent experiments, getting not only good results, but being able to explain the physics behind the experiment and the experiment itself brilliantly. The course ended before the pandemic, but the exam had to take place online. They were to defend one experiment via a PowerPoint presentation with voice. Thereafter, they would be asked questions by the committee which could also deal with other experiments, if necessary, for clarification. His presentation was outstanding and he answered the questions of the committee brilliantly.

In order to write this letter of recommendation I have enquired among other colleagues and have asked for his academic record. Alberto has done excellently up to now. He ranks among the top 5% of his class, having had the top-grade MH (A⁺), but we can only give one MH every 20 students, which in the class of Alberto meant that we could only give 2 MHs, in Mathematical Methods I, Quantum Physics Laboratory and Nuclear and Particle Physics. He has next to top marks SB(A) in Mechanics, Oscillations and Waves, Mathematical Methods II, Quantum Physics, Quantum Mechanics, Statistical Physics, Astrophysics and Mechanics Laboratory. The rest of his grades are NT (B), except in the freshmen year where he has a

series of AP(C). Altogether, if one omits the freshmen courses, Alberto would grade 8.7/10 which would be a top 5% grade, and if one includes the freshman courses, he gets 8.2/10, which is still a top 10% grade.

Besides mentioning his good grades, I want to emphasize that my personal interaction with Alberto has been extremely positive. As I already said, he maintains good physics conversations, asks intelligent questions and provides good answers. He is well read, hard-working and above all very enthusiastic about physics. Alberto is easy going with mathematics, he has even followed some courses of the Mathematics studies, but he is also very good in laboratory work, being able to transfer easily his knowledge of theory into the physical phenomena.

Most of the colleagues with whom I spoke had also a good impression of Alberto. They would be willing to write a letter of recommendation if requested. We all agreed that he has a tremendous potential, which he has not been able to fulfil completely in his undergraduate courses, but that we for see for Alberto a bright future as a researcher and professor.

For all of the above, I strongly recommend Alberto Rodríguez-Moldes to pursue his studies at the graduate level at your University. I strongly believe that your Master program is ideally suited for Alberto, and I have no doubt that he will show his potential. Please do not hesitate to contact me if you need any further clarifications.

Yours sincerely,

Vicente Vento
Professor of Theoretical Physics
IFIC- University of Valencia

Signed by Prof. Vicente Vento
IFIC-University of Valencia
on March 19th 2021