

Dear Dr. Bruno Julià,

I am writing to you to express my most sincere interest in the “Quantum science and technology” master that will take place the next academic year 2021/22.

I am Paul Nizet and I am currently finishing my 4<sup>th</sup> year Bachelor’s degree in Nanoscience and Nanotechnology, which is held in the Faculty of Sciences of the Autonomous University of Barcelona, UAB. At the moment I am carrying out my bachelor final project in the “*ICube*” which is part of the *Centre National de Recherche Scientifique* (CNRS) in Strasbourg, since February 2021. I am currently working on improving the effectivity of semiconducting organic nanoparticles solution based active layer organic solar cells (OSC).

During my degree I have studied different subjects concerning quantum phenomena and quantum effects for different devices and materials. One of the reasons I tell my surroundings that I love what I am studying is the potential applications of cutting-edge quantum technologies. This new master has caught my eye immediately and is very much in line with what I liked the most about what we did during the bachelor.

My interests in nanomaterials and quantum effects started very soon. In fact, when I was 17 years old I did my High School Research Project about “Graphene applications in biomedicine”. My curiosities towards nanotechnologies have changed during my degree to physical properties rather than biological applications.

I believe that the emerging field of quantum science will achieve very important goals in the coming years and I am willing to be part of this astonishing advances. I strongly believe that this master can give me the knowledge that I am looking for and the abilities to be one of the pieces that contribute to the research in this field in the upcoming years.

My experiences working at Advanced Nanotechnologies and, currently, broadening my research knowledge by participating in an ERASMUS program in Strasbourg have led me to develop different skills both for a R&D department of a company as well as for a research laboratory, two parallel fields that I wish will narrow their distances. Skills like critical thinking, teamwork spirit, curiosity and the desire to always learn something new are some of the qualities that define me and could offer during my fellowship and Master thesis.

I am really interested both in the different quantum materials, beginning from graphene and other 2D materials and ending up with quantum dots, and in nanophotonics and quantum optics, interest that increased during the last semester thanks to a subject taught by Xavier Cartoixà (UAB).

For all the above-mentioned reasons, I would be honoured to be part of the first generation of Quantum science and technology master students and be given the outstanding opportunity to work with prominent scientists from different fields of quantum research.

Thank you for considering my application. I am looking forward to hearing from you.

Yours sincerely, Paul Nizet Ruiz.