

Subject: Motivation Letter for Scholarship in Quantum Science and Engineering under the Erasmus Mundus Joint Master's Program

Dear admission committee

I am writing to express my strong motivation to join the Erasmus Mundus Master's program in Quantum Science and Engineering. I graduated with a degree in Applied Physics from Hawassa University in Ethiopia, where I developed a deep interest in computational physics, especially in simulation and modeling. This program aligns perfectly with my academic background and aspirations, providing the opportunity to expand my knowledge and contribute to advancements in quantum science and technology.

My undergraduate thesis focused on modelling mechanical systems, such as projectile motion, one-dimensional kinematics, and mass-spring systems. This experience allowed me to apply computational tools to solve real-world physics problems and deepened my interest in quantum systems, where computational methods are crucial for simulation and analysis. Recognized for my academic dedication, I received an award for outstanding performance in my department, which further motivated me to pursue excellence in both research and practical applications. Additionally, my involvement in various projects using computational methods has equipped me with the skills and mindset necessary to succeed in this program.

The Erasmus Mundus Master's in Quantum Science and Engineering stands out because of its combination of different subjects and the chance to learn from top researchers across Europe. I am particularly interested in the program's focus on quantum computing, quantum simulations, and quantum hardware, as these fields are key to the future of technology. I plan to study at UBFC in the second semester, focusing on **Photonics, Nanophotonics, and Enabling Technologies**. In the third semester, I will continue at RPTU, **specializing in Many-Body Quantum Physics**, and at the University of Augsburg for its focus on **Platforms for Quantum Technologies**, which will deepen my understanding of quantum hardware.

In the short term, I plan to improve my knowledge of quantum technologies and engineering through this program and then pursue a Ph.D. in quantum computing or simulations. My main goal is to use quantum technologies to solve major challenges faced by developing countries, especially Ethiopia. I want to make financial and government systems safer by applying quantum cryptography, which is an important step in building strong digital economies. In addition, I work on addressing energy shortages through quantum simulations to create affordable solar panels, which supports economic growth, improve technology, and bring sustainable development to communities in need.

Finally, I believe that being a student in this program will empower my professional development and provide a framework to fully utilize my potential. Moreover, I feel that as a master's student at any of the selected universities, I can benefit from numerous challenging career opportunities.

Thank you for considering my application. I am truly grateful for this opportunity and look forward to a favorable reply.

Yours Sincerely,

Dereje Liknaw