

## Cover letter

February 7, 2025

Dear Sir/Madam,

I am so excited to apply for the PsiQuantum Quantum Applications internship position! I am finishing my master's degree in mathematics; I am researching fusion-based quantum computational models and have good quantum industry experience. This opportunity is perfect for me, as I will be able to apply all the experience I've gained and expand my career with new and important knowledge about the field.

Why do I want to work at PsiQuantum?

It has been my dream since I found out how millions of entangled modes can be created using time-domain multiplexing. Since then, I began to relate to the idea of MBQC more and more. During my undergraduate thesis, I researched quantum entangling transformations with the KLM protocol and learned how hard it can be to reliably produce resource states. During my master's degree, I had a project "Strawberry Fields Composer" with which I learned a lot about the structure of light and non-linear elements in photonic circuits. My master's thesis is focused on describing a mathematically full and correct model of FBQC systems. I am diving deep into understanding how QEC codes can be constructed and how to estimate the impact of errors on those codes.

Why would I be a good fit for PsiQuantum Intern?

I would fit for the "Applications Software" team perfectly, as it has been the focus of my work for the past year. I am working in a growing startup QC Design and managing up to 4 people's work. During my time at QC Design I had a unique opportunity to work on improving the speed of our software. I achieved great results in the simulation part as well as in the decoding process, which played an important role in attracting some of our valuable customers. I am very proud of my work and hope to accomplish even more in my career. That is why I feel like I am ready for a new challenge. I believe in PsiQuantum's mission and can see myself having a long-term career with you.

Thank you for your time and consideration, I hope to hear from you soon!

Yours faithfully,

**Ivan Ogloblin**

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