Self-introduction

Thanks for giving me the chance. Good afternoon, my name is Xiu Zhongqi, and I am here to introduce myself for the PhD application. I will complete my undergraduate studies in Optics and Optical Engineering at University of Science and Technology of China next year, with a GPA of 87 out of 100. My academic journey has been strengthened by rigorous coursework in Quantum Mechanics, Advanced Photonics, and Engineering Optics.

Throughout my academic journey, I have received several honors and awards, including the Outstanding Student Scholarship and the Endeavor Scholarship, which placed me in the top 5% of my cohort. I also had the opportunity to participate in the Chung-Yao Chao Talent Program, a highly selective scholarship program.

Additionally, I have gained valuable teaching experience as a Teaching Assistant for the Optics B course in 2023 Autumn. Also, my Skills in programming languages include Python, C/C++, and HTML/CSS. I am proficient in various frameworks and software tools such as MATLAB, Solidworks, LabVIEW and COMSOL, which are critical for conducting simulations, data analysis, and experimental setups in my research work.

In terms of research, I have had the privilege of working in two major areas. First, I was involved in single-atom trapping using movable optical lattices, where I successfully demonstrated high-precision atomic position control through fluorescence detection. Additionally, I explored combining cavity cooling with feedback cooling to push temperature limits, verifying this through theoretical calculations. More recently, I have been working on single-photon emitters in atomically thin semiconductors, specifically WSe2. This research is critical to improving the purity and reliability of single-photon sources, which are key to the development of quantum light technologies.

Overall, these experiences have equipped me with a strong foundation in both theoretical knowledge and practical applications, preparing me to contribute meaningfully to the research group and academic community in the Electronic Engineering department.

Questions

After PhD graduation?

Ultimately, my goal is to become a faculty member, inspiring and mentoring the next generation of scientists while leading a vibrant research community. I aim to bridge the gap between cutting-edge advancements in quantum optics and innovative teaching practices.

In my future research, I hope to explore the quantum properties of two-dimensional materials and their integration into photonic systems, such as cavity QED setups. My focus will be on developing nanoscale platforms that allow precise control of quantum phenomena, enabling breakthroughs in areas like quantum sensing and secure communications. Additionally, I am passionate about translating these discoveries into tools that can probe and manipulate quantum states at unprecedented temporal and spatial resolutions.

By fostering an environment where curiosity drives creativity, I aspire to contribute meaningfully to the scientific world while empowering the next generation to explore and innovate in this fascinating field.

Why choose HK, CUHK?

One of the key reasons I chose to apply to CUHK is the opportunity to work with Prof. Sun Xiankai's lab. His group's pioneering research in optomechanics, quantum photonics, and integrated photonic devices aligns seamlessly with my academic background and research interests. I am particularly inspired by his innovative work in exploring nanoscale optomechanical interactions and developing high-precision photonic systems, which resonates with my aspiration to advance quantum materials and photonic technologies.

CUHK's interdisciplinary environment and its strong emphasis on fostering innovation and collaboration make it an ideal place for my PhD journey. I am confident that the resources and academic culture at CUHK will enable me to grow as a researcher while contributing to the university's ongoing advancements in quantum science.

Why EE?

I chose to pursue Electrical Engineering because it offers a unique balance between foundational science and practical applications. EE provides the tools and methodologies to translate groundbreaking concepts in quantum optics and photonics into real-world technologies.
Choosing EE at CUHK is, therefore, a deliberate step to align my skills and passions with a field that empowers me to turn scientific insights into impactful innovations.