

Sander Stambach  
Rainweg 11  
4450 Sissach  
Schweiz  
Tel: +41 79 589 32 69  
E-Mail: sander.stambach@oultook.com

Chalmers University of Technology  
412 96 Gothenburg

Sissach CH, 08. 02. 2024

Dear Professor Splettstößer,

My name is Sander Stambach, I got informed about your PhD position from my Professor Patrick Potts. I took my master's exam by Dr. James Wooten from IMB Zürich on the topic of quantum computing. After that, I proceeded with my master's thesis by Professor Potts in quantum thermodynamics.

The theoretical investigation of electronic devices in quantum systems has intrigued me since the beginning of my master's studies. Having gained insight into Professor Patrick Potts' group on various topics in theoretical quantum thermodynamics, I am eager to engage in research in this area. Particularly, I find the prospect of collaborating with experimentalists exciting, aiming to make an effective contribution to the development of new devices. My objective has always been to become a physicist, which is why I did my bachelor's degree in physics at the University of Basel. Throughout my studies, I learned to code in Python, Fortran, Java, and other programming languages. During my master's studies, I focused on theoretical quantum physics, as I am especially interested in this field. In addition, I attended lectures about high-energy particle physics as well as quantum field theory. Moreover, I worked in Professor Pott's group on theoretical quantum thermodynamics. Finally, my master's thesis consisted of researching numerical calculations, where I focused on full counting statistics on a three-level system coupled to a thermal bath.

Now that I have completed my master's degree, I would like to further my studies in a PhD position. The group "Dynamics and thermodynamics of nanoscale devices" is especially appealing to me since I see your work about dissipative and dispersive cavity optomechanics

with a frequency-dependent mirror as an essential contribution to the future of quantum science, which I find particularly interesting. As a PhD student, I would love to be part of the research development and to make significant contributions to your work on quantum thermodynamics using my expertise in numerical and analytical skills, in quantum physics.

Ever since my first year of graduate school, I've been tutoring. I soon discovered that I excel when collaborating with young students, allowing me to fully realize and utilize my abilities.

Besides my physics studies, I enjoy exploring various disciplines, as it shows also in my diverse athletic hobbies. I have been practicing martial arts for a long time and am actively involved in humanitarian projects. This diverse range of interests has shaped my journey. I am a strongly resilient researcher with a high stress tolerance. During the last year of my master's program, I participated in various humanitarian aid trips to the Ukrainian warzone. This experience taught me how to keep calm in stressful situations and how to look for the best solution while considering all circumstances and to be helpful in this situation.

I would like to thank you in advance for your consideration, and I look forward to meeting you in person to discuss the possibility of my appointment.

Yours sincerely,

Sander Stammbach