November 30, 2024

RPTU Kaiserslautern-Landau
Department of Physics
Pelster group

To whom it may concern,

I am writing to you to apply for the RISE project '*BEC-BCS Crossover on the Shell*' at RPTU Kaiserslautern-Landau. My name is David Lawton, and I am a Junior Sophister student at Trinity College Dublin studying Theoretical Physics. After reading the description of the project, I found the idea of a single framework describing superfluidity of both fermions and bosons on a 2D shell to be extremely interesting. The theoretical nature of the project makes it especially appealing.

Such a project would allow me to use all the tools and techniques I have learned in my undergraduate studies, and would provide me with a great opportunity to learn more about the topic at hand, but also to learn more about a career in academia.

I believe that the modules which I have taken during my studies have provided me with a solid basis of knowledge in theoretical physics, as well as some mathematicss. Over the past year, with the School of Maths, I have taken modules including, but not limited to, advanced classical mechanics, quantum mechanics, statistical mechanics and classical field theory. I have also taken modules in the our School of Physics, such as computer simulation and condensed matter physics. As well as this, I will be taking modules in linear PDEs and electrodynamics, while further studying quantum mechanics and statistical mechanics, during the next semester. Further details pertaining to these modules can be found online here. The material of both the quantum and statistical mechanics, as well as condensed matter physics, being the most relevant to superfluidity research. Thanks for your considerations.

Yours sincerely,

David Lawton.