



**Thomas Spriggs**

**Swansea University**

**Lattice QCD – Theoretical Particle Physics**

**Spectral features of hadronic states in thermal QCD**

**About me:**

As a PhD candidate, I am driven by a desire for meaningful development, both personally and in my field of particle physics. I joined the CDT because it combined the benefits associated with collaborative work alongside a rigorous technical training programme. This combination allows me to thrive both independently and as part of high-performing, technical teams.

I enjoy making positive contributions and giving back to those around me. As chair of the AIMLAC CDT student board, the student representative on the AIMLAC CDT management board, and a member of the university-wide Doctoral Training Strategy & Governance Oversight Group, I promote student development and ensure all our CDTs remain invaluable assets to students, empowering us to thrive in industry and academia.

Outside of my PhD I am a keen surfer, skateboarder, powerlifter, football player, and film photographer.

**Science/ Research information:**

After graduating 4<sup>th</sup> in my year at Durham, getting my 4-year Master of Physics in Theoretical Physics, I moved to Swansea to study lattice QCD with the Particle Physics and Cosmology Theory Group. This computationally intensive branch of theoretical particle physics requires large collaboration between physicists, mathematicians and computer scientists.

**Data Intensive / Artificial Intelligence / Machine Learning / Advanced Computing Skills and interests:**

I have 4+ years' experience with Python (both 2.7 and 3) with specialist training through the CDT in high-performance Python, object-oriented programming, and testing and continuous integration.

Alongside this high-level proficiency, I have 1+ year experience with C and bash/unix, both form an essential part of my current project using Supercomputing Wales' Sunbird cluster, giving me familiarity with job scheduling using SLURM as well as remote working on clusters in general. Furthermore, I am familiar and experienced in using CUDA for General Purpose GPU programming, and OpenMP for parallel CPU programming, with an aim to accelerate my collaboration's code using heterogeneous computing across CPUs and GPUs.

Most recently, I have been using Intel's VTune profiler to assist with the aforementioned code development and strengthen my research, along with Nvidia Visual Profiler and Nsight Compute for CUDA development on Nvidia's raplab GPU cluster.

Underpinning all of these skills is a deep understanding and appreciation for the "best practises" surrounding version control, testing, documentation, and reproducibility.

**Future goals and desires:**

As an ambitious growth-driven young academic, I plan to specialise in a research and programming career, in a stimulating and rewarding collaborative context. I hope to become part of a cutting-edge company where creativity and innovation are the norm, and where my skillset, hard work, and passion can have meaningful real-world impact.