Easter Banknock, Denny, FK6 5NA, United Kingdom

□ (+44) 7446 949025 | **™** mbr-phys@protonmail.com | **™** mbr-phys

January 18, 2020

### **Physics Research Group**

UNIVERSITY OF HOPE
VALLEY OF DREAMS
REALM OF IMAGINATION

## Application for PhD position

Dear Mr./Ms./Dr. LastName,

### About Me

I am currently a fourth year student at the University of Durham studying MPhys in Theoretical Physics. I have spent the previous years steadily focusing towards particle physics, through studying courses such as Relativistic Quantum Mechanics, Gauge Field Theories, and Nuclear and Particle Physics. During my third year, I began looking into the difficulties of understanding and predicting the behaviours of QCD through a project to model the inter-quark potential in quarkonia systems. My Masters thesis is still being worked on, but in the preliminary stages, I have been testing the Two Higgs Doublet Model of Type II against flavour observables, finding constraints on its parameters. Through these courses and projects, I have developed a strong interest in the field of particle physics, with particular focus on flavour physics. I am a very hard-working individual who will bring passion to my work and happily dedicate myself to my studies to the full extent of my abilities.

# Why [research group]? \_\_\_\_\_

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### Why Me? \_

As I learn more and more about the mysteries of physics, there is one thing I can say with certainty: I need to know more. There is something so fascinating about the formulation of the theory of particle physics, I cannot help but be drawn to it. I know that what I have so far learned is but the tip of the iceberg, and I am so eager to continue my learning. The opportunity to continue my learning in particle physics, and begin to contribute towards the expansion of scientific knowledge would be something most valuable to me. The [research group] would be a great place for me to continue my studies, with the focus on flavour physics allowing me to expand on my specific interests developed in the Masters thesis, with strong resources and professionals in the field I can collaborate with on projects throughout my research. I believe I could prove to be a great addition to the team at [research group] and would very much enjoy the opportunity to take my next steps in physics with you.

Thank you for your time and consideration, I look forward to hearing from you. Sincerely,

#### **Matthew Rossetter**

Attached: Curriculum Vitae, Academic Transcript, Masters abstract