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Thomas Bourton

Personal profile

I am a final year PhD student studying theoretical physics at DESY and Universität Hamburg and I will graduate October 2019. I can offer problem solving and analytical skills. Additionally, I also have programming experience, highlighted by the software placement attended during my time at Ultra Electronics. I have experience working in a team and have the ability to drive a project forward.

Employment

2016–Present **PhD Student - Theoretical Physics**, *DESY*, Hamburg, Germany,
Thesis - *Exact Results for $\mathcal{N} = 1$ Theories of Class $\mathcal{S}_k$*.
The research area of my PhD studies is the mathematical study of quantum field theories. Quantum field theory provides the main mathematical framework to study particle physics, for example the standard model of particle physics. Much of my research involves applying tools developed in pure mathematics to answers physics questions. A preliminary copy of my thesis can be provided upon request.

2016 **Software Development Placement**, *Ultra Electronics Precision Control Systems*, Cheltenham, UK.
I did a paid summer internship with a software development team working on a smart vest for military and emergency services applications, with a heavy focus on wearable technology.
Detailed achievements:
- Developed fully functioning integration of a wearable smart watch with powered combat vest.
- Created both smart watch software aswell as combat vest adapter software to interface with smart watch device over USB.

2012–2014 **First Article Inspection Report Assistant**, *Ultra Electronics Precision Control Systems*, Cheltenham, UK.
I was hired in the summers (June-September) during my undergraduate studies with my main task being to implement a software based First Article Inspection Report (FAIR) system.
Detailed achievements:
- Migrated paper based FAIR system to computer based solution.
- Created work flow process and provided training for new FAIR software to other employees.

Education

2015–2016 **MASt, Applied Mathematics**, *University of Cambridge*, Cambridge, *Distinction*.
One year taught masters course, designed to prepare students for mathematical research and industry, also known as Part III of the mathematical tripos.

2011–2015 **MPhys, Theoretical Physics**, *Swansea University*, Swansea, *First-class honours*.
Four year integrated masters degree, equivalent to BSc + MSc.

Computer Skills

Advanced	*Mathematica*, LaTeX
Intermediate	*Python*, *C*, *Java*, *Linux*, *Excel*
Basic	*Git*, *Perl*, *Bash*, *C++*

Awards & Achievements

- Prize for Best Student at Level M, Swansea University 2015
- The PM Davidson Prize for Best Theoretical Physics Project, Swansea University 2015
- Recognised Reviewer for *Nuclear Physics Section B* Journal

Scientific Publications

- Instanton Counting in Class $\mathcal{S}_k$ – hep-th/1712.01288
- $4d$ $\mathcal{N} = 3$ Indices via Discrete Gauging – JHEP10(2018)131

Scientific Talks & Lectures

- ZMP seminar, University of Hamburg, 'Introduction to $4d$ $\mathcal{N} = 2$ Superconformal SIgebra'
- Theory Journal Club, DESY, 'Instanton Counting for Class $\mathcal{S}_k$'
- SCGSC 2018, Université libre de Bruxelles, 'Exact Results for Class $\mathcal{S}_k$'
- Supersymmetry and Supergravity Lecture, 'Seiberg-Witten Theory'
- DESY Theory Workshop 2018 - Instanton Counting for Class $\mathcal{S}_k$
- Bootstrap Basics II - Conformal Algebra Representations and Block Expansion

Links

- StackExchange: stackexchange.com/users/8826462/thomas-bourton
- LinkedIn: linkedin.com/in/tbourton
- GitHub: github.com/TBourton
- Inspire: inspirehep.net/author/profile/T.Bourton.1