Stuart Patching

Personal Details

**Date of birth:** 13/06/1993

**Nationality**: British

**Mobile telephone:** +44 7528 802438

**E-mail:** s.patching17@imperial.ac.uk

Education

**Imperial College London and University of Reading**

**University of Southampton Oct 2015 – Dec 2015**

*Postgraduate Research Student in General Relativity group (did not complete)*

**Selwyn College, University of Cambridge** **Oct 2014 – Jun 2015**

*MMath (Part III)* Pass with Distinction

*Quantum Field Theory Symmetries, Fields and Particles*

*General Relativity String Theory**Black Holes Applications of Differential Geometry to Physics*

**Selwyn College, University of Cambridge** **Oct 2011 – Jun 2014**

*MA in Mathematics* First class honours

Part IA:

*Vectors & Matrices Groups Differential Equations Numbers & Sets*

*Vector Calculus Analysis I*

*Dynamics & Relativity Probability*

Part IB:

*Quantum Mechanics Methods Metric & Topological Spaces Fluid Dynamics Complex Methods/Analysis Analysis II Electromagnetism Variational Principles Linear Algebra Computational Projects*

Part II:

*Classical Dynamics Integrable Systems Computational Projects*

*Principles of Quantum Mechanics Asymptotic Methods*

*Electrodynamics Further Complex Methods*

*Applications of Quantum Mechanics Statistical Physics*

*General Relativity Partial Differential Equations*

**Dartford Grammar School** **Sept 2004 – Jul 2011**

International Baccalaureate: 42/45

GCSEs: 9 A\*, 2 A

Research Experience

**Intern, Centre for Scientific Computing, University of Cambridge Sept 2016 – Dec 2016**

* Fundamentals of Machine Learning.
* Numerical Analysis, Numerical solutions to PDEs.
* Attended High-Performance Computing Academy.
* C, C++, Python, MATLAB.

**Summer Research Student,** **Department of Chemistry, University of Cambridge Jul 2015 – Aug 2015**

* Supervisors: Prof. Stuart Althorpe and Dr. Timothy Hele.
* I aided my supervisors in understanding the order of accuracy of their method.
* Large workload of pen-and-paper calculations.
* Applied knowledge of Quantum Field Theory from Part III courses.

**Summer Research Project, Mathematical Institute, University of Oxford Jul 2014 – Aug 2014**

* Supervisors: Dr. Pierluigi Cesana and Dr. Angkana Ruland.
* Studied geometric properties of crystalline structure of Martensite.
* Successfully proved a result restricting possible crystal formations.
* Supervisors are currently writing a paper based on my work during this project.

Publications

P. Cesana, S. Patching, A. Rüland. *Some remarks on the role of symmetries in geometrically linearized phase transitions.* (Tentative title, manuscript in preparation).

Employment History

**English Language Assistant, IES Las Veredillas, Torrejón de Ardoz, Madrid Apr 2016 – Jun 2016**

* Supported teachers in a bilingual secondary school.
* Prepared lessons on poetry, grammar, reading comprehension and speaking.
* Worked with children of various English-speaking abilities.
* Engaged students in class discussions.

**English Teacher, TEFL Trainer, Madrid Jan 2016 – Apr 2016**

* 500 one-to-one teaching hours.
* Six reflective diaries analysing aspects of teaching English as a foreign language.
* TEFL Trainer Advanced Certificate: Distinction

**Leisure Sevices Assistant, The Parents Consortium, Hextable, Kent Jul 2012 – Apr 2014**

* One-to-one support of disabled children and young people.
* Safety and personal care needs.
* Enabling play and participation in activities and excursions.

Skills

**Computing**

* C, C++, Python, MATLAB.
* Parallel computing in MPI and OpenMP.
* Proficiency in LaTeX.
* Completed Stanford Machine Learning course on Coursera.org.

**Languages**

* English—native language.
* Spanish—intermediate.

Hobbies and Interests

*Badminton, travel, volunteering, reading.*