

# Dr. P. M. Secular

“Paul defended his work exceptionally well. His profound understanding of quantum mechanics was evident throughout. Paul’s contributions in Part III [of his thesis] are both substantial and innovative.”

— PhD *viva voce* examiners’ feedback

## CONTACT

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Email [p.m.secular@bath.edu](mailto:p.m.secular@bath.edu)  
Web <http://secular.me.uk/>  
Languages English (fluent), Italian (limited working proficiency)

## EDUCATION

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### Doctor of Philosophy (PhD), Mathematics & Physics

2016–2024

*University of Bath*

Doctoral thesis: [Parallel Tensor Network Methods for Quantum Lattice Systems](#) supervised by Dr. Sergey Dolgov and Dr. Stephen R. Clark. Passed with “trivial or typographical” corrections. Collaborated with Prof. Dieter Jaksch’s group at the University of Oxford on the Tensor Network Theory (TNT) Library project. Gave talks at seminars/symposia and presented posters at conferences. Took Advanced Quantum Theory via mathematics Taught Course Centre (grade: Distinction). Mentored one PhD student.

### Master in Science (MSci), Physics with Theoretical Physics

2012–2016

*Imperial College London*

MSci project: [Nonlocality & Impossible Machines](#) supervised by Dr. David Jennings (grade: 80%). First-year pair project: “Recovering Chaotic Systems using Genetic Algorithms” (grade: 92%). Options included: Advanced Particle Physics, Complexity & Networks, Computational Physics, Foundations of Quantum Mechanics, General Relativity, Information Theory, Quantum Information. Mentored five undergraduate students.

### Certificate of Higher Education (CertHE), Physics & Mathematics

2011–2012

*Birkbeck College, University of London*

Studied part-time to refresh academic skills, achieving 100% in Mathematics and 99% in Physics. Essay project: “Re-examining radioactive decay: a rigorous approach” (grade: Distinction).

## FUNDING

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### High Performance Computing PhD studentship

2016–2020

*University of Bath / ClusterVision*

### 2019 Quantum Information Theory research term grant

2 weeks

*The Instituto de Ciencias Matemáticas (ICMAT), Madrid*

### 2016 High Performance Computing Autumn Academy bursary

2 weeks

*HPC-SC Consortium*

## WORK EXPERIENCE

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### Graduate Teaching Assistant

2016–2024

*University of Bath (zero-hours contract)*

Assisted/tutored physics and mathematics undergraduates in the following courses: Programming for Applied Mathematics (2023–24), Scientific Computing (2018–19), Mathematical Methods for Physics (2017–18), Programming Skills for Mathematics & Physics (2017–18), Computational Physics B (2016–17). Marked programming coursework, providing constructive feedback.

### Undergraduate Research Opportunities Programme (UROP)

2014–2015

*Imperial College London (part-time)*

Worked with Dr. Caroline Clewley to design and build an interactive, educational web application in JavaScript aimed at first-year Physics undergraduates studying Special Relativity.

### Web Developer

2008–2010

*Freelance (part-time)*

Designed and built e-commerce websites and blogs for two independent fashion boutiques.

### Software Analyst/Developer

2002–2007

*YouthNet (full-time)*

Worked on the National Volunteering Database project as lead developer of V-Base—a desktop application used by the UK’s Volunteer Centre network, Sport England, Business In The Community, and others. Undertook and presented research on IT infrastructure in the Voluntary and Community sector. Recruited and supervised one contractor and several volunteers.

### Software Engineer

2000–2002

*Cognition Consulting (full-time)*

Designed and built a bespoke content management system for Global Continuity and worked with other developers on risk-management applications.

## PAPERS

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[Classical verification of a quantum simulator: local relaxation of a 1D Bose gas](#)

P. Secular, arXiv:2401.05301 (2024)

[The addition of relativistic velocities from the  \$k\$ -calculus](#) (letter to editor)

P. Secular, *The Physics Teacher*, 59(2):84 (2021)

[Comment on “Relaxation theory for perturbed many-body quantum systems versus numerics and experiment”](#), P. Secular, arXiv:2005.02681 (2020)

[Parallel time-dependent variational principle algorithm for matrix product states](#)

P. Secular, N. Gourianov, M. Lubasch, S. Dolgov, S. R. Clark, and D. Jaksch  
*Physical Review B*, 101(23):235123 (2020)

## COMMUNITY REVIEW

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[FAIR Principles for Research Software version 1.0 \(FAIR4RS Principles v1.0\)](#)

N. P. Chue Hong, D. S. Katz, M. Barker, et al. *Research Data Alliance* (2022)