Jessica K. Eastman, PhD

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Education

Ph.D. Physics, The Australian National University **2015-2020**
Thesis: "The emergence of chaos in continuously monitored open quantum systems"
Supervisors: Dr. André R. R. Carvalho, Dr. Joseph Hope, Dr. Matt James, Dr. Stuart Szigeti

B.Sc. Physics (Honours), The Australian National University **2011-2014**
Thesis: "Efficient generation of random quantum states using quantum trajectories"
Supervisor: Dr. André R. R. Carvalho

Experience

Employment

Research Associate **2020-2023**
Department of Mathematics
Imperial College London

Research Assistant **2019-2020**
Department of Mathematics
Imperial College London

Physics Tutor **2018**
Research School of Physics and Engineering
The Australian National University

Visiting Scholar **2017**
Centre for Quantum Dynamics
Griffith University

Lab Demonstrator **2016-2017**
Research School of Physics and Engineering
The Australian National University

Team Member **2014-2015**
McDonalds

Sales Assistant **2011-2013**
Whisk Kitchenware

Other Experiences

Presentations

Overall I have given seven talks including two invited seminars and one keynote talk on my research to other experts in my field. I have also given outreach talks about my work to undergraduate and high school students. I have also taken on the responsibility of running a research summer school for women in mathematics and co-organised the Mathematical Physics seminar series for the Mathematics department at Imperial College.

Student Supervision

I have supervised four students since 2019, including co-supervising one PhD student, two masters students and one summer research student.

Publications

Quantum-jump vs stochastic Schrödinger dynamics for Gaussian states with quadratic Hamiltonians and linear Lindbladians
Robson Christie, Jessica Eastman, Roman Schubert and Eva-Maria Graefe, Journal of Physics A: Mathematical and Theoretical 55 (45), 455302, (2022)

The effects of amplification of fluctuation energy scale by quantum measurement choice on quantum chaotic systems: Semiclassical analysis
S. Greenfield, Y. Shi, J. K. Eastman, A. R. R. Carvalho, A. K. Pattanayak, Proceedings of the 5th International Conference on Applications in Nonlinear Dynamics, Springer, Cham, 72-83 (2019).

Controlling chaos in the quantum regime using adaptive measurements
Jessica K. Eastman, Stuart S. Szigeti, Joseph J. Hope, André R. R. Carvalho Phys. Rev. A, **99**, 012111 (2019)

Tuning quantum measurements to control chaos
Jessica K. Eastman, Joseph J. Hope, André R. R. Carvalho. Scientific Reports, 7, 44684 (2018)

Technical Skills

Data Analysis Proficiency

- Python
- Mathematica
- MATLAB

Numerical simulation Proficiency

- Xmds2 (Stochastic differential equations software package)
- High performance computing
- Split operator method in Matlab for quantum simulations
- Finite element methods using Matlab for Quantum billiard simulations

Other Proficiencies

- Git
- LaTeX
- HTML