# Adam A.S. **Green**

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## Key Skills and Highlights

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| Programming | *Python* (pandas, matplotlib, numpy, scipy, trackpy), *FORTRAN* (lapack), *Mathematica*, *openFOAM*, LaTeX, SQL, git |
| Mathematics | Eigenvalue and eigenvector problems, Brownian/stochastic analysis and statistics, Perturbation analysis, Electro-optic behaviour of soft matter systems, Fourier analysis |
| Achievements | First place in 2017 NSF MRSEC Center *Science Slam* (3-minute scientific presentation competition), 4 peer-reviewed publications in 4 distinct subfields, Poster presentation at the International Liquid Crystal Conference, Mentorship and supervision of 4 undergraduate research students, Oral presentation at the Ferroelectric Liquid Crystal Conference |

## Education

**Ph.D Physics** University of Colorado Boulder . . . . . July 2019

*-Liquid and Crystal: The Applicability of the XY Model to Experimental Systems of Two-Dimensional Topological Fluids; and Revealing the Nanoscale Structure of the Bent-Core Alpha Phase*

**M.S. Physics** University of Colorado Boulder . . . . . May 2015

**B.Sc. Physics Honours (First Class)** University of Calgary . . . . . May 2011

*-Improving the Efficiency of a Controlled Dipole Quantum Memory*

## Experience

**Graduate Researcher** University of Colorado Boulder, CO, USA . . . . . 2015-2019

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| Fluid Dynamics | *Investigated the 2D fluid dynamics of freely-suspended liquid crystals* |
| Materials Science | *Discovered two new phases of matter using electro-optical, X-ray techniques* |
| Soft Matter | *Investigated the nucleation of topological defects in liquid crystal system using classical and machine learning methods* |

**Graduate Researcher** NIST, Boulder, CO, USA . . . . . 2013-2015

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| Optics | *Designed and fabricated whispering gallery optical cavities for laser frequency stabilization applications* |

**Undergraduate Researcher** University of Calgary, AB, CAN . . . . . 2007-2012

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| Quantum Optics | *Designed an optimally efficient optical quantum memory* |
| Quantum Statistics | *Investigated statistical convergence of bosonic and fermionic systems* |
| Complexity Science | *Studied the time and space correlations of earthquake magnitudes* |

## Publications


Minor, E. N., Howard, S. D., Green, A. A. S., Park, C. S., and Clark, N. A. (2019). End-to-End Machine Learning for Experimental Physics: Using Simulated Data to Train a Neural Network for Object Detection in Video Microscopy. *arXiv:1908.05271 [cond-mat]*. arXiv: 1908.05271

Green, A. A. S., Dutch, E., Qi, Z., Briggs, C., Park, C. S., Glaser, M. A., Maclennan, J. E., and Clark, N. A. (2019b). A gas flow meter with linear sensitivity based on freely-suspended nanofilms of smectic liquid crystal. *Appl. Phys. Lett.*, 114(16):163705

Green, A. A., Tuchband, M. R., Shao, R., Shen, Y., Visvanathan, R., Duncan, A. E., Lehmann, A., Tschierske, C., Carlson, E. D., Guzman, E., Kolber, M., Walba, D. M., Park, C. S., Glaser, M. A., Maclennan, J. E., and Clark, N. A. (2019a). Chiral Incommensurate Helical Phase in a Smectic of Achiral Bent-Core Mesogens. *Phys. Rev. Lett.*, 122(10):107801

Loh, W., Green, A. A. S., Baynes, F. N., Cole, D. C., Quinlan, F. J., Lee, H., Vahala, K. J., Papp, S. B., and Diddams, S. A. (2015). Dual-microcavity narrow-linewidth Brillouin laser. *Optica, OPTICA*, 2(3):225–232

Heshami, K., Green, A., Han, Y., Rispe, A., Saglamyurek, E., Sinclair, N., Tittel, W., and Simon, C. (2012). Controllable-dipole quantum memory. *Phys. Rev. A*, 86(1):013813

Davidsen, J. and Green, A. (2011). Are Earthquake Magnitudes Clustered? *Phys. Rev. Lett.*, 106(10):108502


## Hobbies and Interests

- *Birdwatching and Nature*— the Front Range is rich in its variety of ecosystems and native species, and it is a constant delight to be out among them.
- *Board Games*— Fellow graduate students introduced me to the joys of gaming, my current favourite is Carcassonne.