

# Adam A.S. Green

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## KEY SKILLS AND HIGHLIGHTS

- Programming *Python* (pandas, matplotlib, numpy, scipy, trackpy), *FORTRAN* (lapack), *Mathematica*, *openFOAM*,  $\text{\LaTeX}$ , 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
- 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
- Optics *Designed and fabricated whispering gallery optical cavities for laser frequency stabilization applications*
- Undergraduate Researcher** University of Calgary, AB, CAN ..... 2007-2012
- 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., Risper, 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.