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Professor Andrew David Rutenberg

Correspondence language: English

Sex: Male

Date of Birth: 11/25

Canadian Residency Status: Canadian Citizen

Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Primary Affiliation (*)

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Protected when completed

Professor Andrew Rutenberg

Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
French	Yes	Yes	Yes	Yes	Yes

Degrees

- 1997/10 - 1999/2 Research Associate, Physics, Non-equilibrium Materials Physics, McGill University
Degree Status: Completed
Supervisors: Grant, Martin, 1997/10 - 1999/12
- 1995/10 - 1997/10 Post-doctorate, Physics, Non-equilibrium Statistic Mechanics, University of Oxford
Degree Status: Completed
Supervisors: Cardy, John, 1995/10 - 1997/8
- 1992/10 - 1995/10 Post-doctorate, Physics, Non-equilibrium Dynamics, University of Manchester
Degree Status: Completed
Supervisors: Bray, Alan, 1992/10 - 1995/9
- 1987/9 - 1993/1 Doctorate, Physics, Theoretical Physics, Princeton University
Degree Status: Completed
Thesis Title: Phase Transitions in a Ginzburg-Landau Model and a Kagome Antiferromagnet
Supervisors: Huse, David (AT&T Bell Labs, Murray Hill), 1989/9 - 1992/8
- 1983/9 - 1987/6 Bachelor's Honours, BSc, Math and Physics, University of Toronto
Degree Status: Completed
Supervisors: Harrison, Jim (Queen's), 1985/5 - 1985/8; Julian, Stephen (in lab of Jim Daniels, UofToronto), 1984/5 - 1984/8

Recognitions

- 2016/4 Dr. G. Forbes Langstroth Memorial Award
Dalhousie University
Prize / Award
Departmental Teaching Award selected annually by the undergraduate students
- 2015/12 AC Fales Professor in Theoretical Physics
Dalhousie University
Distinction
Endowed research chair in Dept of Physics and Atmospheric Science

User Profile

Researcher Status: Researcher

Engaged in Clinical Research?: No

Fields of Application: Foundations and Knowledge Acquisition

Disciplines Trained In: Physics

Areas of Research: Modelization and Simulation, Stochastic Processes, Cell, Physiology, Biomaterials

Research Specialization Keywords: Biological Physics, Statistical Physics, Soft-matter physics, Computational and Theoretical Physics, Non-equilibrium dynamics, Spatio-temporal pattern formation

Research Disciplines: Physics, Biology and Related Sciences

Employment

2014/7	Full Professor Physics and Atmospheric Science, Faculty of Science, Dalhousie University Full-time, Professor Tenure Status: Tenure
2005/7 - 2014/6	Associate Professor Physics and Atmospheric Science, Faculty of Science, Dalhousie University Full-time, Associate Professor Tenure Status: Tenure
2000/7 - 2005/6	Assistant Professor Physics, Dalhousie University Full-time, Assistant Professor Tenure Status: Tenure Track
2000/1 - 2000/6	Visiting Researcher Physics, Simon Fraser University Full-time, Term Tenure Status: Non Tenure Track Biophysics research under the CIFAR program in Soft Surfaces and Membranes

Affiliations

The primary affiliation is denoted by (*)

(*) 2000/7 AC Fales Professor of Theoretical Physics, Physics and Atmospheric Science, Dalhousie University

Research Funding History

Awarded [n=6]

2019/4 - 2024/3
Principal Applicant

Soft- and statistical-physics models of coarse-grained biological structure and dynamics, Grant, Operating
Clinical Research Project?: No
Project Description: Living creatures have length- and time-scales ranging from the molecular to the organismal. We will develop coarse-grained models to bridge between these scales. Collagen plays essential roles from tendons to the cornea. We will develop a combined structural and mechanical model of fibrillar collagen. Periodic structure along the fibril length will be included with methods developed for coarse-grained studies of metallic crystals, while the mechanical contributions of cross-linking will be treated with methods developed for liquid-crystalline rubbers. Living organisms age and die. We

will further develop a network-based model for organismal aging and mortality. We will explore why it works, how we can better test it with observational data, and how we can use it to improve individual predictions of aging and mortality. The result will be a deeper understanding of how aging, damage, and mortality intertwine; and how much they can be adjusted.

Research Uptake: Publication, seminars, collaborative engagement, student training.

Funding Sources:

Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 205,000 (Canadian dollar) (Canadian dollar)

2014/4 - 2019/3
Principal Applicant

Patterns of biological damage: managing subsystem failure in cellular systems, Grant, Operating

Funding Sources:

2014/4 - 2019/3 Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 125,000 (Canadian dollar)
Portion of Funding Received - 125,000
Funding Competitive?: Yes

2013/9 - 2015/8
Co-applicant

Systems level analysis of virulence in a model gastrointestinal pathogen, Fellowship

Funding by Year:

2014/9 - 2015/8 Total Funding - 10,000
Portion of Funding Received - 3,333
Time Commitment: 5

2013/9 - 2014/8 Total Funding - 10,000
Portion of Funding Received - 3,333
Time Commitment: 5

Funding Sources:

2013/9 - 2015/8 France-Canada Research Fund
New Scientific Collaboration Support Program
Total Funding - 20,000 (Canadian dollar)
Portion of Funding Received - 6,666
Funding Competitive?: Yes

Co-applicant : Enninga, Jost; Rohde, John

2009/4 - 2014/3
Principal Applicant

Self-organized subcellular structure: length and time scale control within bacteria, Grant, Operating

Funding by Year:

2013/4 - 2014/3 Total Funding - 29,000
Portion of Funding Received - 29,000
Time Commitment: 40

2012/4 - 2013/3 Total Funding - 29,000
Portion of Funding Received - 29,000
Time Commitment: 40

2011/4 - 2012/3 Total Funding - 29,000
Portion of Funding Received - 29,000
Time Commitment: 40

2010/4 - 2011/3 Total Funding - 29,000
Portion of Funding Received - 29,000
Time Commitment: 40

2009/4 - 2010/3 Total Funding - 29,000
Portion of Funding Received - 29,000 (Canadian dollar)
Time Commitment: 40

Funding Sources:

2010/4 - 2014/3 Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 116,000 (Canadian dollar)
Portion of Funding Received - 116,000
Funding Competitive?: Yes

2013/9 - 2014/2 Computational models and data analysis of host-pathogen interactions using a novel mutant collection (Shigella), Fellowship
Principal Applicant

Funding by Year:

2013/9 - 2014/2 Total Funding - 24,472
Portion of Funding Received - 24,472
Time Commitment: 40

Funding Sources:

2013/9 - 2014/2 Mairie de Paris (France)
Research in Paris
Total Funding - 24,472 (Euro)
Portion of Funding Received - 24,472
Funding Competitive?: Yes

2013/8 - 2013/9 Systems level analysis of virulence in a model gastrointestinal pathogen, Fellowship
Principal Applicant

Funding by Year:

2013/8 - 2013/9 Total Funding - 1,868
Portion of Funding Received - 1,868
Time Commitment: 40

Funding Sources:

2013/8 - 2013/9 Embassy of France In Canada (Ottawa, ON)
Scientific stay in France for tenured researchers
Total Funding - 1,868 (Euro)
Portion of Funding Received - 1,868
Funding Competitive?: Yes

Completed [n=11]

2010/9 - 2012/8 Stochastic modelling of heterocyst differentiation in cyanobacterial filaments, Fellowship
Principal Applicant

Funding by Year:

2011/9 - 2012/8 Total Funding - 6,000
Portion of Funding Received - 6,000
Time Commitment: 5

2010/9 - 2011/8 Total Funding - 6,000
Portion of Funding Received - 6,000
Time Commitment: 5

Funding Sources:

2010/9 - 2012/8 Atlantic Computational Excellence Network (ACEnet) (Canada)
 Graduate Fellowship
 Total Funding - 12,000 (Canadian dollar)
 Portion of Funding Received - 12,000
 Funding Competitive?: Yes

2009/11 - 2011/8 Stochastic modelling of polydispersity control of inner membrane cluster sizes in the
 Principal Applicant general secretory pathway, Fellowship

Funding by Year:

2010/12 - 2011/8 Total Funding - 15,000
 Portion of Funding Received - 15,000
 Time Commitment: 5

2009/11 - 2010/10 Total Funding - 20,000
 Portion of Funding Received - 20,000
 Time Commitment: 5

Funding Sources:

2009/11 - 2011/8 Atlantic Computational Excellence Network (ACEnet) (Canada)
 ACEnet/Sun microsystems research fellowship
 Total Funding - 35,000 (Canadian dollar)
 Portion of Funding Received - 35,000
 Funding Competitive?: Yes

2011/4 - 2011/7 Research associate: stochastic data analysis (co-op funding), Fellowship
 Principal Applicant

Funding by Year:

2011/4 - 2011/7 Total Funding - 3,412
 Portion of Funding Received - 3,412
 Time Commitment: 5

Funding Sources:

2011/4 - 2011/7 Nova Scotia Economic Development
 Strategic Cooperative Education Incentive
 Total Funding - 3,412 (Canadian dollar)
 Portion of Funding Received - 3,412
 Funding Competitive?: Yes

2011/1 - 2011/4 Research associate: image processing (co-op funding), Fellowship
 Principal Applicant

Funding by Year:

2011/1 - 2011/4 Total Funding - 3,577
 Portion of Funding Received - 3,577
 Time Commitment: 5

Funding Sources:

2011/1 - 2011/4 Nova Scotia Economic Development
 Cooperative Employment Program
 Total Funding - 3,577 (Canadian dollar)
 Portion of Funding Received - 3,577
 Funding Competitive?: Yes

2004/9 - 2010/3 Micromanipulation of bacterial division, Grant, Operating
 Principal Applicant

Funding by Year:

2005/9 - 2006/8 Total Funding - 88,346
 Portion of Funding Received - 40,000 (Canadian dollar)
 Time Commitment: 20

2004/9 - 2005/8 Total Funding - 198,350
 Portion of Funding Received - 40,000 (Canadian dollar)
 Time Commitment: 20

Funding Sources:

2004/9 - 2010/3 Canadian Institutes of Health Research (CIHR)
 Novel Technology Applications in Health Research
 Total Funding - 308,354 (Canadian dollar)
 Portion of Funding Received - 80,000 (Canadian dollar)
 Funding Renewable?: No
 Funding Competitive?: Yes

Co-applicant : Dillon, Jo-anne;

Co-investigator : Jericho, Manfred

2007/12 - 2009/11
 Principal Applicant

All protein modelling of subcellular Min oscillations in the bacterium Escherichia coli: MinD dimerization and oligomerization effects, Fellowship

Funding by Year:

2008/12 - 2009/11 Total Funding - 20,000
 Portion of Funding Received - 20,000
 Time Commitment: 5

Funding Sources:

2007/12 - 2009/11 Atlantic Computational Excellence Network (ACEnet) (Canada)
 ACEnet/Sun microsystems research fellowship
 Total Funding - 40,000 (Canadian dollar)
 Portion of Funding Received - 40,000
 Funding Competitive?: Yes

2004/4 - 2009/3
 Principal Applicant

Ordering Dynamics and Bacterial Biophysics, Grant, Operating

Funding by Year:

2008/4 - 2009/3 Total Funding - 41,680
 Portion of Funding Received - 41,680 (Canadian dollar)
 Time Commitment: 40

2007/4 - 2008/3 Total Funding - 41,680
 Portion of Funding Received - 41,680 (Canadian dollar)
 Time Commitment: 40

2006/4 - 2007/3 Total Funding - 41,680
 Portion of Funding Received - 41,680 (Canadian dollar)
 Time Commitment: 40

2005/4 - 2006/3 Total Funding - 41,680
 Portion of Funding Received - 41,680 (Canadian dollar)
 Time Commitment: 40

2004/4 - 2005/3 Total Funding - 41,680
 Portion of Funding Received - 41,680 (Canadian dollar)
 Time Commitment: 40

Funding Sources:

2004/4 - 2009/3 Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 253,400 (Canadian dollar)
Portion of Funding Received - 253,400 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: Yes

2001/4 - 2004/3 Non-equilibrium structures in soft-condensed matter and bacterial systems, Grant,
Principal Applicant Operating

Funding by Year:

2003/4 - 2004/3 Total Funding - 34,220
Portion of Funding Received - 34,220 (Canadian dollar)
Time Commitment: 40

2002/4 - 2003/3 Total Funding - 34,220
Portion of Funding Received - 34,220 (Canadian dollar)
Time Commitment: 40

2001/4 - 2002/3 Total Funding - 34,220
Portion of Funding Received - 34,220 (Canadian dollar)
Time Commitment: 40

Funding Sources:

2001/4 - 2004/3 Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 102,660 (Canadian dollar)
Portion of Funding Received - 102,660 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: Yes

2002/4 - 2003/3 Beowulf computer cluster for modelling non-equilibrium materials in physics and biology,
Principal Investigator Grant, Infrastructure

Funding by Year:

2002/4 - 2003/3 Total Funding - 228,380
Portion of Funding Received - 228,380 (Canadian dollar)
Time Commitment: 5

Funding Sources:

2002/4 - 2003/3 Nova Scotia
provincial matching
Total Funding - 88,520
Portion of Funding Received - 88,520 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: Yes

2002/4 - 2003/3 Canada Foundation for Innovation (CFI)
New Opportunities Fund
Total Funding - 88,520 (Canadian dollar)
Portion of Funding Received - 88,520 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: No

2002/4 - 2003/3 IBM Canada Ltd
in-kind contribution
Total Funding - 51,340
Portion of Funding Received - 51,340 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: No

2002/4 - 2003/3 Principal Applicant Microrheology of complex fluids, Grant, Operating

Funding by Year:

2002/4 - 2003/3 Total Funding - 25,000
Portion of Funding Received - 25,000 (Canadian dollar)
Time Commitment: 10

Funding Sources:

2002/4 - 2003/3 Petro Canada Inc
Young Innovator Award
Total Funding - 25,000 (Canadian dollar)
Portion of Funding Received - 25,000 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: Yes

2001/4 - 2002/3 Principal Applicant Computer workstation cluster, Grant, Equipment

Funding by Year:

2001/4 - 2002/3 Total Funding - 15,586
Portion of Funding Received - 15,586 (Canadian dollar)
Time Commitment: 5

Funding Sources:

2001/4 - 2002/3 Natural Sciences and Engineering Research Council of Canada (NSERC)
Equipment grant
Total Funding - 15,586 (Canadian dollar)
Portion of Funding Received - 15,586 (Canadian dollar)
Funding Renewable?: No
Funding Competitive?: Yes

Student/Postdoctoral Supervision**Bachelor's [n=5]**

2021/5 - 2021/8 Xander Gouwes (In Progress) , Dalhousie University

Principal Supervisor

2021/5 - 2021/8 Esha Sawant (In Progress) , Dalhousie University

Principal Supervisor

2021/5 Saumil Agarwal (In Progress) , Birla Institute of Technology and Science

Principal Supervisor

2020/5 - 2020/8 Ian George (Completed) , Dalhousie University

Principal Supervisor Present Position: MSc

2007/9 - 2008/5 Jason Hopper (Completed) , Dalhousie University
 Principal Supervisor Student Degree Start Date: 2005/9
 Student Degree Received Date: 2009/5
 Thesis/Project Title: All molecules modelling of Min oscillation within bacteria
 Present Position: Research staff, Atmospheric Forensics lab (Dalhousie University, Halifax, Canada)

Bachelor's Honours [n=43]

2020/5 Rebecca Tobin (In Progress) , Dalhousie University
 Principal Supervisor

2018/5 - 2018/8 Nicholas Islow (Completed) , Dalhousie University
 Principal Supervisor Student Degree Received Date: 2019/8
 Thesis/Project Title: Single-file diffusion of acetylation enzymes within the micro-tubule lumen
 Present Position: graduate student (University of Ottawa), Dalhousie University

2018/5 - 2018/8 Garrett Stubbings (Completed) , Dalhousie University
 Principal Supervisor Student Degree Received Date: 2019/8
 Thesis/Project Title: Maximally-informative cutpoints and non-cutpoint methods of analyzing laboratory data for mortality prediction
 Present Position: graduate student Dalhousie University, Dalhousie University

2018/5 - 2018/8 Matthew Leighton (In Progress) , Dalhousie University
 Principal Supervisor Student Degree Expected Date: 2020/8
 Thesis/Project Title: Stochastic modelling of Cooperative Invasion of Pathogenic Bacteria into a Host Cell
 Present Position: honours physics undergraduate, Dalhousie University

2017/5 - 2017/8 Jon Garry (Completed) , Dalhousie University
 Principal Supervisor Thesis/Project Title: Bayesian Estimation of Photobleaching Steps with Physical Priors
 Present Position: medical physics MSc student, Dalhousie University

2017/5 - 2017/8 Cyrus Robertson-Orkish (Completed) , Dalhousie University
 Principal Supervisor Thesis/Project Title: Stochastic models of invasion of pathogenic bacteria into host cells, Dalhousie University

2017/5 - 2017/8 Sam Cameron (Completed) , Dalhousie University
 Principal Supervisor Thesis/Project Title: Self-consistent density inhomogeneities in double-twist collagen fibrils
 Present Position: physics MSc student, Dalhousie University

2017/5 - 2017/8 Mason Maxwell (Completed) , Dalhousie University
 Principal Supervisor Thesis/Project Title: Universality of Gompertz-law in Heterogeneous Network models of aging and mortality, Dalhousie University

2016/9 - 2017/4 Sam Cameron (Completed) , Dalhousie University
 Co-Supervisor Thesis/Project Title: Modelling the effects of radial packing on the equilibrium structure of collagen fibrils
 Present Position: physics MSc student, Dalhousie University

2016/8 - 2017/5 Jon Garry (Completed) , Dalhousie University
 Principal Supervisor Student Degree Start Date: 2012/9
 Thesis/Project Title: Fluorophore Quantification from Photobleaching using Bayesian Inference and Markov Chain Monte Carlo
 Project Description: Bayesian analysis of photobleach decay traces
 Present Position: physics MSc student, Dalhousie University

- 2016/5 - 2016/8
Principal Supervisor Jon Garry (Completed) , Dalhousie University
Thesis/Project Title: Testing and modelling photobleaching quantification approaches
Present Position: medical physics MSc student, Dalhousie University
- 2016/5 - 2016/8
Principal Supervisor Spencer Farrell (Completed) , Dalhousie University
Thesis/Project Title: Bimodal radius distribution of collagen fibrils
Present Position: physics PhD student, Dalhousie University
- 2016/5 - 2016/8
Co-Supervisor Sam Cameron (Completed) , Dalhousie University
Thesis/Project Title: Modelling the structure of collagen fibrils using mathematical and computational techniques
Present Position: physics MSc student, Dalhousie University
- 2016/5 - 2016/8
Principal Supervisor Hong yi Shi yang (Completed) , Dalhousie University
Thesis/Project Title: Image segmentation and tracking of infection from initial image: bacterial counts and transmission
Present Position: Officer Training, Canadian Armed Forces
- 2016/1 - 2016/4
Principal Supervisor Spencer Farrell (Completed) , Dalhousie University
Thesis/Project Title: Optimizing the cut-point of continuous valued health measures to maximize the predictive capacity in a frailty index of human aging
Present Position: physics PhD student, Dalhousie University
- 2015/9 - 2015/12
Principal Supervisor Spencer Farrell (Completed) , Dalhousie University
Thesis/Project Title: The growth of collagen fibrils using a coarsening model
Present Position: physics PhD student, Dalhousie University
- 2015/9 - 2016/4
Principal Supervisor Hong yi Shi Yang (Completed) , Dalhousie University
Thesis/Project Title: Modelling Listeria invasion in the face of innate immunity
Present Position: Officer Training, Canadian Armed Forces
- 2015/5 - 2015/8
Principal Supervisor Jon Garry (Completed) , Dalhousie University
Thesis/Project Title: Using MCMC to solve the Bayesian likelihood of steps from intensity traces during photobleaching
Present Position: medical physics MSc student, Dalhousie University
- 2015/5 - 2015/8
Principal Supervisor Spencer Farrell (Completed) , Dalhousie University
Thesis/Project Title: Interacting network models of frailty and mortality
Present Position: physics PhD student, Dalhousie University
- 2014/9 - 2014/12
Principal Supervisor William Musgrave (Completed) , Dalhousie University
Thesis/Project Title: Photobleaching of randomly rotating fluorescent hoops
Present Position: freelance educational contracts, Atlantic Fleet School (CFB Stadacona)
- 2014/5 - 2014/8
Principal Supervisor Spencer Farrell (Completed) , Dalhousie University
Thesis/Project Title: Single-file diffusion in microtubule lumens
Present Position: physics PhD student, Dalhousie University
- 2014/5 - 2014/8
Principal Supervisor William Musgrave (Completed) , Dalhousie University
Student Degree Start Date: 2010/9
Student Degree Received Date: 2015/5
Thesis/Project Title: Probing fluorescent particle size and local viscosity with fluctuations due to photobleaching
Present Position: Freelance Education Contracts, Atlantic Fleet School (CFB Stadacona)
- 2013/5 - 2013/8
Co-Supervisor Andrew Quigley (Completed) , Dalhousie University
Student Degree Start Date: 2010/9
Student Degree Received Date: 2014/5
Thesis/Project Title: Stochastic models of collagen damage
Present Position: BA (Education, teacher training), Mount Saint Vincent University

- 2013/5 - 2013/8
Co-Supervisor
Chieh-Ting Hsu (Completed) , Dalhousie University
Student Degree Start Date: 2008/9
Student Degree Received Date: 2013/5
Thesis/Project Title: Modelling the damage mechanism of type-I collagen fibrils
Project Description: Honours and summer research. Bayesian approaches to fitting discrete photobleach decay curves.
Present Position: PhD in biological physics, McGill University
- 2012/9 - 2013/4
Principal Supervisor
Chieh-ting Hsu (Completed) , Dalhousie University
Thesis/Project Title: Quantification of photophysics and copy number of fluorophores in a single cell using photobleaching and Bayesian Monte Carlo fitting
Present Position: physics PhD student, McGill University
- 2012/5 - 2012/8
Principal Supervisor
Elias Zoghaib (Completed) , Dalhousie University
Thesis/Project Title: Pattern formation of Cyanobacterial Heterocysts
Present Position: Data Scientist, Outshine Marketing (outshine.com)
- 2011/5 - 2011/8
Principal Supervisor
Ben Levitan (Completed) , Dalhousie University
Student Degree Start Date: 2009/9
Student Degree Received Date: 2013/5
Thesis/Project Title: Anisotropic elastic model of peptidoglycan patch with a gap
Present Position: PhD programme in physics at McGill (Montreal, QC)
- 2010/5 - 2010/8
Principal Supervisor
Adam Alcolado (Completed) , Dalhousie University
Student Degree Start Date: 2007/9
Student Degree Received Date: 2011/5
Thesis/Project Title: Secondary nucleation dynamics in supersaturated bacterial membranes
Present Position: MSc student in Mathematics at the University of Montreal
- 2008/5 - 2008/8
Principal Supervisor
Charles Eyrich (Completed) , Dalhousie University
Student Degree Start Date: 2006/9
Student Degree Received Date: 2010/5
Thesis/Project Title: Diffusive molecular dynamics model of peptidoglycan growth
Present Position: Obtained MSc at Simon Fraser University, in gap year before PhD studies.
- 2007/5 - 2007/8
Principal Supervisor
Patrick McKelvey (Completed) , Queen's University
Student Degree Start Date: 2005/9
Thesis/Project Title: Regulation of dynamic pseudopilus lengths in bacteria
Present Position: economist, Bank of Canada
- 2006/5 - 2006/8
Principal Supervisor
Sam King (Completed) , McGill University
Student Degree Start Date: 2004/9
Thesis/Project Title: Heterocyst pattern formation in cyanobacterial filaments
Present Position: physics PhD programme at UBC
- 2005/5 - 2005/8
Principal Supervisor
Alison Hill (Completed) , University of Western Ontario
Student Degree Start Date: 2003/9
Student Degree Received Date: 2007/5
Thesis/Project Title: Heterocyst patterns without patterning proteins
Present Position: postdoc in Biophysics
- 2004/5 - 2004/8
Principal Supervisor
Jun Allard (Completed) , Queen's University
Thesis/Project Title: Heterocyst pattern formation in cyanobacterial filaments
Present Position: assistant professor at UC Irvine

2004/5 - 2004/8 Benjamin Downing (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 2003/9
Student Degree Received Date: 2007/5
Thesis/Project Title: Partitioning of Min proteins during bacterial septation
Project Description: Models of subcellular Min oscillation
Present Position: paramedic

2004/5 - 2004/8 Andrea Weirathmuller (Completed) , Queen's University
Principal Supervisor Student Degree Start Date: 2002/9
Thesis/Project Title: Phage induced lysis of E. coli

2003/5 - 2003/8 Deric Panet-Raymond (Completed) , Dalhousie University
Principal Supervisor Thesis/Project Title: Particle Tracking Algorithms
Present Position: Software Developer at Crank Software

2003/5 - 2003/8 Brendan Osberg (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 2005/9
Thesis/Project Title: Heterocyst patterns in cyanobacterial filaments
Present Position: PhD programme in Biophysics in Munich, Germany

2003/5 - 2003/8 Micah McCurdy (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 2003/9
Thesis/Project Title: Soap Froth Coarsening Simulations
Present Position: postdoctoral researcher, Quantum theory, Dalhousie University

2001/5 - 2002/4 Simon de Vet (Completed) , Dalhousie University
Principal Supervisor Thesis/Project Title: Quantitative Model of Bacterial Division
Present Position: Senior physics instructor, Dalhousie University

2001/5 - 2001/8 Shoan Kale (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 1999/9
Thesis/Project Title: Tree-code for particle dynamics with long-range interactions
Present Position: medical school

2001/5 - 2003/4 Michael Greenwood (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 1997/9
Thesis/Project Title: Microrheology of soap froths
Present Position: Research Scientist at NRCan

2001/4 - 2001/8 Claire Montgomery (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 1999/9
Thesis/Project Title: Diffusion of asymmetric swimmers
Present Position: Technical writer at NexStreaming, Seoul, Korea

2000/5 - 2001/4 Peter Cordes (Completed) , Dalhousie University
Principal Supervisor Student Degree Start Date: 1998/9
Thesis/Project Title: Spatio-temporal chaos in soap froth dynamics

Master's Equivalent [n=1]

2009/12 - 2010/6 Slaven Radic (Withdrawn) , Dalhousie University
Principal Supervisor Student Degree Start Date: 2009/12
Thesis/Project Title: Quantifying protein number from photobleaching fluctuations
Present Position: PhD program in Biophysics at Clemson University (Clemson, South Carolina USA)

Master's Thesis [n=10]

2022/1 , Dalhousie University
Principal Supervisor

- 2019/9
Principal Supervisor
Garrett Stubbings (In Progress) , Dalhousie University
- 2017/9 - 2019/8
Co-Supervisor
Sam Cameron (Completed) , Dalhousie University
Student Degree Start Date: 2017/9
Student Degree Received Date: 2019/8
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Equilibrium and Non-equilibrium coarse-grained models of collagen fibril structure
Project Description: Collagen fibril sub-structure models
Present Position: PhD student in Bristol UK, Dalhousie University
- 2016/9 - 2017/8
Principal Supervisor
Hong yi Shi yang (Withdrawn) , Dalhousie University
Student Degree Start Date: 2016/9
Student Canadian Residency Status: Canadian Citizen
Thesis/Project Title: Growth-suppression and shape-fluctuations of infection foci after inoculation of cell-culture by pathogenic bacteria
Project Description: Image segmentation and computational models of host-pathogen dynamics
Present Position: Officer Training, Canadian Armed Forces
- 2014/9 - 2016/8
Principal Supervisor
Taylor Dunn (Completed) , Dalhousie University
Student Degree Start Date: 2014/9
Student Degree Received Date: 2016/8
Thesis/Project Title: Image analysis and stochastic models of Salmonella host-pathogen dynamics
Project Description: Host-pathogen dynamics (of bacterial infection in host cells): visual segmentation of microscopy images confronted by mathematical models of infection
Present Position: Data analyst and Developer, DGI Clinical Inc
- 2010/9 - 2012/8
Principal Supervisor
Aidan Brown (Completed) , Dalhousie University
Student Degree Start Date: 2010/9
Student Degree Received Date: 2012/8
Thesis/Project Title: Fixed nitrogen dynamics and heterocyst patterning in filamentous heterocystous cyanobacteria
Present Position: postdoc, University of California, Davis
- 2005/9 - 2007/8
Principal Supervisor
Jun Allard (Completed) , Dalhousie University
Student Degree Start Date: 2005/9
Student Degree Received Date: 2007/8
Thesis/Project Title: Models of the actin-like MreB in prokaryotes
Present Position: assistant professor at UC Irvine
- 2004/9 - 2006/8
Principal Supervisor
Gillian Ryan (Completed) , Dalhousie University
Student Degree Start Date: 2004/9
Student Degree Received Date: 2006/8
Thesis/Project Title: MODELING PROTEIN CLOCKS IN PHAGE INDUCED LYSIS OF E. COLI
Present Position: assistant professor at Kettering University
- 2002/9 - 2004/8
Principal Supervisor
Andrew Richardson (Completed) , Dalhousie University
Student Degree Start Date: 2002/9
Student Degree Received Date: 2004/8
Thesis/Project Title: Reaction-diffusion systems with long-range interactions in 2-dimensions
Present Position: medical physics technician

2002/9 - 2004/8
Principal Supervisor Simon de Vet (Completed) , Dalhousie University
Student Degree Start Date: 2002/9
Student Degree Received Date: 2004/8
Thesis/Project Title: Modeling E. coli protein oscillations using robustness and evolutionary pressures
Present Position: Senior Physics Instructor, Dalhousie University

Doctorate [n=7]

2020/9
Principal Supervisor Glen Pridham (In Progress) , Dalhousie University
Student Degree Start Date: 2020/9

2020/7
Principal Supervisor Glen Pridham (In Progress) , Dalhousie University

2016/9 - 2021/12
Principal Supervisor Spencer Farrell (In Progress) , Dalhousie University

2016/9 - 2021/8
Principal Supervisor Spencer Farrell (In Progress) , Dalhousie University
Student Degree Start Date: 2016/9
Student Degree Expected Date: 2021/8
Thesis/Project Title: Stochastic Network Model of Aging Dynamics
Project Description: Network models and information measures of human aging
Present Position: graduate student, Dalhousie University

2012/9 - 2015/8
Principal Supervisor Aidan Brown (Completed) , Dalhousie University
Student Degree Start Date: 2012/9
Student Degree Received Date: 2015/8
Thesis/Project Title: Mammalian peroxisome dynamics: ubiquitination, autophagy, and number control
Present Position: postdoc, University of California Davis

2006/9 - 2009/8
Principal Supervisor Gillian Ryan (Completed) , Dalhousie University
Student Degree Start Date: 2006/9
Student Degree Received Date: 2009/8
Thesis/Project Title: Modeling holin function during Lambda phage infection of E. coli
Present Position: Assistant Professor at Kettering University (Flint, MI)

2002/9 - 2005/8
Principal Supervisor Mowei Cheng (Completed) , Dalhousie University
Student Degree Start Date: 2002/9
Student Degree Received Date: 2005/8
Thesis/Project Title: Accelerated algorithms and universality in coarsening systems
Present Position: Analyst, Risk Measurement and Analytics Assessment Services, Toronto

Post-doctorate [n=4]

2011/9 - 2013/8
Principal Supervisor Swadhin Taneja (Completed) , Dalhousie University
Student Degree Start Date: 2011/9
Student Degree Received Date: 2013/8
Thesis/Project Title: Circumferential gap propagation in an anisotropic elastic bacterial sacculus
Present Position: Lecturer, NSCC

- 2009/11 - 2011/11
Principal Supervisor Chitra Nayak (Completed) , Dalhousie University
Student Degree Start Date: 2009/11
Student Degree Received Date: 2011/11
Thesis/Project Title: Analysis of photobleach statistics, and modelling of quality control in the Tat translocon
Present Position: Assistant Professor at Tuskegee University, USA
- 2007/12 - 2009/3
Principal Supervisor Julien Derr (Completed) , Dalhousie University
Student Degree Start Date: 2007/12
Student Degree Received Date: 2009/3
Thesis/Project Title: Stochastic models of MinD filaments, and of Type-II secretion pilus lengths
Present Position: Maitre de conferences (Assistant Professor) at Universite Paris-Diderot (Paris, France)
- 2005/9 - 2007/8
Principal Supervisor Supratim Sengupta (Completed) , Dalhousie University
Student Degree Start Date: 2005/9
Student Degree Received Date: 2007/2
Thesis/Project Title: Min oscillations in E. coli during septation
Project Description: Models of subcellular Min oscillation within E. coli bacteria
Present Position: professor, Kolkata India

Event Administration

- 2021/1 Coordinator, QBIOC (quantitative biology in canada), Conference, me
I run a Zoom-based national biological physics seminar series. We have two talks every month. So far the invited speakers are Canadian researchers.
- 2020/7 Co-organizer, Collagen Café, Seminar, me
Together with Laurent Kreplak, we run a collagen-themed Zoom-based research seminar twice a year. We invite two researchers (one CDN and one International) as well as two trainees (student talks). The flavour is biological physics, but the speakers are also from engineering and biology.
- 2018/1 - 2018/6 Co-organizer, Soft Matter Canada 2018, Conference, 2018/6 - 2018/6

Editorial Activities

- 2012/7 Referee, Europhysics Letters, Journal
- 2012/2 Referee, Proceedings of the National Academy of Sciences (PNAS), Journal
- 2011/12 Referee, Virology Journal, Journal
- 2011/11 Referee, Bulletin of Mathematical Biology, Journal
- 2011/10 Referee, Nature Methods, Journal
- 2010/3 Referee, Current Biology, Journal
- 2010/2 Referee, Computers & Mathematics with Applications, Journal
- 2008/5 Referee, Journal of Theoretical Biology, Journal
- 2007/9 Referee, Journal of Bacteriology, Journal
- 2007/5 Referee, Canadian Journal of Physics, Journal
- 2007/1 referee, Langmuir, Journal

2005/1	Referee, Physical Biology, Journal
2002/1	Referee, Biophysical Journal, Journal
1999/8	Referee, Physical Review Letters, Journal
1997/8	Referee, Physical Review E, Journal

Mentoring Activities

2007/9	<p>Mentoring coordinator, Dalhousie University Number of Mentorees: 6 Small group mentoring with 4-6 students paired with a faculty mentor. They meet monthly through the year to talk about professional and research questions related to physics. I coordinate this within my department, and also lead one of the groups.</p>
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Organizational Review Activities

2016/2 - 2016/2	<p>External Departmental Review (Dept Physics and Physical Oceanography), Memorial University of Newfoundland Read review materials, site visit, write and present report.</p>
2013/3 - 2013/3	<p>Chair of External Departmental Review (Dept Physics), Simon Fraser University Read review materials, lead site visit, coordinate write and edit report.</p>
2012/3 - 2012/3	<p>External Departmental Review (Dept Physics), Mount Allison University Read review materials, site visit, write report.</p>

International Collaboration Activities

2018/8 - 2022/8	<p>Co-investigator, Switzerland Developing mathematical models of Salmonella infection in host cell layers, using data acquired in the Hardt lab. Together with Wolf Dietrich-Hardt (ETH Zurich).</p>
2014/1 - 2020/12	<p>Co-investigator, France To develop quantitative dynamical models of post-translational microtubule acetylation, together with Dr. Guillaume Montagnac (Université Paris-Saclay).</p>

Committee Memberships

2006/8	<p>Chair, Undergraduate small-group physics mentoring committee, Dalhousie University Organize and participate in departmental mentoring programme to engage and retain undergraduate physics students. (ongoing)</p>
2009/8 - 2016/7	<p>Committee Member, Review Committee for Neutron Beam Research Proposals in the subject area of Soft Materials, for the Canadian Neutron Beam Centre (CNBC), National Research Council Canada</p>
2007/5 - 2009/4	<p>Committee Member, Physics and Astronomy Scholarships and Fellowships Selection Committee, Natural Sciences and Engineering Research Council of Canada (NSERC)</p>

Other Memberships

- 2014/10 - 2020/10 Principal Investigator (PI), ACENET
Represent users of ACENET (Atlantic regional consortium of Compute Canada) to the management and to the board of directors. Run meetings of the research directorate (RD).
- 2011/10 - 2018/7 Associate Faculty Member, Faculty of 1000
Faculty of 1000 is a primarily biological sciences metajournal, which collects reviews and tips of notable papers in the literature. Participation is by invitation.
- 2010/2 - 2016/2 Research Directorate Member, ACENET
The Research Directorate meets every two weeks and advises the director on direction and implementation in order to meet the needs of researchers in high-performance computing in Atlantic Canada.
- 2008/4 - 2015/4 Local Users Group Chair, ACENET
Convene regular meetings with the Dalhousie HPC (high-performance computing) community to discuss unmet needs and implementation issues, to liaise between the user community and the research-directorate.
- 2002/9 - 2004/8 chair
chair of the DMBP (Division of Medical and Biological Physics)

Presentations

1. (2021). Single-file diffusion is interesting. Metzler group seminar, Potsdam, Germany
Main Audience: Researcher
Invited?: Yes
2. (2021). Double-twist elastomers: untwisting and chiral buckling. American Physical Society March Meeting, United States of America
Invited?: No
Description / Contribution Value: Zoom
3. (2021). Embracing the complexity of aging with computational models. Physiological Society Scientific Theme Webinar, 'Extreme Longevity: The Blurry Journey Through Hallmarks and Mechanisms', Italy
Invited?: Yes
Description / Contribution Value: Zoom
4. (2021). Embracing the complexity of aging with computational models. Lamming Aging Science talk, United States of America
Main Audience: Researcher
Invited?: Yes
Description / Contribution Value: virtual (Zoom) talk
5. (2021). Double-twist elastomers: untwisting and chiral buckling. Multiscale Mechanochemistry & Mechanobiology Virtual Seminar, Germany
Main Audience: Researcher
Invited?: No
Description / Contribution Value: Zoom
6. (2021). The Physics of Aging and Death. Canadian Association of Physicists national lecture tour, Canada
Main Audience: Researcher
Invited?: Yes
Description / Contribution Value: Zoom (Virtual)

7. (2020). Network models of aging with binarized variables. LLFS R&D seminar (Long life frailty study, research and development), Zoom, United States of America
Main Audience: Researcher
Invited?: Yes
Description / Contribution Value: This was a presentation to a collaborative network of interdisciplinary researchers based out of WUSTL (Washington University of St Louis), but reaching across the USA.
8. (2020). Collagen fibrils: structure and function. Soft Matter Canada (SMC) Symposium 2020, Zoom, Canada
Main Audience: Researcher
Invited?: Yes
9. (2019). Modelling collagen fibrils. Departmental Seminar, Queen's University, Physics Department, Kingston ON, Canada
Main Audience: Researcher
Invited?: Yes
10. (2019). Collagen fibrils: liquid-crystals, crystals, and rubber bands. Biophysical Society of Canada (BSC) Annual Congress, Mississauga ON, Canada
Main Audience: Researcher
Invited?: Yes
11. (2019). The physics of human aging: network models and more. Departmental Seminar, Dalhousie University, Dept of Math and Statistics, Halifax NS, Canada
Main Audience: Researcher
Invited?: Yes
12. (2019). Anomalous Single-file transport in pores. American Physical Society (APS) March Meeting, Boston, United States of America
Main Audience: Researcher
Invited?: No
13. (2019). Network modelling of organismal aging and mortality. NIA (National Institute of Aging, part of the NIH -- National Institute of Health) workshop: mechanisms of variation in lifespan and healthspan, Bethesda MD, United States of America
Main Audience: Researcher
Invited?: Yes
14. (2019). Collagen fibrils: liquid-crystals, Ising models, and rubber bands. Departmental seminar, St Francis Xavier University, Antigonish NS, Canada
Main Audience: Researcher
Invited?: Yes
15. (2018). Network structure in aging: spherical cows and people. Physics seminar (McGill), Canada
Invited?: Yes, Keynote?: No
16. (2018). The Science of Aging. Hal-con 2018 (a regional sci-fi, fantasy, and gaming conference), Halifax, Canada
Main Audience: General Public
Invited?: Yes, Keynote?: No
17. (2018). Anomalously slow transport due to slow binding in single-file diffusion. Theory Canada 13 conference, Antigonish, Canada
Invited?: Yes, Keynote?: No
18. (2018). Bayesian estimation of photobleaching steps with physical priors. Canadian Association of Physicists (CAP) annual meeting, Halifax, Canada
Invited?: No, Keynote?: No

19. (2018). Network structure in aging: spherical cows and people. Physics seminar (Bucknell University), United States of America
Invited?: Yes, Keynote?: No
20. (2018). Watching spherical cows age. Nerd Night (beer and science public event), Halifax, Canada
Main Audience: General Public
Invited?: Yes, Keynote?: No
21. (2018). Network structure in ageing model and human populations. Healthy Ageing: from molecules to organisms, Hinxton, United Kingdom
Main Audience: Researcher
Invited?: No, Keynote?: No
22. (2017). Watching spherical cows die: the physics of aging. Population Division of the United Nations seminar, New York, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
23. (2017). Anomalously slow transport due to slow binding in single-file diffusion. Soft Matter Canada (SMC2017) symposium, Kingston, Canada
Invited?: Yes, Keynote?: No
24. (2017). Network structure in aging: spherical cows and people. Physics seminar (University of Ottawa), Canada
Invited?: Yes, Keynote?: No
25. (2017). Anomalously slow transport due to slow binding in single-file diffusion. Canadian Association of Industrial and Applied Mathematics (CAIMS) annual meeting, Halifax, Canada
Invited?: Yes, Keynote?: No
26. (2017). Anomalously slow transport due to slow binding in single-file diffusion. American Physical Society (APS) March meeting, New Orleans, United States of America
Invited?: No, Keynote?: No
27. (2017). Watching spherical cows die: the physics of aging. Physics seminar (Yeshiva University), New York, United States of America
Invited?: Yes, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
28. (2017). Anomalously slow transport due to slow binding in single-file diffusion. Physics seminar (UofT), Toronto, Canada
Invited?: Yes, Keynote?: No
29. (2017). Watching spherical cows die: the physics of aging. CAP annual meeting, Kingston, Canada
Invited?: No, Keynote?: No
30. (2016). A network model of human aging: frailty limits and information measures. "Biology of Aging: paving the way for healthy aging" conference, Montreal, Canada
Invited?: No, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245

31. (2016). Watching spherical cows age. Geriatric Academic Grand Rounds, Centre for Health Care of the Elderly, Veteran's Memorial Hospital, NSHEALTH, Halifax, Canada
Main Audience: Knowledge User
Invited?: Yes, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
32. (2016). Models of microtubule acetylation. "Spatially distributed stochastic dynamical systems in biology" workshop (Isaac Newton Institute), Cambridge, United Kingdom
Invited?: Yes, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
33. (2016). Autophagy selectivity through receptor clustering. APS March meeting, Baltimore, United States of America
Invited?: No, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
34. (2016). Network models of aging. Physics seminar (UofT Mississauga), Canada
Invited?: Yes, Keynote?: No
35. (2016). Anomalously slow transport due to slow binding in single-file diffusion. "Nonequilibrium Statistical Mechanics" symposium (McGill), Canada
Invited?: Yes, Keynote?: No

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
36. (2016). What can we learn from watching spherical cows die?. Canadian Undergraduate Physics Conference (CUPC), Halifax, Canada
Invited?: Yes, Keynote?: Yes

Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) - RGPIN-2014-06245
37. (2015). Human aging: frailty, mortality, and information. Physics seminar (StFx), Antigonish, Canada
Invited?: Yes, Keynote?: No
38. (2015). Single-file diffusion inside microtubules. Chemical Biophysics Conference (CBP), Toronto, Canada
Invited?: Yes, Keynote?: No
39. (2015). Single file diffusion in microtubules. APS March meeting, San Antonio, United States of America
Invited?: No, Keynote?: No
40. (2015). Biological physics: from bacteria to you. Physics seminar (MUN), St John's, Canada
Invited?: Yes, Keynote?: No
41. (2015). Biological physics: from bacteria to you. DUPS (Dalhousie Undergraduate Physics Society) seminar, Halifax, Canada
Invited?: Yes, Keynote?: No
42. (2014). Biological cluster size control away from equilibrium. Bio/Physics seminar (Ecole Normale Superior), Paris, France
Invited?: Yes, Keynote?: No
43. (2014). Ubiquitination feedback during matrix protein import into peroxisomes. Cellular Biology seminar (Institut Pasteur), Paris, France
Invited?: Yes, Keynote?: No

44. (2014). Double-twist model of collagen fibrils. Biochemistry seminar (Institut Curie), Paris, France
Invited?: Yes, Keynote?: No
45. (2013). Ubiquitination feedback during matrix protein import into peroxisomes. Physics seminar (University Diderot), Paris, France
Invited?: Yes, Keynote?: No
46. (2013). Stochastic development of cyanobacterial filaments. CAP annual meeting, Montreal, Canada
Invited?: Yes, Keynote?: No, Competitive?: No
47. (2013). Ubiquitination feedback during matrix protein import into peroxisomes. CAIMS annual meeting, Quebec City, Canada
Invited?: Yes, Keynote?: No, Competitive?: No
48. (2013). How do bacteria grow longer, not wider?. Soft Matter Theory conference, Waterloo, Canada
Invited?: Yes, Keynote?: No
49. (2012). Living nanotech: how and why cyanobacteria count. AUPAC (Atlantic University Physics and Astronomy Conference), Halifax, Canada
Invited?: Yes, Keynote?: No, Competitive?: No
50. (2012). Fluctuation judo: what photobleaching can tell us about protein copy numbers. Dept Biochemistry seminar (Dalhousie University), Canada
Invited?: Yes, Keynote?: No, Competitive?: No
51. (2012). Stochastic development of cyanobacterial filaments: plasticity and robustness. Canadian Mathematics Society (CMS) winter meeting, Montreal, Canada
Invited?: Yes, Keynote?: No, Competitive?: No
52. (2012). Cluster size-control in bacterial inner membranes: application to type-II secretion. "Protein transport across cell membranes" conference (Gordon research conferences), Galveston, United States of America
Invited?: No, Keynote?: No, Competitive?: No
53. (2011). Some randomness and statistics for biological physics. IDK-NBT lecture (Internationales Doktorandenkolleg in NanoBioTechnology, TU-Munich), Munich, Germany
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
54. (2011). Fluctuation judo: random partitioning, photobleaching, and cellular copy number. Dept Physics seminar (Lehigh University), Bethlehem, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
55. (2011). A filamentous model of the Min oscillation inside an E. coli bacterium. APS (American Physical Society) March meeting, Dallas, United States of America
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: No
56. (2011). Fluctuation judo: using photobleaching to quantify cellular copy number. Dept Math Statistics seminar (Dalhousie University), Halifax, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
57. (2011). Quantifying fluorophores in vivo using noise. CeNS seminar (Center for NanoScience, TU-Munich), Munich, Germany
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No

58. (2011). Quantifying fluorophores in vivo using noise. Institute of Medical Sciences Seminar (University of Aberdeen), Aberdeen, United Kingdom
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
59. (2011). Quantifying fluorophores in vivo using noise. Chemical BioPhysics conference, Toronto, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: No
60. (2011). Fluctuation judo: random partitioning, photobleaching, and cellular copy number. Dept Physics seminar (Bucknell University), Lewisburg, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
61. (2011). Fluctuation judo: random decay, photobleaching, and cellular copy number. Dept Physics seminar (University of Guelph), Guelph, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
62. (2010). Small group mentoring of physics majors. CAP annual congress, Toronto, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: No
63. (2010). Monodisperse domains by control of coarsening inside bacteria. CAP annual congress, Toronto, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
64. (2010). Making monodisperse domains by proteolytic control of the coarsening instability. Complex Driven Systems conference, Blacksburg, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
65. (2010). Quantifying protein expression within cells. Cellular Decision Making, a CIFAR meeting (Canadian Institute for Advanced Research), Arlington, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
66. (2009). Pulling helices inside bacteria: imperfect helices and rings. American Physical Society March Meeting, Pittsburgh, United States of America
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: No
67. (2009). Phage lysis timing. Departmental Seminar (McMaster University, Dept of Biochemistry), Hamilton, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
68. (2009). Four (easy) pieces. Departmental seminar at MedILS (Mediterranean Institute for life sciences), Split, Croatia
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
69. (2009). Models and manipulations: Min oscillations inside an E. coli bacterium. Dept Applied Mathematics seminar (UBC), Vancouver, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No

70. (2009). Physics of bacteria: models and manipulations of Min oscillations inside E. coli. Dept Physics Seminar (St Fx University), Antigonish, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
71. (2009). Phage lysis timing. Departmental seminar (Split University, Dept of Physics), Split, Croatia
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
72. (2009). Physics of bacteria: models and manipulations of Min oscillations inside E. coli. Dept Physics Seminar (Memorial University), St Johns, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
73. (2009). Physics of bacteria: models and manipulations of Min oscillations inside of E. coli. Aspects of Complexity Meeting, Manchester, United Kingdom
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
74. (2009). Physics of bacteria: models and manipulations of Min oscillations inside E. coli. Dept Biomedical Engineering Seminar (Dalhousie University), Halifax, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
75. (2009). Physics of bacteriophage lysis timing. Physics seminar (Split University [back-to-back seminars]), Split, Croatia
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
76. (2009). Physics of bacteria: models and manipulations of Min oscillations inside E. coli. Departmental Seminar (Czech Academy of Sciences, Institute of Physiology), Prague, Czechia
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
77. (2009). Models and manipulations of Min oscillations inside E. coli. Dept Physics seminar (Split University), Split, Croatia
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
78. (2009). Models and manipulations: Min oscillations inside an E. coli bacterium. Dept Physics Seminar (Brandeis), Waltham, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
79. (2008). Clocking out: modelling phage induced lysis of bacteria. Departmental seminar (Dept Physics, McGill University), Montreal, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
80. Spencer J, Frappier M. (2008). Whether modern physics is accessing reality. S.H.I.P.S. on Saturday (Speak here in plain sight; a philosophy colloquium at University of Kings College), Halifax, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
81. (2008). Physics of bacteria: models and manipulations of Min oscillations inside E. coli. Dept Biological Sciences Seminar (SUNY Albany), Albany, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No

82. (2008). Extracellular cations and Min oscillations in E. coli: manipulating and exploiting the oscillation. Gordon research conference on Bacterial Cell Surfaces, New London, United States of America
Main Audience: Researcher
Invited?: No, Keynote?: No, Competitive?: No
83. (2008). Making decisions automatically: Min oscillations and the E. coli cell cycle. CIFAR workshop on Cellular Decision Making, Toronto, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
84. (2008). Modelling and stochastic effects. MITACS (Mathematics of Information Technology and Complex Systems) workshop on "Systems biology and the new frontiers of food biotechnology", Monterrey, Mexico
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
85. (2008). Clocking out: modelling phage induced lysis of bacteria. GEOPROM (Groupe d'etude des proteines membranaires) seminar, Montreal, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
86. (2008). Physics of bacteria: models and manipulations of Min oscillations inside E. coli. Seminar at MedILS (Mediterranean Institute of Life Sciences), Split, Croatia
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
87. (2008). Clocking out: modelling phage induced lysis of bacteria. Departmental Seminar at the University of Indiana Biocomplexity Institute, Bloomington, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No, Competitive?: No
88. (2007). Clocking out: phage induced lysis of E. coli. Dept physics seminar (University of Manchester), Manchester, United Kingdom
Invited?: Yes
89. (2007). Clocking out: phage induced lysis of E. coli. American Society of Microbiology General Meeting, Toronto, Canada
Invited?: No
90. (2007). Modeling the MreB helix inside bacteria. American Physical Society March Meeting, Denver, United States of America
Invited?: No
91. (2007). Clocking out: phage induced lysis of E. coli. Biophysics seminar at Mediterranean Institute of Life Sciences (MedILS), Split, Croatia
Invited?: Yes
92. (2007). Clocking out: phage induced lysis of E. coli. Dept physics seminar (UWaterloo), Waterloo, Canada
Invited?: Yes
93. (2007). Clocking out: phage induced lysis of E. coli. Dept Theoretical Physics seminar (Oxford University), Oxford, United Kingdom
Invited?: Yes
94. (2007). Clocking out: phage induced lysis of E. coli. Dept physics seminar (UWO), London, Canada
Invited?: Yes
95. (2007). Modeling the MreB helix inside bacteria. Dept Biomathematics seminar (UCLA), Los Angeles, United States of America
Invited?: Yes

96. (2006). Finding the physics in bacteria: oscillations inside a single cell. Physics seminar (Dalhousie University), Halifax, Canada
Invited?: Yes
97. (2006). Clocking out: phage induced lysis of E. coli. Dept Physics seminar (McGill), Montreal, Canada
Invited?: Yes
98. (2006). Running hot and cold: temperature dependence of Min oscillations in E. coli. Department of microbiology seminar, University of Texas Medical School at Houston, Houston, United States of America
Invited?: Yes
99. (2005). Modelling oscillations within bacteria. Physics seminar (McMaster University), Hamilton, Canada
Invited?: Yes
100. (2005). Bacterial biophysics. Canadian Society of Microbiologists annual meeting, Halifax, Canada
Invited?: Yes
101. (2004). Diffusion of asymmetric swimmers. APS March meeting, Montreal, Canada
Invited?: No
102. (2004). Spatiotemporal oscillations within bacteria. Physics seminar (Guelph University), Guelph, Canada
Invited?: Yes
103. (2004). Spatiotemporal oscillations within bacteria. Virginia Tech physics seminar, Blacksburg, United States of America
Invited?: Yes
104. (2003). Stable and accurate coarsening with an infinite time-step. Workshop for the Canadian Network for Computational Materials Science (at McMaster University), Hamilton, Canada
Invited?: Yes
105. (2003). Accurate division in E. coli. Brookhaven National Lab physics seminar, Upton, United States of America
Invited?: Yes
106. (2003). Accurate division in E. coli. Canadian Association of Physicists (CAP) annual meeting, Charlottetown, Canada
Invited?: Yes
107. (2003). Stable and Accurate coarsening with an infinite time-step. Numerical analysis day (at Saint Mary's University), Halifax, Canada
Invited?: Yes
108. (2003). Accurate division in E. coli. Conference on "Pattern formation in physics and biology" at the Kavli Institute for Theoretical Physics, Santa Barbara, United States of America
Invited?: Yes
109. (2003). Spatiotemporal oscillations within bacteria. Physics seminar (Acadia University), Wolfville, Canada
Invited?: Yes
110. (2003). Accurate division in E. coli. Biochemistry seminar (Dalhousie University), Canada
Invited?: Yes
111. (2002). Dynamic compartmentalization within bacteria. Biology seminar (Dalhousie University), Halifax, Canada
Invited?: Yes
112. (2002). Accurate division of E. coli. CAP annual meeting, Quebec,
Invited?: No
113. (2002). Stable and accurate coarsening with an infinite time-step. HPCS 2002 (High performance computing systems conference), Moncton, Canada
Invited?: Yes

114. (2002). Noisy division in *E. coli*. ASM (American Society of Microbiology) conference on Prokaryotic development, Quebec, Canada
Invited?: No
115. (2002). Accurate division in *E. coli*. Physics seminar (StFx University), Antigonish, Canada
Invited?: Yes
116. (2002). Accurate division of *E. coli*. Gordon research conference on Bacterial Cell Surfaces, New London, United States of America
Invited?: No
117. (2002). Stochastic limits on life: accurate division of *E. coli* bacteria. Physics seminar (Memorial University of Newfoundland), St John's, Canada
Invited?: Yes
118. (2001). Microalignment of bacteria on mineral substrates. CAP annual meeting, Victoria, Canada
Invited?: No
119. (2001). Polymerization-based bacterial mobility. Chemistry seminar (Dalhousie University), Halifax, Canada
Invited?: Yes
120. (2001). Tails of polymerization-based bacterial motility. Woods Hole Oceanographic Institution seminar, Woods Hole, United States of America
Invited?: Yes
121. (2000). Tails of polymerization-based bacterial motility. Physics Seminar (UPEI), Charlottetown, Canada
Invited?: Yes

Broadcast Interviews

- 2017/07/20 - Quantum Teleportation, Evening news with Bruce Frisko, CTV Atlantic (television)
2017/07/20
- 2017/02/06 - Call-in radio science show, Science Files, with Rick Howe, News95.7
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