

## CURRICULUM VITAE

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**Place and date of birth:** Vancouver, B.C., Canada; 28 Feb. 1958

**Citizenship:** Canadian

**Personal Data:** Married 9 Jul. 1983; two children, born 24 Aug. 1990; 5 Apr. 1993

### Education:

- B.Sc., Honours Physics and Astronomy, University of British Columbia, Vancouver, B.C., Canada, 1979.
- M.Sc., Physics, Queen's University, Kingston, Ontario, Canada, 1982. Research area: low temperature physics; supervisor: Dr. J.P. Harrison. Thesis title: Thermal relaxation between liquid helium-3 and powdered cerium magnesium nitrate.
- Ph.D., Physics, University of British Columbia, Vancouver, B.C., Canada, 1987. Research area: critical phenomena; supervisor: Dr. D.A. Balzarini. Thesis title: The critical behaviour of ethylene and hydrogen.
- Postdoctoral Fellow, University of California, Santa Barbara, USA, 1987-89. Research area: nonlinear fluid dynamics; pattern formation. Supervisors: Dr. G. Ahlers, Dr. D. S. Cannell.

### Awards and Prizes:

- CNPq Visiting Scientist (Brazil), 2011
- Prize for Best Talk, VPF-2009
- APS Outstanding Referee, 2008
- Best Paper on Condensed Matter Physics, Canadian Journal of Physics, 2004 (for publication #56)
- Memorial University Dean of Science Distinguished Scholar Medal, 2004
- CNRS "Poste Rouge" visiting fellowship (France), 2003
- MUN President's Award for Outstanding Research, 1996
- NSERC University Research Fellowship, 1989-98
- Killam Postdoctoral Fellowship (Honorary), 1987-89
- NSERC Postdoctoral Fellowship, 1987-89
- UBC Graduate Fellowship, 1985
- NSERC Postgraduate Scholarship, 1979-81 and 1982-85
- COTC Memorial Scholarship, 1976-77-78
- Banks Foundation Scholarship, 1975
- B.C. Government Scholarship, 1975

**Employment:**

- July 2010-present: Professor, Department of Physics and Astronomy, University of Western Ontario, London, ON, Canada. Research areas: rheology, soft matter physics, complex fluids, granular materials, nonequilibrium physics, biological physics.
- April 2012-May 2012: Visiting Researcher, Department of Mathematics, University of British Columbia.
- February 2012-April 2012: Senior Research Fellow, Department of Mathematics, City University of Hong Kong.
- October 2011-December 2011: Visiting Scientist, Departamento de Engenharia Mecânica, Pontifícia Universidade Católica, Rio de Janeiro, Brazil.
- March 2005-June 2010: Professor and Department Chair, Department of Physics and Astronomy, University of Western Ontario.
- 2013-present: Cross appointment, Department of Medical Biophysics, University of Western Ontario.
- 2009-present: Cross appointment, Department of Chemistry, University of Western Ontario.
- 2009-present: Cross appointment, Department of Applied Mathematics, University of Western Ontario.
- 2008-present: Cross appointment, Department of Mechanical and Materials Engineering, University of Western Ontario.
- March 2005-2008: Adjunct Professor, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, NL, Canada.
- Aug. 2003-July 2004: Chercheur Associé, Laboratoire de Rhéologie, Grenoble, France.
- Sept. 1999-Feb. 2005: Professor, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, NL, Canada.
- Aug. 1997-July 1998: Visiting research fellow, Center for Nonlinear Dynamics, University of Texas, Austin, TX, USA.
- Sept. 1994-Aug. 1999: Associate Professor and NSERC University Research Fellow (to Aug. 1998), Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, NL, Canada. Granted tenure Sept. 1994.
- Aug. 1989-Aug. 1994: Assistant Professor and NSERC University Research Fellow, Department of Physics, Memorial University of Newfoundland, St. John's, NL, Canada.
- 1987-89: NSERC Postdoctoral Fellow, Department of Physics, University of California, Santa Barbara, CA, USA.
- 1982-87: Ph.D. candidate, Department of Physics, University of British Columbia. Research area: critical phenomena.
- 1979-82: M.Sc. candidate, Department of Physics, Queen's University. Research area: low temperature physics.

**Summer Research Assistantships:**

- 1979: Dominion Radio Astrophysical Observatory, Penticton, B.C. Computing; supervisor, Dr. P. Dewdney.
- 1978: Department of Physics, University of British Columbia. Plasma spectroscopy; supervisor, Dr. A.J. Barnard.
- 1977: Department of Physics, University of Waterloo. Electrons in metals; supervisor, Dr. J. Vanderkooy.

**Courses Taught:**

At The University of Western Ontario (student evaluations for “overall effectiveness” given in square brackets, maximum possible score is 7):

*Undergraduate:*

- Astr 202: Stars, Galaxies and Cosmology (fall 2005 [6.3]; fall 2006 [5.8])
- Phys 3926F/G (Phys 326F/G before 2008/09): Computer Modeling in Physics (winter 2006 [5.7]; winter 2007 [6.0]; winter 2008 [6.5]; fall 2008 [6.2])
- Phys 279/379/479: Undergraduate Seminar (2007-8 [5.8/6.7/5.8])
- Phys 4931: Physical Fluid Dynamics (Winter 2009 [6.9]; Winter 2011 [6.2]; Fall 2012 [6.3])
- Phys 1020: Physics I (Winter 2010 [6.3])
- Phys 2110: Oscillations and Waves (Fall 2010 [6.7]; Fall 2012 [6.3]; Fall 2013)
- Phys 1502: Enriched Introductory Physics II (Winter 2011 [5.8])
- Phys 3900: Senior Physics Laboratory (Winter 2013 [6.2]; Winter 2014)

*Graduate:*

- Phys 507: Fluid Mechanics (reading course, fall 2005)
- Phys 9807: Fluid Mechanics (Winter 2011; reading course, summer 2011; Fall 2012)
- Phys 532: Rheology (reading course, fall 2007)

At Memorial University of Newfoundland:

*Undergraduate:*

- P1200: Introductory Physics I (fall 1995)
- P1051: General Physics II (fall 2004)
- P1054: Data Analysis and Computational Physics (fall 1998; winter 1999; fall 1999; winter 2000; fall 2000)
- P2054: Electromagnetism, Light and Optics (winter 1997)
- P3150: Astrophysics I (winter 2000; winter 2001; winter 2002; winter 2005)
- P3220: Classical Mechanics I (fall 2002)
- P3550: Electric Circuits (fall 1996; fall 2000; fall 2001; fall 2002)
- Engineering 3821: Electric Circuits (fall 2000; fall 2001; fall 2002)
- P3900: Physics Laboratory I (winter 1991; winter 1992; winter 1993; winter 1994)
- P3920: Physics Laboratory II (fall 1991; fall 1992; fall 1993; winter 1995; fall 2004)
- P4200: Nonlinear Dynamics, half course (winter 1999)

*Graduate:*

- P6050: Solid State Physics (winter 1990; fall 1990)
- P6200: Nonlinear Dynamics (winter 1993; fall 1994; winter 1999)

**Supervision:**

*Postdoctoral Scientists:*

- *H. Tabuteau*, 2005-2006. Now a CNRS researcher, Rennes, France
- *P. Habdas*, 1999-2001. Now an Associate Professor at St. Joseph's University, USA.

*Research Assistants:*

- *P. Wright*, 2012. Now employed with State of the Art Acoustik, Ottawa.

*Graduate Students:*

- *J.M. Jerrett* (M.Sc., 1992). Fingering Instability of a Gravitationally Driven Contact Line. Now an instructional assistant, MUN Physics.
- *M. Liu* (M.Sc., 1992). Experimental Study of Convection of a Binary Fluid in a Quasi-1-Dimensional Cell. Now a consulting engineer in Boston.
- *L. Pan* (Ph.D., 1994). Patterns and Instabilities at a Driven Fluid-Air Interface. Now working for General Electric in Milwaukee.
- *S. Mao* (M.Sc., 1996). Electroconvection in two-dimensional liquid-crystal films. Completed a Ph.D. at University of California, Berkeley; now a staff member at Lawrence Berkeley National Lab.
- *R. Power* (M.Sc. student, 1993-2000). Did not finish thesis, now runs his own IT company, St. John's.
- *C. Lu* (M.Sc., 1996). Statistical studies of spatiotemporal chaos in the printer's instability. Present employment unknown.
- *K. Linehan* (M.Sc, 1997). A study of shrinkage crack patterns. Completed a Ph.D. at the University of Western Ontario, now an instructor, MUN Physics.
- *Y. Kang* (Ph.D.) (1996-1997). Withdrew from program.
- *M. M. Shu* (M.Sc.) (1997). Program terminated.
- *D. Leary* (M.Sc., 2001). Negative group velocity of ultrasonic pulses in a bubbly liquid. Worked at National Center for Physical Acoustics, USA; now a Ph.D. student at Dalhousie University.
- *K. Holloway* (Ph.D., 2007) Viscous fingering instabilities. Now at home with her children.
- *S. El-Khatib* (M.Sc.) (2000-2001) Withdrew from program.
- *F. Oppong* (M.Sc., 2005) Probing the microstructure of yield-stress fluids with multiple particle tracking. Completed a Ph.D. with me; now employed in the research division at Unilever (U.K.)
- *G. Jardet* (M.Sc., Université Joseph Fourier, 2004).
- *R. Hoda* (Ph.D., Department of Civil and Environmental Engineering, Western; co-supervised with T. Newson) (2006-2007) Withdrew from program, now employed with Shell Canada.
- *J. Zou* (M.Sc., 2007) Small-angle light scattering under shear. Now a Ph.D. student at University of Toronto.
- *F. Oppong* (Ph.D., 2009) Rheology, microrheology and structure of soft materials. Now a research scientist at Unilever (U.K.).

- *S. de Vet* (Ph.D., 2009) On the shape of impact craters and the collapse of an unstable transient cavity in granular media. Now an instructor at Dalhousie University.
- *N. Yang* (Ph.D., 2011) Co-supervised with J. Hutter. Microrheology and microstructure of poly(vinyl alcohol)-based physical gels. Now a research scientist with Unilever (Shanghai).
- *R. Dauphinee* (M.Sc., 2009) Co-supervised with H. Goldberg. Light scattering study of hydroxyapatite crystallization. Now a science policy analyst with Natural Resources Canada.
- *A. Fahmy* (M.A.Sc., 2011, Department of Civil and Environmental Engineering, Western) Co-supervised with T. Newson. Numerical investigation of the undrained pullout capacity of anchors embedded in clay.
- *B. Sundaram* (M.Sc.) (2010) Withdrew from program.
- *Name withheld* (Ph.D.) (2010-2011) Program terminated.
- *T. Aldahari* (M.Sc., 2012) Behavior of a particle falling through a funnel.
- *R. Ge* (M.Sc.) (2011-present) Rheology of polymer-nanoparticle composites.
- *M. Mozaffari* (M.Sc., 2013) Light-scattering studies of biomineralization. Co-supervised with H. Goldberg.
- *D. Stranges* (Ph.D., Mechanical and Materials Engineering) (2011, 2013) co-supervised with R. Khayat. Non-Fourier heat transport.
- *Y. Liu* (M.Sc.) (2012-present) Start-up flow in yield-stress fluids.
- *M. Goiko* (M.Sc.) (2012-present) Force generation during phagocytosis. Co-supervised with B. Heit.
- *C. Hopkins* (M.Sc.) (2013-present) Development of a vibrating-object rheometer.
- *N. Gatangama* (M.Sc.) (2013-present) Dielectric spectroscopy of polymer nanocomposites.

#### *Visiting Graduate Students:*

- *I. Gutowski* (M.Sc., Physics, Simon Fraser) (2009) Rheology of carbopol solutions.
- *S. Amirnia* (M.Sc., Chemical and Biochemical Engineering, Western) (2009) Rheology of Xanthan solutions.
- *R. Khorisani* (Ph.D., Mechanical and Materials Engineering, Western) (2011) Convection in nanofluids.
- *M. Esfahani* (Ph.D., Mechanical and Materials Engineering, Western) (2011) Convection in nanofluids.
- *T. Yu* (M.Eng., Chemical and Biochemical Engineering, Western) (2013) Rheology of polymer-surfactant mixtures.
- *B. Laschowski* (M.Sc., Kinesiology, Western) (2013) Mechanical properties of oars.
- *B. Farhadpour* (Ph.D., Chemistry, Western) (2013) Refractive index of polymers.
- *A. Turolla* (Ph.D., Civil and Environmental Engineering, Politecnico di Milano) (2013) Light scattering from TiO<sub>2</sub> nanoparticles.

#### *B.Sc. Honours Thesis supervision:*

- *K. Linehan* (1993-4). Study of electrolyte concentration gradients in the electrochemical deposition of copper and silver.
- *J. Taylor* (co-supervised with M. Morrow) (1993-4). Draining in porous media: experiments and simulations.
- *B. Gover* (1993-4). The Josephson effects in low T<sub>c</sub> superconductors.
- *G. White* (1995-6). Early stages of branched growth in electroless deposition.

- *K. Holloway* (1998-9). Electroconvection in smectic liquid crystals.
- *M. Case* (1998-9). Source and sink defects in the printer's instability.
- *A. Kieft* (2000-1). Voltage and growth characteristics of copper electrodeposition.
- *J. Neufeld* (B. Eng., University of Toronto) (2000-01). Surface tension driven instability of two-phase flow in a thin tube.
- *J. White* (2002) Simulations of pattern formation in granular media; withdrew from physics honours program.
- *P. Chafe* (2003) Drag force in complex fluids.
- *A. Walsh* (2003-4) Granular jets.
- *T. Toplak* (2006-7) Flow visualization in yield-stress fluids
- *T. Williams* (2006-7) Position correlation function of a two-dimensional granular material
- *D. Sikorski* (2006-7) The motion of air bubbles in a yield-stress fluid
- *N. Frank* (2007-8) Motion of an aberrant particle in a two-dimensional granular material
- *A. Santoni* (2007-8) Negative phase velocity in dispersive composites
- *P. Wright* (2008-9) A rheological and light scattering study of dilute microgel dispersions
- *Z. Mariani* (2008-9) Wall effects on drag in Newtonian and non-Newtonian fluids
- *N. Kehl* (2009-10) Swimming in non-Newtonian fluids
- *A. Dittmer* (2009-10) Wind tunnel studies of bird aerodynamics
- *J. Bondy* (2009-10) Rayleigh-Bénard convection in yield stress fluids
- *D. Bator* (2009-10) (Chemistry) Effects of poly(aspartic acid) on hydroxyapatite mineralization. Co-supervised with H. Goldberg.
- *E. Kennedy* (2010-11) Student learning of wave concepts
- *M. Goiko* (2011-12) Inhibition of biomineralization by proteins. Co-supervised with H. Goldberg. Masha won the 2012 Don Hay Prize for best honours thesis in the Physics and Astronomy Department.
- *C. Hopkins* (2012-13) Oscillating objects in non-Newtonian fluids. Cameron won the 2013 Don Hay Prize for best honours thesis in the Physics and Astronomy Department.
- *R. Odell* (2012-13) Electrospinning of PEO fibers. Co-supervised with W. Wan.
- *A. Fortais* (2013-14) Rheology of blood-mimicking fluids. Co-supervised with T. Poepping.
- *R. Cianfarani* (2013-14) Analysis of neutron scattering data. Co-supervised with J. Hutter.

*Undergraduate Research Assistants:*

- *E.D. Moore* (1990 (NSERC summer student))
- *D. Whelan* (1991, 1992 (NSERC summer student))
- *M. Robbins* (1992 (WISE (high school) Summer Student))
- *K. Linehan* (1993)
- *R. Power* (1993)
- *D. Baird* (1994)
- *D. Rose* (1995)
- *G. White* (1996)
- *K. Holloway* (1997, 1998)

- A. Kieft (1999, 2000 (NSERC USRA))
- S. Kim (2000 (NSERC USRA))
- J. Neufeld (2000)
- J. White (2001 (NSERC USRA))
- N. Semsarillar (2002 (Engineering Work Term Student))
- A. Walsh (2002, 2003 (NSERC USRA), 2004)
- M. Rogers (2002)
- K. Burfitt (2002 (WISE (high school) Summer Student), 2003)
- P. Chafe (2003, 2004)
- D. Sikorski (2005 (NSERC USRA), 2006 (NSERC USRA), 2007 (NSERC USRA))
- T. Williams (2005 (NSERC USRA), 2006)
- T. Toplak (2005, 2006, 2007)
- S. Flood (2008)
- S. Chippin (2008 (NSERC USRA))
- P. Wright (2008, 2009)
- A. Dittmer (2009, 2010) co-supervised with G. Kopp, Civil Eng.
- J. Bondy (2009, 2010 (NSERC USRA))
- R. Schulman (2009-10, 2011)
- N. Armstrong (2010 (NSERC USRA))
- N. Kehl (2010)
- M. Holstenson (2010-11) (High school student)
- C. R. McRae (2011) co-supervised with B. Chronik
- M. Goiko (2011 (NSERC USRA)) co-supervised with H. Goldberg, Dentistry
- C. Hopkins (2011)
- A. Ching (2012 (AMBI undergraduate summer research award)) co-supervised with J. Zhang, Chem. Eng.
- M. Goiko (2012 (NSERC USRA)) co-supervised with B. Heit, Immunology
- B. Duong (2013 (NSERC USRA))
- S. Sorkhou (2013 (AMBI undergraduate summer research award)) co-supervised with E. Gillies, Chemistry
- S. Davenport (2013 (AMBI undergraduate summer research award)) co-supervised with J. Yang, Mechanical and Materials Engineering
- H. Chen (Fudan University, China) (2013, Mitacs Globalink award) co-supervised with A. Soddu.

### **Departmental Service:**

*University of Western Ontario:*

- Chair, Department of Physics and Astronomy (Mar. 2005-June 2010)
- As Department Chair, *ex-officio* member of the following departmental committees:
  - Promotion and Tenure
  - Appointments (chair)
  - Annual performance evaluation (chair)
  - Graduate Affairs
  - Curriculum (chair, 2007-08)
  - Outreach
  - Graduate comprehensive examination
  - Workload
  - Awards (chair)

- PhD Comprehensive Examination Committee (2013-present; Chair 2013-present)
- NSERC USRA Selection Committee (2013)
- Counselling Committee (2012-present)
- Physics and Astronomy Building Renovations Committee (2006-10, Chair)
- Academic Planning Committee (2007, Chair)
- Colloquium Committee (2007-08)
- Outreach Committee (2010-11, Chair)
- Promotion and Tenure Committee (elected, 2010-present)
- Examiner for Physics Ph.D. theses, 2006-present: Meloche, Barrie, S. Xu, Liu, Hudson, Jensen, Harris, Wiens.
- Examiner for Physics M.Sc. theses, 2009-present: P. Xu, Powell, Boudreau, Phelan.
- Examiner for Physics 9059 seminar, 2013: Sharifi.
- Examiner for Astronomy Ph.D. comprehensive exam, 2013-present: Abedin.
- Chair, M.Sc. Examination: R. Dey (2010).
- Examiner for B.Sc. Honours projects, 2005-present: approximately two/year.
- Member of M.Sc. and Ph.D. Advisory Committees: approximately six at any given time.

*Memorial University:*

- Acting Head, Department of Physics, MUN (July-Aug. 1995; several occasions for shorter periods).
- Deputy Head (Graduate Studies), Department of Physics, MUN (Feb. 1994-June 1997; Sept. 1998-Dec. 2001).
- MUN Physics Department Head Selection Committee (1995; 2001 (chair)).
- Departmental Promotion and Tenure Committee (1999-2003); Chair, 1999-2002.
- Departmental Nominating Committee (1999-2000).
- Departmental Seminar Committee (1998-2001).
- Physics 1054 Implementation Committee (1994-1997).
- Departmental *ad-hoc* Committee on the State of the Department (1994-95).
- Departmental Graduate Studies Committee (1990-1997, 1998-2002).
- Departmental Search Committee (1990-1996, 1998-2001); Chair, 1995-1996.
- Five Physics Department M.Sc. Thesis Examining Committees, 1989-1993.
- Internal Examiner for eight M.Sc. theses and four Ph.D. theses, 1990-2005.
- Examiner for numerous B.Sc. Honours theses, 1992-2005.

**University Service:**

*University of Western Ontario:*

- Member, Petro Canada Young Investigator Award Review Panel (2013).
- Participated in Faculty of Science retreat to discuss research strategic plan (2013).
- Faculty of Science Advisory Group on Research Excellence (2012).
- University Working Group on Information Security (2010-11).
- Counsellor, Summer Academic Orientation (2010, 2011, 2012, 2013).
- As Department Chair (2005-10), member of the selection committees for numerous faculty and university awards.
- Materials Science Building Planning Committee (2006).
- Physics and Astronomy Building Renovations Planning Committee (2006-2010).
- Chair Selection Committee, Department of Computer Science (2010-2011).
- Chair Selection Committee, Department of Applied Mathematics (2006-2008).



- Chair Selection Committee, Department of Chemistry (2008-2009).
- Selection Committee for Director, Centre for Planetary Science and Exploration (2008).
- Promotion and Tenure Committee, Department of Electrical and Computer Engineering (2013-present).
- Promotion and Tenure Committee, Department of Medical Biophysics (2012).
- Promotion and Tenure Committee, Department of Mechanical and Materials Engineering (2006-2009).
- Promotion and Tenure Committee, Department of Civil and Environmental Engineering (2007-2008; alternate member 2012).
- Examiner for Chem 4490 thesis, Department of Chemistry (Stutchbury), 2010.
- Examiner for Chem 4491 thesis, Department of Chemistry (Oh), 2013.
- Examiner for M.Sc. thesis, Department of Earth Sciences (Lodge), 2007.
- Examiner for M.Sc. thesis, Department of Electrical and Computer Engineering (Godbolt), 2009.
- Examiner for M. E. Sc. thesis, Biomedical Engineering (Mahabir), 2010.
- Examiner for M.Sc. thesis, Department of Earth Sciences (Auclair), 2011.
- Examiner for M.Sc. thesis, Department of Chemistry (McCool), 2011.
- Examiner for Ph.D. thesis, Department of Mechanical and Materials Engineering (German), 2006.
- Examiner for Ph.D. thesis, Department of Applied Mathematics (Drozd), 2009.
- Examiner for Ph.D. thesis, Department of Chemistry (Rupar), 2009.
- Examiner for Ph.D. thesis, Department of Civil and Environmental Engineering (Liang), 2010.
- Examiner for Ph.D. thesis, Department of Civil and Environmental Engineering (Morrison), 2010.
- Examiner for Ph.D. thesis, Department of Civil and Environmental Engineering (Daljoui), 2012.
- Examiner for Ph.D. thesis, Department of Applied Mathematics (Faghihi), 2012.
- Examiner for Ph.D. thesis, Department of Mechanical and Materials Engineering (Moradi), 2013.
- Examiner for Ph.D. thesis, Department of Chemistry (Xu), 2013.
- Chair, Ph.D. defence, Department of Medical Biophysics (Hutchison), 2012
- Chair, Ph.D. defence, Department of Chemical and Biochemical Engineering (Escobedo Salas), 2013
- Examiner for Ph.D. comprehensive exam, Department of Mechanical and Materials Engineering (Stranges), 2011.
- M.Sc. supervisory committee for B. Laschowski, Department of Kinesiology (2012-present).
- Ph.D. supervisory committee for D. Stranges, Department of Mechanical and Materials Engineering (2011-present).
- Ph.D. supervisory committee for E. Lau, Department of Chemical and Biochemical Engineering (2007-2010).
- Ph.D. supervisory committee for M. Javidi, Department of Chemical and Biochemical Engineering (2011-present).
- Medical Biophysics IDI Steering Advisory Committee, 2007.

- Faculty of Science representative to the committee to review the Vice-Provost for Policy, Planning and Faculty, 2008.
- Transitional Steering Committee for the Canadian Astromaterials Project, 2008-2009.
- Program Committee, Academic Leaders' Summer Conference, 2008-09.
- Panel Member, Academic Leaders' Summer Conference, 2007, 2008, 2009.
- Panelist at a Faculty of Science workshop on NSERC grants, 2008.
- Hooder, UWO Convocation, 2009, 2010, 2013.

*Memorial University:*

- Memorial University Senate (1999-2002).
- MUN University Research Professor Selection Committee (2001).
- MUN Dean of Science Advisory Committee, Selection of Associate Deans (2000).
- MUN Petro-Canada Young Innovator Award Selection Committee (2000).
- MUN School of Graduate Studies Medals and Awards Committee (1999-2002).
- MUN NSERC USRA Selection Committee (2001, 2002); Chair, 2002.
- MUN Associate Dean of Graduate Studies Selection Committee (1997).
- MUN Faculty of Science Graduate Studies Committee (1994-1997; 1998-2001); Chair, 1994-1995, 1999-2000.
- Academic Council, School of Graduate Studies, MUN (1996-1997, 1999-2000).
- MUN Faculty of Science Special Committee on Course Equivalence; Chair (1996).
- MUN NSERC Postgraduate Scholarship Screening Committee (1994-96, 1998-2000).
- MUN Dean of Science's ad-hoc committee on Graphic and Photographic services (1992).
- UBC Dean of Science Selection Committee, 1984-85.
- Chaired several Ph.D. oral defences, MUN (1995-2003).
- Dean of Graduate Studies delegate to several Ph.D. comprehensive examinations, MUN (1993-2002).

**Professional Activities:**

- Member, Canadian Association of Physicists, 1974-present.
- Councillor, CAP, 1991-1993, 2010-2013
- Chair, CAP Division of Condensed Matter Physics, 1996-97 (duties included organising the CMP portion of the 1997 CAP congress program); Vice-chair, 1995-1996; Past chair, 1997-1998.
- Member, CAP Professional Affairs Committee, 2012-present.
- Member, CAP Professional Certification Committee, 2012-present.
- Member, CAP Membership Committee, 2013-present.
- Director of Full Members, CAP, 2011-present.
- Member, American Physical Society, 1982-present.
- Member, Society of Rheology, 2003-present.
- Member, Physical Science Advisory Committee, Canadian Space Agency, 2008-2010.
- Member, NSERC-CAP Liaison Committee, 2006-2009, 2011-2013.
- Member, Panel to review undergraduate physics programs at the University of Ottawa, 2006.

- Member, NSERC Prize Selection Committee for the Herzberg Canada Gold Medal and the Brockhouse Canada Prize, 2008.
- Member, NSERC Accelerator Grants Selection Committee for Physical Science, 2008, 2009.
- Member, NSERC Grant Selection Committee 28 (Condensed Matter Physics), 2001-2004.
- Member, NSERC GSC 28/29 Major Equipment/Major Installation Grants subcommittee, 2001-02.
- Chair, NSERC GSC 28/29 Major Facilities Access Grants subcommittee, 2002-03.
- Co-chair, NSERC Condensed Matter Physics Reallocation Steering Committee, 2000-2002.
- Member, APS Division of Fluid Dynamics Acrivos Dissertation Award Committee, 2003-04.
- Member, APS Division of Fluid Dynamics External Affairs Committee, 2007-09.
- Member, Canadian IUPAP Liason Committee, 1999-2002.
- Chair, CAP/DCMMP Brockhouse Medal Selection Committee, 1999.
- Divisional Associate Editor for Fluid Dynamics, Physical Review Letters (2013-present)
- Associate Editor, Canadian Journal of Physics, 1999-2003.
- External Examiner for theses by D. Zhang (Ph.D., Toronto, 1994); M. Cowan (Ph.D. Manitoba, 2001), R. Prakash Ph.D., Chemical Engineering, Indian Institute of Technology, 2007), D. Banks (Ph.D., McMaster, 2008), H. Mielke (Ph.D., Chemical Engineering, Melbourne, 2008); A. Putz (Ph.D., Mathematics, UBC, 2010); J. Carvalho (Ph.D., McMaster, 2010), M. Shayegan (Ph.D., Chemistry, SFU, 2014).
- Member, Jury d'Habilitation, Université Joseph Fourier, France, 2003.
- External Reviewer, Promotion to Full Professor, Department of Physics and Astronomy, University of Waterloo, 2006.
- External Reviewer, Promotion to Full Professor, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, 2012.
- External Reviewer, Promotion to Full Professor, Department of Physics and Astronomy, University of Calgary, 2011.
- External Reviewer, Promotion to Full Professor, Department of Physics, Hong Kong University of Science and Technology, 2009.
- External Reviewer, Tenure, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, 2008.
- External Reviewer, Tenure, Department of Mathematics, Hong Kong City University, 2006.
- Program Committee and session co-chair/organizer, Society of Rheology Conference, Oct. 2013.
- Reviewed abstracts for Western Conference on Science Education, July 2013.
- Session co-chair/organizer, Canadian Association of Physicists Congress, May 2013.
- Judge, student poster competition and the finals of the student talk competition, CAP Congress, May 2013.
- Scientific Organizing Committee, Colloids and complex fluids: Challenges and Opportunities, Paris, October 2012.
- Program Committee, Western Conference on Science Education, July 2011.
- Session chair/organizer, Society of Rheology Conference, Oct. 2009.

- Session chair/organizer, European Rheology Conference, May 2005.
- Local Organising Committee, International Conference on the Physics and Chemistry of Ice, St. John's, July 2002.
- Organiser of the DCMP Sunday Symposium on "Patterns and Dynamics in Nonequilibrium Systems," CAP Congress, Quebec City, June 1995.
- Organiser of an international conference on "The Geometry of Forms in Equilibrium and Nonequilibrium Systems" held at MUN in July, 1994.
- Over 35 invited seminars/colloquia presented at universities and research institutes in Canada, the United States, France, Germany, Hong Kong, Argentina, Brazil, and China.
- Visiting Professor, University of Buenos Aires, Argentina, 1997.

#### **Invited conference talks:**

- Atlantic Undergraduate Physics Conference (St. John's, 1995)
- CPiP '96 Pattern Formation in Fluids and Materials (London, Ontario, 1996)
- 14th University of California Conference on Nonlinear Dynamics (Los Alamos, 1998)
- Gordon Conference on Pattern Formation in the Earth Sciences (1998).
- Canadian Association of Physicists Congress (Fredericton, NB, 1999).
- Canadian Association of Physicists Congress (Vancouver, BC, 2005).
- Western Institute for Nanomaterials Science Workshop (London, ON, 2005).
- Workshop on Dynamical Systems and Continuum Physics (Montreal, QC, 2007) (two invited talks).
- Canadian Association of Physicists Congress (Moncton, NB, 2009).
- Faculty of Science Enrichment Day, UWO (London, ON, 2009).
- International Conference on Applied Mathematics (Hong Kong, 2010).
- Viscoplastic fluids: From theory to application (Rio de Janeiro, 2011).
- Canadian Association of Physicists Congress (Montreal, QC, 2013).

#### **Outreach and professional development activities:**

- Presented Enrichment Mini-Courses on Electronics to high school students, May 1997, May 1999, May 2000, May 2001.
- Judge, Texas State-Wide Science and Engineering Fair, 1998.
- Judge, Eastern Newfoundland Regional Science Fair, 2001.
- Presentations on aspects of science at schools in St. John's, NL.
- Assisted at MUN's annual Science Open House most years, 1989-2004.
- Presentations to grade 12 students at "Interactions", UWO, 2005, 2007.
- Presentations to grade 12 students at "Preview Western Science Invitational", UWO, 2007.
- Arranged and hosted a talk and musical performance attended by 500 people as part of the World Year of Physics celebrations, 2005.
- With C. Essex, took part in a performance at Einstein's Café, UWO, as part of the World Year of Physics celebrations, 2005.
- Liquid nitrogen shows for visiting student groups, 2006, 2007.
- Liquid nitrogen shows at London District Science Fair, 2011.
- Astronomy talk for visiting student group, 2007.
- Assisted at public observing nights, Cronyn Observatory, UWO, 2006-present.
- Participated in Fall Preview Days, UWO, 2006, 2007, 2009, 2010.

- Participated in March Break Open House, UWO, 2011, 2013.
- Graduate recruitment activities at the Canadian Undergraduate Physics Conference (1994, 2005) and the Atlantic Undergraduate Physics and Astronomy Conference (2001, 2006, 2007)
- Interviews with the Philadelphia Enquirer (2007), Ottawa Citizen (2007), Rogers Cable 13 News (2008), London Free Press (2009), National Post (2010), CJBK Radio (twice) (2011).
- Judge, London All Science Challenge (elementary school students), 2009.
- Chair, Physics and Astronomy Outreach Committee (2010-11).
- Participant, Teaching Squares program, UWO, 2010, 2012.
- Counselling for Intent to Register, UWO, 2011.
- Interview with a high school student, 2011.
- Regular posts to Western's Department of Physics and Astronomy Blogs, Dec 2011-Aug 2012.
- Led a grade 7/8 class at Centennial Central Public School in a nation-wide science experiment, 2012.
- Assisted at Department of Physics and Astronomy Intent to Register event, 2013.
- Attended "Science Talks", Faculty of Science Professional Development Day, 2012.
- Represented CAP at the Canadian Undergraduate Physics Conference, Hamilton, Nov. 2013.
- Consulted about papers being highlighted by Phys. Rev. Focus (2009, 2012).
- Consulted about a paper being highlighted in Physics Today (2010).
- Consulted about papers being highlighted in APS Physics (2010, 2012).

#### **Refereed papers for:**

- Phys. Rev. E; Phys. Rev. Lett.; Can. J. Phys.; J. Fluid Mech.; Mol. Cryst. Liq. Cryst.; Am. Soc. Mech. Eng.; Physica A; Physica D; Phys. Fluids; Europhys. Lett.; Am. J. Phys.; Proc. Nat. Acad. Sci. (USA); Phys. Lett.; Chaos; Rheol. Acta; Can. Undergrad. Phys. J.; Water Research; J. Amer. Ceramics Soc.; Electrochimica Acta; J. Non-Newtonian Fluid Mech.; Eur. Phys. J. E; Colloids and Surfaces A.; J. Phys. Chem. Solids.; J. Phys. Chem.; Phys. Rev. B.; J. Rheol.; New J. Phys.; Appl. Surf. Sci.; Langmuir.; Phys. Rev. X; J. Zhejiang Univ. – Science A; J. Geophys. Res. – Solid Earth; Phil. Trans. Roy. Soc.; Exp. Therm. Fluid. Sci.; Soft Matter; Korea-Australia Rheol. J.; J. Visualization; Eur. Phys. J. – Appl. Phys.; Appl. Mech. Rev.; J. Coll. Interf. Sci.; Int. J. Multiphase Flow;

Named one of the first APS Outstanding Referees, 2008.

#### **Refereed grant proposals for:**

NSERC; Israeli Science Foundation; NASA; Research Corporation; Materials and Manufacturing Ontario; Guggenheim Foundation; NSF; Petroleum Research Fund; SharcNet; Hong Kong Research Grants Council; Killam Fellowships.

Performed internal reviews of several NSERC Discovery Grant proposals each year on behalf of the Faculty of Science at Western (2007-2013).

#### **Consulting and Industrial Interactions:**

- NASA Microgravity Fluid Physics Peer Review Panel, 1997, 1999, 2001.

- Consultant to Media Recovery, Inc., Graham TX, 1998.
- Presented a two-week course on Nonlinear Dynamics to staff at the NRC Institute for Marine Dynamics, St. John's, June 2000.
- Co-investigator on an ORF-funded collaborative research project involving Western, Surface Science Western, and Lanxess, Inc., 2009-present.
- NSERC Interactions Grant to explore possible collaborations with Xerox Research Center Canada, 2011.
- NSERC Engage Grant for a collaborative research project with Trojan Technologies, 2012.
- Ongoing collaborations with Trojan Technologies, 2013-present.

### **Community Service:**

- Assistant Beaver Leader, 1st Macdonald Drive Beavers, St. John's (1996-97, 1998-99) ; 1st Vanier Beavers, St. John's (1999-2000)
- Section Leader, 1st Vanier Beavers, St. John's (2000-2001)
- Scouter, 1st Vanier Scouts, St. John's (2001-2003, 2004-2005)
- Scouter, 77<sup>th</sup> Masonville Scouts, London (2005-2007)
- Venturer Advisor, 77<sup>th</sup> Masonville Venturers, London (2007-2009)
- 77<sup>th</sup> Masonville Scouts Group Committee (2009-2011)
- Scouts Canada Wood Badge Training (Part I), 2002
- Volunteer group leader, Duke of Edinburgh's Award, London (2008-2009)
- Executive member, Les Marmitons International, London Chapter (2011-present)
- Member, Board of Directors, Middlesex Condominium Corporation 299 (2012-present).

### **Research Grants:**

- NSERC Research Tools and Instruments, Category 1, "Determination of the poro-viscoelastic and fracture properties of hydrogels," J. R. de Bruyn and T. A. Newson, \$58,731 (pending).
- NSERC Research Tools and Instruments, Category 1, "Mask aligner for lithography processes," F. Lagugné-Laberthet, J. R. de Bruyn and others, \$147,000 (pending).
- ACS Petroleum Research Fund New Directions Grant, "Dielectric spectroscopy of polymer-based nanocomposite materials," US\$110,000 (pending).
- Western ADF Small Grant, "Application of vibrating viscometry to non-Newtonian fluids," 2013, \$7,739.
- CFI New Initiatives Fund/ORF, "Center for the development and testing of MR-compatible devices and technology," B. Chronik, J. R. de Bruyn, and others. 2013, \$705,911
- Ontario Research Fund, "Center for the development and testing of MR-compatible devices and technology," B. Chronik, J. R. de Bruyn, and others. 2013, \$705,911.
- France-Canada Research Fund, "Experimental design investigation of microrobotic swimming," K. McIsaac, S. Salisbury, and J. R. de Bruyn, 2012, \$13,000.
- NSERC Engage Grant, "Scattering of ultraviolet radiation by concentrated suspensions," 2012, \$25,000.
- NSERC Interaction Grant, "Exploring industrial research collaborations with Xerox Research Centre Canada," 2011, \$1,051.
- NIST Center for Neutron Research, "SANS investigation of gelation in PVA/PEG blends," N. Yang, J. Hutter, and J. R. de Bruyn, 2011, 2 days neutron beam time.

- NSERC Discovery Grant, “Microrheology and diffusion in complex fluids,” 2010-15, \$32,000/yr.
- Ontario Research Fund, “Green technologies for nanoengineering of new butyl rubber products,” L. Lau plus several others, 2009-2014, \$1,797,000 over five years.
- NSERC Research Tools and Instruments, Category I, “Temperature control system for a rheometer,” 2009, \$17,974.
- NSERC Research Tools and Instruments, Category I, “Fluorescence Microscope for particle tracking microrheology,” 2007, \$40,136 (with J. Hutter).
- UWO Academic Development Fund Major Grants, “Light Scattering Instrument for the Study of Complex and Biological Fluids,” 2006, \$102,621 (with four others).
- UWO Startup Funds, 2005, \$100,000.
- UWO Department Chair’s Research Grant, 2005-present, \$17,000/yr.
- NSERC Discovery Grant, “Structure, Flow, and Instabilities of Complex Fluids,” 2005-2010, \$45,260/yr.
- NSERC Research Tools and Instruments, Category I, “Rheometer for studies of complex fluids,” 2004, \$84,929.
- Dean of Science Matching Funds, “Rheometer for studies of complex fluids,” 2004, \$9,437.
- CSA Concept Study, “Diffusion and viscosity in yield-stress fluids,” (with B. J. Frisken and A. E. Bailey) 2003-2005, \$50,000/year.
- NSERC Equipment Grant, “High-speed video system,” 2000, \$43,276.
- Dean of Science Matching Funds, “High-speed video system,” 2000, \$4,800.
- NSERC Research Grant, “Patterns and Dynamics in Nonequilibrium Systems,” 1999-2005, \$44,100/yr.
- NSERC Equipment Grant, “Laboratory computer upgrade,” 1999, \$14,923.
- Dean of Science Matching Funds, “Laboratory computer upgrade,” 1999, \$2,238.
- MUN President's Award for Outstanding Research Grant, 1996, \$2,000.
- NSERC Research Grant, “Patterns and Complex Dynamics in Nonequilibrium Systems,” 1995-99, \$35,600/yr.
- NSERC Equipment Grant, “High-Performance Image Processing Board,” 1995, \$25,516.
- MUN Dean of Science Shared Cost Research Grant, “Current Supply for Electrochemical Deposition Experiments,” 1995, \$3,650.
- President's NSERC General Grant, “Colour X-Terminal for Analysis of Video Data,” 1994, \$4,000.
- NSERC Equipment Grant, “Video Microscopy System,” 1994, \$8,765.
- NSERC Operating Grant, “Patterns and Instabilities in Fluid Dynamical Systems,” 1992-95, \$39,800/yr.
- NSERC Equipment Grant, “Electroconvection in Smectic Films,” 1992, \$25,313.
- NSERC Operating Grant, “Instabilities and Pattern Formation in Rayleigh-Bénard Convection,” 1989-92, \$39,800/yr.
- NSERC Equipment Grant, “High-Pressure Convection Apparatus,” 1989, \$72,940.
- Start-up Funds, Memorial University, 1989. \$20,000.

#### **Teaching-Related Grants:**

- Faculty of Science Undergraduate Fellowship in Learning Development, “Development of interactive learning modules for a new physics course on oscillations and waves,” 2010, summer salary support for N. Kehl.

- UWO Teaching Support Center Small Grants, “Mining Classroom Response System Data,” 2007, \$1,782.
- Dean of Continuing Education Instructional Development Grant, “Video and Image-based Data Acquisition,” 1996, \$700.
- HRDA grant, “Proposal to Establish a Microcomputer Physics Laboratory,” 1996, \$103,000 (with J. Whitehead, R. Bishop, B. de Young, J. Lewis, S.P. Reddy, and M. Whitmore).
- Dean of Science Innovation in Teaching Grant, “Computer-Guided Telescope,” 1995, \$4,000. (with R. Bishop, C. Stevenson, and J. Lewis).
- Dean of Science Computers in Education Grant, “Computers for Advanced Undergraduate Physics Labs,” 1994, \$11,513.

#### **Active research collaborations:**

- J. Hutter, UWO Physics and Astronomy: Structure and properties of PVA hydrogels.
- A. Soddu, UWO Physics and Astronomy: Application of principal component analysis to microrheology.
- T. Poepping, UWO Physics and Astronomy: Rheology of blood mimicking fluids.
- T. Newson, UWO Civil and Environmental Engineering: Embedment of novel penetrating anchors; rheology of the vitreous.
- V. Nolte, UWO Kinesiology: Effect of oar properties on rowing biomechanics.
- H. Goldberg, G. Hunter, UWO Dentistry: Effect of peptides on biomineralization.
- P. de Souza Mendes, PUC-Rio, Brazil: Bubbles in yield-stress fluids.
- J. Wylie, City University of Hong Kong: Diffusion with traps.
- I. Frigaard, UBC: Displacement flows in yield-stress fluids.
- B. Heit, UWO Microbiology and Immunology: Force generation during phagocytosis.

#### **Refereed Publications:**

- 1) J. R. de Bruyn and J. P. Harrison, “Thermal resistance between CMN and liquid  $^3\text{He}$ : effect of mixed powder diameter,” *Physica* **108B+C**, 915 (1981).
- 2) P. Palffy-Muhoray, J. R. de Bruyn and D.A. Dunmur, “Coexisting phases in binary mixtures of nematic liquid crystals,” *Phys. Lett.* **104A**, 159 (1984).
- 3) P. Palffy-Muhoray, J. R. de Bruyn and D.A. Dunmur, “Mean field theory of binary mixtures of nematic liquid crystals,” *Mol. Cryst. Liq. Cryst.* **127**, 301 (1985).
- 4) P. Palffy-Muhoray, J. R. de Bruyn and D.A. Dunmur, “Phase behaviour of binary nematic liquid crystal mixtures,” *J. Chem. Phys.* **82**, 5294 (1985).
- 5) R. E. Goldstein, A. Parola, N. W. Ashcroft, M. W. Pestak, M. H. W. Chan, J. R. de Bruyn, and D. A. Balzarini, “Beyond the pair potential model of fluids at the liquid-vapor critical point,” *Phys. Rev. Lett.* **58**, 41 (1987).
- 6) M. W. Pestak, R. E. Goldstein, M. H. W. Chan, J. R. de Bruyn, D. A. Balzarini and N. W. Ashcroft, “Three-body interactions, scaling variables and singular diameters in the coexistence curves of fluids,” *Phys. Rev. B* **36**, 599 (1987).
- 7) J. R. de Bruyn and D.A. Balzarini, “The coexistence curve of  $\text{C}_2\text{H}_4$  in the critical region,” *Phys. Rev. A* **36**, 5677 (1987).
- 8) D. Balzarini, J. R. de Bruyn, U. Narger and K.T. Pang, “Image plane measurements of coexistence curve diameters,” *Int. J. Thermophys.* **9**, 739 (1989).
- 9) J. R. de Bruyn and D.A. Balzarini, “Critical behaviour of hydrogen,” *Phys. Rev. B* **39**, 9243 (1989).



- 10) U. Narger, J. R. de Bruyn, M. Stein and D.A. Balzarini, "Coexistence curve of CHF<sub>3</sub> near its critical point," *Phys. Rev. B* **39**, 11914 (1989).
- 11) S. W. Morris, J. R. de Bruyn, and A. D. May, "Electroconvection in a freely suspended film of smectic-A liquid crystal," in *Nonlinear Evolution of Spatiotemporal Structures in Dissipative Continuous Systems*, ed. F. Busse and L. Kramer (Plenum, 1990), p. 351.
- 12) J. R. de Bruyn and D. A. Balzarini, "Quantum effects near the liquid-vapour critical point," *Can. J. Phys.* **68**, 449 (1990).
- 13) S. W. Morris, J. R. de Bruyn, and A. D. May, "Electroconvection and pattern formation in a suspended smectic film," *Phys. Rev. Lett.* **65**, 2378-2381 (1990).
- 14) S. W. Morris, J. R. de Bruyn, and A. D. May, "Patterns at the onset of electroconvection in freely suspended smectic films," *J. Stat. Phys.*, **64**, 1025 (1991).
- 15) E. Bodenschatz, J. R. de Bruyn, G. Ahlers and D.S. Cannell, "Transitions between patterns in thermal convection," *Phys. Rev. Lett.* **67**, 3078 (1991).
- 16) J. R. de Bruyn and R.E. Goldstein, "Comment on 'Rectilinear diameters and extended corresponding states theory'," *J. Chem. Phys.* **95**, 9424 (1991).
- 17) S. W. Morris, J. R. de Bruyn, and A. D. May, "Velocity and current measurements in electroconvecting smectic films," *Phys. Rev. A* **44**, 8146 (1991).
- 18) J.M. Jerrett and J. R. de Bruyn, "Fingering instability of a gravitationally driven contact line," *Phys. Fluids A* **4**, 234 (1992).
- 19) C.G. Deacon, J. R. de Bruyn and J.P. Whitehead, "A simple method of determining Debye temperatures," *Am. J. Phys.* **60**, 422 (1992).
- 20) J. R. de Bruyn, "Effects of three-body intermolecular interactions on the nematic-paranematic phase diagram," *Liquid Crystals* **11**, 269 (1992).
- 21) J. R. de Bruyn and R. Bradley, "Photographing helium-neon laser light," *Am. J. Phys.* **60**, 571 (1992).
- 22) E. Bodenschatz, D.S. Cannell, J. R. de Bruyn, R. Ecke, Y.-C. Hu, K. Lerman, and G. Ahlers, "Experiments on three systems with non-variational aspects," *Physica* **61D**, 77 (1992).
- 23) E. Bodenschatz, S. W. Morris, J. R. de Bruyn, D. S. Cannell and G. Ahlers, "Convection in gasses at elevated pressures," in the *Proceedings of the KIT Workshop on the Physics of Pattern Formation in Complex Dissipative Systems*, edited by S. Kai (World Scientific, Singapore, 1992), p. 227.
- 24) M. Liu and J. R. de Bruyn, "Traveling-wave convection in a narrow rectangular cell," *Can. J. Phys.* **70**, 689 (1992).
- 25) J. R. de Bruyn, "Growth of fingers at a driven three-phase contact line," *Phys. Rev. A* **46**, R4500 (1992).
- 26) L. Pan and J. R. de Bruyn, "Broken-parity waves at a driven oil-air interface," *Phys. Rev. Lett.* **70**, 1791 (1993).
- 27) J. R. de Bruyn and L. Pan "Onset of spatio-temporal intermittency in a coupled map lattice," *Phys. Rev. E* **47**, 4575 (1993).
- 28) L. Pan and J. R. de Bruyn, "Traveling cellular patterns and parity breaking at a driven interface," in *Spatio-Temporal Patterns in Nonequilibrium Complex Systems*, edited by P. Cladis and P. Palffy-Muhoray (Addison-Wesley, Reading, 1995), p. 183.
- 29) S. W. Morris, J. R. de Bruyn, and A. D. May, "Electroconvective patterns in freely suspended liquid crystal films," in *Spatio-Temporal Patterns in Nonequilibrium Complex Systems*, edited by P. Cladis and P. Palffy-Muhoray, (Addison-Wesley, Reading, 1995), p. 307.
- 30) L. Pan and J. R. de Bruyn, "Spatially uniform traveling cellular patterns in the printer's instability," *Phys. Rev. E* **49**, 483 (1994).

- 31) L. Pan and J. R. de Bruyn, "Nonuniform broken-parity waves and the Eckhaus instability," *Phys. Rev. E* **49**, 2119 (1994).
- 32) S. W. Morris, E. Bodenschatz, and J. R. de Bruyn, "Experiments with patterns in convecting gases," *Phys. in Canada* **50**, 9 (1994).
- 33) K. A. Linehan and J. R. de Bruyn, "Gravity currents and the electrolyte concentration field in electrochemical deposition," *Can. J. Phys.* **73**, 177 (1995).
- 34) J. R. de Bruyn and L. Pan, "Delayed onset of ribbing instability due to finite-size effects," *Phys. Fluids* **7**, 2185 (1995).
- 35) J. R. de Bruyn, "Fingering instability of gravity currents in thin-layer electrochemical deposition," *Phys. Rev. Lett.* **74**, 4843 (1995).
- 36) S. S. Mao, J. R. de Bruyn, Z. A. Daya, and S. W. Morris, "Boundary-induced wave number selection in a one-dimensional pattern-forming system," *Phys. Rev. E* **54**, R1048 (1996).
- 37) J. R. de Bruyn, E. Bodenschatz, S. W. Morris, S. P. Trainoff, Y. Hu, D. S. Cannell, and G. Ahlers, "Apparatus for the study of Rayleigh-Bénard convection in gases under pressure," *Rev. Sci. Instr.* **67**, 2043 (1996) (invited review paper).
- 38) J. R. de Bruyn, "Early stages of ramified growth in quasi-two-dimensional electrochemical deposition," *Phys. Rev. E* **53**, R5561 (1996).
- 39) G.W.N. White and J. R. de Bruyn, "Early stages of branched growth in electroless deposition," *Physica* **239A**, 166 (1997).
- 40) S. S. Mao, J. R. de Bruyn, and S. W. Morris, "Electroconvection patterns in smectic films at and above onset," *Physica*, **239A**, 189 (1997).
- 41) Z. A. Daya, S. W. Morris, and J. R. de Bruyn, "Electroconvection in a suspended fluid film: a linear stability analysis," *Phys. Rev. E* **55**, 2682 (1997).
- 42) J. R. de Bruyn, "Crossover between surface tension and gravity-driven instabilities of a thin fluid layer on a horizontal cylinder," *Phys. Fluids* **9**, 1599 (1997).
- 43) J. R. de Bruyn, "On the formation of periodic arrays of icicles," *Cold Regions Sci. Tech.* **25**, 225 (1997).
- 44) J. R. de Bruyn, "Physical and Electrochemical contributions to the cell voltage in the thin-layer electrochemical deposition of copper at constant current," *Phys. Rev. E* **56**, 3326 (1997).
- 45) J. R. de Bruyn and S.W. Morris, "Pattern formation in smectic liquid crystal films," *Phys. in Canada* **53**, 200 (1997) (invited review paper).
- 46) Z. A. Daya, V. B. Deyirmenjian, S. W. Morris, and J. R. de Bruyn, "Annular electroconvection with shear," *Phys. Rev. Lett.* **80**, 964 (1998).
- 47) C. Bizon, M. D. Shattuck, J. R. de Bruyn, J. B. Swift, W. D. McCormick, and H. L. Swinney, "Convection, diffusion, and patterns in vertically vibrated granular media," *J. Stat. Phys.* **93**, 449 (1998).
- 48) J. R. de Bruyn, C. Bizon, M. D. Shattuck, D. Goldman, J. B. Swift, and H. L. Swinney, "Continuum-type stability balloon in oscillated granular layers," *Phys. Rev. Lett.* **81**, 1421 (1998).
- 49) K. A. Shorlin, J. R. de Bruyn, M. Graham, and S. W. Morris, "Development and geometry of isotropic and directional shrinkage-crack patterns," *Phys. Rev. E* **61**, 6950 (2000).
- 50) J. R. de Bruyn, J. K. C. Lewis, M. R. Morrow, S. P. Norris, N. H. Rich, J. P. Whitehead, and M. D. Whitmore, "Expanding the role of computers in physics education: A computer-based first-year course on computational physics and data analysis," *Can. J. Phys.* **80**, 855 (2002).
- 51) J. R. de Bruyn, B. Lewis, M. D. Shattuck and H. L. Swinney, "Spiral patterns in oscillated granular layers," *Phys. Rev. E* **63**, 041305 (2001).
- 52) P. Habdas, M. J. Case, and J. R. de Bruyn, "Behavior of sink and source defects in a one-dimensional traveling finger pattern," *Phys. Rev. E* **63**, 066305 (2001).

- 53) J. R. de Bruyn, P. Habdas, and S. Kim, "Fingering instability of a sheet of yield-stress fluid," *Phys. Rev. E* **66**, 031504 (2002).
- 54) A. Walsh, K. E. Holloway, P. Habdas, and J. R. de Bruyn, "Morphology and scaling of impact craters in granular media," *Phys. Rev. Lett.* **91**, 104301 (2003).
- 55) J. R. de Bruyn and A. Walsh, "Penetration of spheres in loose granular media," *Can. J. Phys.* **82**, 439 (2004).
- 56) J. R. de Bruyn, "Transient and steady-state drag in foam," *Rheol. Acta* **44**, 150 (2004).
- 57) P. Habdas and J. R. de Bruyn, "Dynamics of defects and traveling waves in an interfacial finger pattern," *Physica D* **200**, 273 (2005).
- 58) A. Walsh and J. R. de Bruyn, "Morphology and scaling of impact craters in granular media," in *Mechanics of the 21<sup>st</sup> Century*, edited by W. Gutkowski and T. A. Kowalewski (CD-ROM) (Springer, Dordrecht, 2005), paper 12338.
- 59) N. P. Chafe and J. R. de Bruyn, "Drag and relaxation in a bentonite clay suspension," *J. Non-Newt. Fluid Mech.* **130**, 129 (2005).
- 60) K. E. Holloway and J. R. de Bruyn, "Viscous fingering in a single fluid," *Can. J. Phys.* **83**, 551 (2005).
- 61) J. R. de Bruyn, "Age dependence of the drag force in an aqueous foam," *Rheol. Acta* **45**, 803 (2006).
- 62) K. E. Holloway and J. R. de Bruyn, "Numerical simulations of a viscous fingering instability in a fluid with a temperature-dependent viscosity," *Can. J. Phys.* **84**, 273 (2006).
- 63) F. K. Oppong, L. Rubatat, B. J. Frisken, A. E. Bailey, and J. R. de Bruyn, "Microrheology and structure of a yield-stress polymer gel," *Phys. Rev. E* **73**, 041405 (2006).
- 64) F. K. Oppong and J. R. de Bruyn, "Diffusion of microscopic tracer particles in a yield-stress fluid," *J. Non-Newt. Fluid Mech.* **142**, 104 (2007).
- 65) H. Tabuteau, P. Coussot, and J. R. de Bruyn, "Drag force on a sphere in steady motion through a yield-stress fluid," *J. Rheol.* **51**, 127 (2007).
- 66) H. Tabuteau, F. K. Oppong, J. R. de Bruyn, and P. Coussot, "Motion of a sphere through an aging system," *Europhys. Lett.* **78**, 68007 (2007).
- 67) K. E. Holloway, P. Habdas, N. Semsarillar, K. Burfitt, and J. R. de Bruyn, "Spreading and fingering in spin coating," *Phys. Rev. E* **75**, 046308 (2007).
- 68) H. Tabuteau, D. Sikorski, and J. R. de Bruyn, "Shear waves and shocks in a soft solid," *Phys. Rev. E* **75**, 012201 (2007).
- 69) J. R. de Bruyn, F. Pignon, E. Tsabet, and A. Magnin, "Micron-scale origin of the shear-induced structure in Laponite-poly(ethylene oxide) dispersions," *Rheol. Acta* **47**, 63 (2008).
- 70) T. Toplak, H. Tabuteau, J. R. de Bruyn, and P. Coussot, "Gravity draining of a paste through an orifice," *Chem. Eng. Sci.* **62**, 6908 (2007).
- 71) S. J. de Vet and J. R. de Bruyn, "The shape of impact craters in granular media," *Phys. Rev. E* **76**, 041306 (2007).
- 72) F. Oppong, P. Coussot, and J. R. de Bruyn, "Gelation on the microscopic scale," *Phys. Rev. E* **78**, 021405 (2008).
- 73) D. Sikorski, H. Tabuteau, and J. R. de Bruyn, "Motion and shape of bubbles rising through a yield-stress fluid," *J. Non-Newt. Fluid Mech.* **159**, 10 (2009).
- 74) N. Yang, K. K. H. Wong, J. R. de Bruyn, and J. L. Hutter, "Frequency-dependent viscoelasticity measurement by atomic force microscopy," *Meas. Sci. Tech.* **20**, 025703 (2009).
- 75) K. E. Holloway, H. Tabuteau, and J. R. de Bruyn, "Spreading and fingering in a yield-stress fluid during spin coating," *Rheol. Acta* **49**, 245 (2010).
- 76) F. K. Oppong and J. R. de Bruyn, "Microrheology and dynamics of an associative polymer," *Eur. Phys. J. E* **31**, 25 (2010).

- 77) S. J. de Vet, B. Yohannes, K. Hill, and J. R. de Bruyn, "The collapse of a rectangular well in a quasi-two-dimensional granular bed," *Phys. Rev. E* **82**, 041304 (2010).
- 78) T. Isimjan, J. R. de Bruyn, and E. Gillies, "Self-assembly of supramolecular polymers from  $\beta$ -strand peptidomimetic-poly(ethylene oxide) hybrids," *Macromolecules* **43**, 4453 (2010).
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- 80) D. Lee, I. A. Gutowski, A. E. Bailey, L. Rubatat, J. R. de Bruyn, and B. J. Frisken, "Investigating the microstructure of a yield-stress fluid by light scattering," *Phys. Rev. E*. **83**, 031401 (2011).
- 81) H. Tabuteau, D. Sikorski, S. J. de Vet, and J. R. de Bruyn, "Impact of spherical projectiles into a viscoplastic fluid," *Phys. Rev. E*. **84**, 031403 (2011).
- 82) E. M. Kennedy and J. R. de Bruyn, "Understanding of mechanical waves among second-year physics majors," *Can. J. Phys.* **89**, 1155 (2011).
- 83) N. Yang, J. L. Hutter, and J. R. de Bruyn, "Microrheology, microstructure, and aging of physically cross-linked poly(vinyl alcohol)/poly(ethylene glycol) blends," *J. Rheol.* **56**, 797 (2012).
- 84) I. Gutowski, D. Lee, J. R. de Bruyn, and B. J. Frisken, "Scaling and mesostructure of Carbopol dispersions," *Rheol. Acta* **51**, 441 (2012).
- 85) E. M. Kennedy and J. R. de Bruyn, "Understanding of mechanical waves among second-year physics majors," submitted to *Phys. in Canada*.
- 86) J. R. de Bruyn, "Modeling the microrheology of inhomogeneous media," *J. Non-Newt. Fluid Mech.*, **193**, 21 (2013).
- 87) S. J. de Vet and J. R. de Bruyn, "The collapse of a cylindrical cavity in a granular medium," *Granular Matter* **14**, 661 (2012).
- 88) J. R. de Bruyn, M. Goiko, D. Bator, R. Dauphinee, M. Mozaffari, Y. Liao, R. L. Flemming, M. S. Bramble, G. K. Hunter, and H. A. Goldberg, 2012. "Dynamic light scattering study of inhibition of nucleation and growth of hydroxyapatite crystals by osteopontin," *PLoS One* **8**, e56764 (2013).
- 89) S. Amirnia, J. R. de Bruyn, M. A. Bergougnou, and A. Margaritis, "Continuous rise velocity of air bubbles in non-Newtonian biopolymer solutions," *Chem. Eng. Sci.* **94**, 60 (2013).
- 90) I. Hewitt, N. J. Balmforth, and J. R. de Bruyn, "Elastic-plated gravity currents," submitted to *Euro. J. Appl. Math.*
- 91) A. M. Fahmy, J. R. de Bruyn, and T. A. Newson, "Numerical investigation of the inclined pullout behavior of vertical anchors embedded in clay," *Geotech. Geol. Eng.* **31**, 1525 (2013).
- 92) N. Yang, J. L. Hutter, and J. R. de Bruyn, "Rheology and structure of poly(vinyl alcohol)-poly(ethylene glycol) blends during aging," *J. Rheol.* **57**, 1739 (2013).
- 93) K. Alba, S. M. Taghavi, J. R. de Bruyn, and I. A. Frigaard, "Incomplete fluid-fluid displacement of yield-stress fluids. Part 2: Highly inclined pipes," *J. Non-Newt. Fluid Mech.* **201**, 80 (2013).
- 94) M. Goiko, J. Dierolf, J. S. Gleberzon, Y. Liao, B. Grohe, H. A. Goldberg, J. R. de Bruyn, and G. K. Hunter, "Peptides of matrix Gla protein inhibit nucleation and growth of hydroxyapatite and calcium oxalate monohydrate crystals," to appear in *PLoS ONE*.
- 95) C. Hopkins and J. R. de Bruyn, "The velocity field due to an oscillating plate in an Oldroyd-B fluid," submitted to *Can. J. Phys.*

#### Invited Book Chapters:

- R. A. Secco, M. Kostic, and J. R. de Bruyn, "Fluid Viscosity Measurement," in *Measurements, Instrumentation, and Sensors Handbook*, 2nd ed., edited by J. Webster (CRC Press, 2013).

- J. R. de Bruyn and F. K. Oppong. Rheological and microrheological measurements of soft materials, in *Experimental and Computational Techniques in Soft Condensed Matter Physics*, edited by J. Olafsen (Cambridge, 2010).

#### **Proceedings Edited:**

- Co-Editor, *Proceedings of Viscoplastic Fluids: From Theory to Application*, Nov. 2011. J. Non-Newt. Fluid Mech. **193** (2013) 154 pages.
- Editor, *Proceedings of the 10th International Conference on the Physics and Chemistry of Ice*, July 2002 (66 papers submitted), Can. J. Phys. **81**, nos. 1-2 (2003), 544 pages.

#### **Unrefereed Publications and Technical Reports:**

- J. R. de Bruyn and P. Wright, "Scattering of ultraviolet light by concentrated suspensions: Report to Trojan Technologies on an NSERC Engage project," technical report, 28 pp., (2013).
- N. J. Balmforth, J. R. de Bruyn, and M. F. Naccache, "Editorial: Viscoplastic fluids: from theory to application." J. Non-Newt. Fluid Mech. **193**, 1 (2013).
- J. R. de Bruyn, "Focus on Fluids: When does a granular material behave like a continuum fluid?" J. Fluid Mech. **704**, 1 (2012). (invited)
- J. R. de Bruyn, "Viewpoint: Unifying liquid and granular flow," APS Physics (2011): <http://physics.aps.org/articles/v4/86>. (invited)
- S. C. Gallagher, C. Jones, E. Peeters, and J. R. de Bruyn, "Physics and Astronomy at the University of Western Ontario: A case study in building a gender-balanced department," proceedings of Women in Astronomy and Space Science (2009).
- J. R. de Bruyn "Promoting educational research and teaching innovation in a "research intensive" physics department," Physics in Canada **65**, 139 (2009).
- N. Yang, J. R. de Bruyn, and J. L. Hutter, "Viscoelastic properties of poly(vinyl alcohol) nanofibers and hydrogels measured by atomic force microscopy," Physics in Canada **64** (3), 141 (2008).
- Phase Transitions, in *Encyclopedia of Nonlinear Science*, edited by A. Scott (Routledge, New York, 2005).
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- K. E. Holloway and J. R. de Bruyn, "Viscous fingering with a single fluid," *Proceedings of the International Workshop on Miscible Interfaces*, 2001, pp. 77-78.
- Icicle Arrays, photograph won 3rd prize in the Canadian Association of Physicists' Art of Physics competition, 1996. Published in the CAP's *Art of Physics Calendar*, 2002.
- Several book reviews published in Physics in Canada over the last twenty years.
- E. Bodenschatz, S.W. Morris, J.R. de Bruyn, D.S. Cannell, and G. Ahlers, "Hexagons and spirals in non-Boussinesq convection," in *Gallery of Fluid Motion*, Phys. Fluids **A5**, S8, 1993. (reprinted in *A Gallery of Fluid Motion*, edited by M. Samimy, K. S. Breuer, L. G. Leal, and P. H. Steen (Cambridge, Cambridge, 2003)).

#### **Contributed Conference Presentations: (last six years only)**

- J. R. de Bruyn, C. R. McRae, L. Fleury, W. B. Handler, and B. A. Chronik, "Polymer gels as phantoms for MRI device testing," Viscoplastic Fluids: from Theory to Application, November 2013.
- M. Mozaffari, J. R. de Bruyn, and H. A. Goldberg, "Dynamic light scattering study of hydroxyapatite formation: Effect of osteopontin-derived peptides," CAMBR Research Day, November 2013.

- R. Ge and J. R. de Bruyn, “Decrease in viscosity of polyisoprene solutions on addition of multi-walled carbon nanotubes,” Society of Rheology meeting, October 2013. Also presented at CAMBR Research Day, November 2013.
- K. Alba, S. M. Taghevi, J. R. de Bruyn, and I. A. Frigaard, “Displacement flow of yield stress fluids in highly inclined pipes,” Society of Rheology meeting, October 2013.
- A. Alicke, F. V. da Senhora, P. R. de Souza Mendes, and J. R. de Bruyn, Motion of gas bubbles in a viscoplastic material,” Society of Rheology meeting, October 2013.
- J. R. de Bruyn, “Soft matter physics at Western,” Focused Data, Computing, and Simulation Workshop, April 2013.
- M. Goiko, J. R. de Bruyn, and B. Heit, “Cellular Mechanisms of Force Generation in Antibody Mediated Phagocytosis,” Infection and Immunology Research Forum, November 2012. This poster won the Cedarlane/ATCC People’s Choice Best in Show Award. Also presented at the Schulich School of Medicine and Dentistry Research Day, March 2013.
- B. Laschowski, J. R. de Bruyn, and V. Nolte, “The influence of oar-shaft stiffness and length on rowing biomechanics,” Canadian Association of Physicists Congress, May 2013. This poster won 1st Prize for posters in the Division of Industrial and Applied Physics.
- C. Hopkins and J. R. de Bruyn, “An analytic solution to the problem of an oscillating plate in an Oldroyd-B fluid,” Canadian Association of Physicists Congress, May 2013
- R. Ge and J. R. de Bruyn, “Rheological properties of dispersions of multi-wall carbon nanotubes in polyisoprene,” Canadian Association of Physicists Congress, May 2013. Also presented at Surface Canada, May 2013.
- J. R. de Bruyn, N. Yang, and J. L. Hutter, “Behavior of PVA-PEG blends during aging,” International Conference on Rheology, August 2012.
- J. R. de Bruyn and A. Gilbert, “Canadian contributions to the scholarship of teaching and learning in physics: an analysis of refereed journal publications from 2000 to 2010,” Canadian Association of Physicists Congress, June 2012
- T. Aldahri and J. R. de Bruyn, “The behavior of a single ball falling through a symmetric funnel,” Canadian Association of Physicists Congress, June 2012 and Western CAMBR Research Day, November 2012.
- M. Goiko, J. R. de Bruyn, G. Hunter, and H. Goldberg, “Inhibition of biomineralization by matrix Gla protein and osteopontin,” Canadian Association of Physicists Congress, June 2012. Also presented at Making Connections Conference, UWO, March 2012.
- J. R. de Bruyn, N. Yang, and J. Hutter, “Microrheology and microstructure of physically cross-linked poly(vinyl alcohol)/poly(ethylene glycol) blends during aging,” Complex Fluids and Flows in Industry and Nature, July 2011.
- T. Haffie, J. R. de Bruyn, J. Butler, B. Chan, L. Dunn, A. Gilbert, N. Hannon, L. Reid, D. Sich, C. Tsujita, B. White, L. M. Wahl, S. Xie, “Scholarship in teaching and learning (SoTL) in Canadian post-secondary science: peer-reviewed journal articles, 2000-2010,” Western Conference on Science Education, July 2011.
- J. R. de Bruyn, N. Yang, and J. L. Hutter, “Microrheology and microstructure of physically cross-linked poly(vinyl alcohol)/poly(ethylene glycol) blends during aging,” Canadian Association of Physicists Congress, June 2011; similar talks also presented at CAMBR Research Day, UWO, June 2011, and Complex Flows in Industry and Nature, July 2011.
- J. R. de Bruyn, and E. M. Kennedy, “An investigation of student learning of wave concepts,” Canadian Association of Physicists Congress, June 2011. Related poster

(Kennedy and de Bruyn) presented at the Western Conference on Science Education, July 2011.

- J. L. Hutter, S. Hudson, N. Yang, and J. R. de Bruyn, "Small and ultra-small angle neutron scattering studies of hydrogels," Canadian Association of Physicists Congress, June 2011.
- F. Sarifi, S. Ahmed, R. Bauld, M. Holstensen, J. R. de Bruyn, and G. Fanchini, "Exfoliation of different types of graphite in water and the formation of transparent conducting graphene thin films," Canadian Association of Physicists Congress, June 2011.
- N. Yang, J. Hutter, and J. R. de Bruyn, "Viscoelastic Properties and Dynamic Structure Evolution of Poly(vinyl alcohol)-Poly(ethylene glycol) Blends during Aging," Canadian Association of Physicists Congress, June 2010.
- S. C. Gallagher, C. Jones, E. Peeters, and J. R. de Bruyn, "Physics and Astronomy at the University of Western Ontario: A case study in building a gender-balanced department," Women in Astronomy and Space Science, November 2009.
- J. R. de Bruyn, A. E. Bailey, B. J. Frisken, I. Gutowski, D. Lee, F. K. Opong, and P. C. Wright, "Microstructure and rheology of dilute Carbopol suspensions," Viscoplastic Fluids conference, November 2009.
- J. R. de Bruyn, A. E. Bailey, B. J. Frisken, I. Gutowski, D. Lee, F. K. Opong, and P. C. Wright, "Microstructure and rheology of dilute Carbopol suspensions," Society of Rheology meeting, October 2009.
- R. L. Dauphinee, J. R. de Bruyn, G. Hunter, and H. Goldberg, "A dynamic light scattering study of hydroxyapatite crystal growth in the presence of osteopontin and related peptides," Canadian Association of Physicists Congress, June 2009.
- B. Frisken, I. Gutowski, D. Lee, J. R. de Bruyn, "Carbopol – model yield stress fluid," Canadian Association of Physicists Congress, June 2009.
- J. R. de Bruyn, F. Opong, and P. Coussot, "Using microrheology to probe the microstructure of complex fluids," Four Corners Symposium, June 2009.
- J. A. W. Elliott, J. R. de Bruyn, and M. Dejmek, "Space physical sciences in Canada: Extending community involvement in exploration-relevant research," Canadian Space Exploration Workshop, December, 2008.
- F. Opong and J. R. de Bruyn, "Effect of concentration on the microstructure of a yield stress fluid," International Conference on Rheology, August 2008.
- J. R. de Bruyn and D. Sikorski, "Motion and shape of bubbles rising through a yield stress fluid," International Conference on Rheology, August 2008.
- N. Yang, J. R. de Bruyn, and J. L. Hutter, "Viscoelastic properties of PVA nanofibres and hydrogel measured by atomic force microscopy," Canadian Association of Physicists Congress, June 2008.
- F. K. Opong and J. R. de Bruyn, "Gelation of a colloidal suspension: Comparison of two length scales," Canadian Association of Physicists Congress, June 2008.
- S. J. de Vet and J. R. de Bruyn, "Collapse of cavities in two-dimensional granular media," Canadian Association of Physicists Congress, June 2008, also presented at the Gordon Research Conference on Granular and Granular-Fluid Flows, June 2008.
- J. R. de Bruyn and S. J. de Vet, "Craters in Granular Media," Engineering Mechanics 08, May 2008.
- J. R. de Bruyn, J. L. Hutter, and S. Flood, "Mining Classroom Response System Data," UWO Teaching Support Center Workshop, April 2008.
- J. R. de Bruyn, "Drag in Foam," Workshop on Dynamical Systems and Continuum Physics, November, 2007 (invited).
- J. R. de Bruyn, A. Walsh, and S. de Vet, "Craters in Granular Media," Workshop on Dynamical Systems and Continuum Physics, November, 2007 (invited).

- J. R. de Bruyn, H. Tabuteau, and P. Coussot, “Drag force on spheres moving through yield-stress fluids,” *Viscoplasticity: from Theory to Application*, October, 2007.
- T. Newson, J. R. de Bruyn, and R. Hoda, “The penetration of granular soils by low-velocity projectiles,” *Canadian Geotechnical Society Conference*, September, 2007.