

Gail Frost, PhD

Department of Kinesiology
Brock University
St. Catharines, ON L2S 3A1
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A. Formal Education

- 1995 PhD, Medical Sciences
Faculty of Health Sciences
McMaster University, Hamilton, ON
- 1985 MEd, Sports Medicine/Athletic Training
School of Health, Physical Education, Recreation and Dance
Temple University, Philadelphia, PA
- 1981 BEd, Physical Education/Special Education
University of Toronto, Toronto, ON
- 1979 Diploma, Athletic Training and Management
Sheridan College, Oakville, ON
- 1978 BPE, Physical and Health Education
McMaster University, Hamilton, ON

B. Academic Distinctions and Awards

- 2010-2013 Chancellor's Chair for Excellence in Teaching (with Dr. Maureen Connolly)
- 2007 Faculty of Applied Health Sciences Award for Excellence in Teaching,
Brock University
- 2000 Outstanding Teaching Award, Faculty of Professional Studies,
Acadia University
- 1996 Teaching Excellence Merit Award,
McMaster University

C. Academic Positions Held

- 2001-present Assistant, then Associate Professor, Department of Kinesiology, Brock University
- 1997–2001 Assistant Professor, School of Recreation Management and Kinesiology, Acadia University
- 1995–1997 Lecturer, Department of Kinesiology, McMaster University
- 1990–1995 Teaching Assistant, School of Nursing and Department of Kinesiology, McMaster

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University

1981-84, 1985-90 Teacher (full-time and supply), Hamilton Board of Education
Hamilton, Ontario

D. Creative/Scholarly Activities

Publications

Articles/Chapters in Books and Monographs:

1. Lockwood, K. and **G. Frost**. When metal meets ice: potential for performance or injury. In R.M. Greenwald, A.B. Ashare (Eds.), *Safety in Ice Hockey*, Vol. 5, ASTM STP 1516, , American Society for Testing and Materials, 2010.

Refereed Journals:

1. **Frost, G.** & M. Connolly. Is fine tuning possible with grade-focused students? In N.Haave (Ed.) In G. Boulet, N. Haave, R. Harde, M. MacKinnon, J. Plews & J. Wesselius (Eds.) *Collected Essays in Learning and Teaching*, Vol. 9, p. 147-154. Society for Teaching and Learning in Higher Education: Windsor, ON. 2016.
2. Cook, O., **G. Frost**, D. Twose, L. Wallman, B. Falk, V. Galea, A. Adkin & P. Klentrou. CAN-flip: a pilot gymnastics program for children with cerebral palsy. *Adapted Physical Activity Quarterly* 32: 349 – 370, 2015.
3. **Frost, G.** & M. Connolly. The Road Less Travelled? Pathways from Passivity to Agency in Student Learning. In G. Boulet, N. Haave, R. Harde, M. MacKinnon, J. Plews & J. Wesselius (Eds.) *Collected Essays in Learning and Teaching*, Vol. 8, p. 47-54. Society for Teaching and Learning in Higher Education: Windsor, ON. 2015.
4. **Frost, G.**, M. Connolly & E. Lappano. Why is it so hard to do a good thing? The challenges of using reflection to help sustain a commitment to learning. In C. Chiapetta Swanson, E. Allard, E. Aspenlieder, J. Raffoul & C. Teeter (Eds.) *Collected Essays in Learning and Teaching*, Vol. 7 No. 1, p. 46-49. Society for Teaching and Learning in Higher Education: Windsor, ON. 2014.
5. **Frost, G.** & M. Connolly. Interactive Groups: Examining and Interrogating Issues of Heterogeneity and Accountability. In A. Wright, M. Wilson & D. MacIsaac (Eds.), *Collected Essays in Learning and Teaching*, Vol. 2, p. 75-77. Society for Teaching and Learning in Higher Education: Windsor, ON. 2009.
6. Lockwood, K. and **G. Frost**. When metal meets ice: potential for performance or injury. *Journal of ASTM International (JAI)*. JAI101850, 2009.
7. Lockwood, K. & **G. Frost**. Habituation of 10 year old Atom A hockey players to treadmill skating. *Journal of Sport Biomechanics* 6(2): 145-154, 2007.
8. Gabriel, D., G. Kamen & **G. Frost**. Neural adaptations to resistive exercise: recommendations. *Sports Medicine* 36(2): 1-17, 2006.

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9. Cieslak, T., **G. Frost** & P. Klentrou. Effects of physical activity, body fat, and salivary cortisol on mucosal immunity in children. *Journal of Applied Physiology* 95: 2315-2320, 2003.
10. **Frost, G.**, J. Dowling, O. Bar-Or & K. Dyson. Explaining differences in the metabolic cost and efficiency of treadmill running in children. *Journal of Sports Sciences* 20(6): 451-461, 2002.
11. Unnithan, V., J. Dowling, **G. Frost**, & O. Bar-Or. Role of mechanical power estimates in the O₂ cost of walking in children with cerebral palsy. *Medicine and Science in Sport and Exercise* 31(12): 1703-1708, 1999.
12. Scherer, R., J. Dowling, **G. Frost**, M. Robinson & K. McLean. Mechanical and metabolic work of lower extremity amputees walking with titanium and stainless steel prostheses. *Journal of Prosthetics and Orthotics* 11(2):38-42, 1999.
13. **Frost, G.**, J. Dowling, O. Bar-Or & K. Dyson. The ability of mechanical power estimations to explain differences in metabolic cost of walking and running among children. *Gait and Posture* 5:120-127, 1997.
14. **Frost, G.**, J. Dowling, K. Dyson & O. Bar-Or. Cocontraction in three age groups of children during treadmill locomotion. *Journal of Electromyography and Kinesiology* 7(3):179-186, 1997.
15. Unnithan, V., J. Dowling, **G. Frost**, & O. Bar-Or. Role of cocontraction in the O₂ cost of walking in children with cerebral palsy. *Medicine and Science in Sports and Exercise* 28(12): 1498-1504, 1996.
16. Unnithan, V., J. Dowling, **G. Frost**, B. Volpe Ayub & O. Bar-Or. Cocontraction and phasic activity during gait in children with cerebral palsy. *Electromyography and Clinical Neurophysiology* 36:487-494, 1996.
17. **Frost, G.**, O. Bar-Or, J. Dowling & C. White. Habituation of children to treadmill walking or running: metabolic and kinematic analysis. *Pediatric Exercise Science* 7:162- 175, 1995.
18. Falk, B., O. Bar-Or, J. Smolander & **G. Frost**. Response to rest and exercise in the cold: effects of age and aerobic fitness. *Journal of Applied Physiology* 76:72-78, 1994.

Book Chapters:

Lockwood, K. & **G. Frost**. Biomechanics and Principles of Movement. In: *The Art and Science of Personal Training* (2nd ed.), Certified Personal Trainers Network, 2005.

Book Reviews:

Introduction to the Human Body - Essentials of Anatomy and Physiology, 4th ed, by G. Tortora, John Wiley and Sons Inc., 1998. (Prepared at the request of the publisher.)

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Papers presented at conferences and learned societies:

1. **Frost, G.**, & M. Connolly. *If you don't mind it does matter: managing the transition from concussion to return to learn in postsecondary education*. To be presented at STLHE, Halifax, NS, June 20-23, 2017.
2. Fox, J., M. Connolly & **G. Frost**. *Effectiveness of concussion education*. Mapping the New Knowledges, Brock University, St. Catharines, ON, April 11, 2017.
3. Bendus, V., S. Steven, **G. Frost** & K. Lockwood. A Multi-Sport Analysis of Functional Movement Screen Scores of Collegiate Athletes. SPIN Summit, Calgary, AB, November 16-18, 2016.
4. Fox, J., M. Connolly & **G. Frost**. *Establishing the validity of the Functional Movement Concepts tool*. NAFAPA, Edmonton, AB, September 21-21, 2016.
5. **Frost, G.** & M. Connolly. *Constructing and facilitating manageable error and failure*. STLHE, London, ON, June 21-24, 2016.
6. Dol, S., V. Bendus, **G. Frost** & K. Lockwood. *A multi-sport and gender comparison of functional movement screen scores of collegiate varsity athletes*. Mapping the New Knowledges, Brock University, St. Catharines, ON, April 7, 2016.
7. **Frost, G.** & M. Connolly. *Is fine-tuning possible with grade focused students?* STLHE, Vancouver, BC, June 16-19, 2015.
8. Cook, O., **G. Frost**, D. Twose, L. Wallman, B. Falk, V. Galea & A. Adkin. *The effects of adaptive gymnastics on muscle function, motor performance and gait kinematics in children with cerebral palsy*. PanEx 2015, Toronto, ON, April 16-18, 2015.
9. Klentrou, P., O. Cook, B. Pitt, D. Long, K. Meissner, P. Accardo & **G. Frost**. *Introducing CAN-flip: a gymnastics intervention program for children with cerebral palsy*. CSEP, St. John's, NL, Oct. 22-25, 2014.
10. **Frost, G.** & M. Connolly. *The road less traveled? Pathways from passivity to agency in student learning*. STLHE, Kingston, ON, June 17-20, 2014.
11. Connolly, M. & **G. Frost**. *Boundaries and Borderlands: Exploring the liminal spaces on the way from here to there*. CSSE, St. Catharines, ON, May 25-28, 2014.
12. **Frost, G.**, M. Connolly & E. Lappano. *Why is it so hard to do a good thing? The challenges of using reflection to help sustain a commitment to learning*. STLHE, Sydney, NS, June 20-22, 2013.
13. Connolly, M. & **G. Frost**. *Examining the people and learning issues and insights within a real people/deep learning research project*. CSSE, Waterloo, ON, May 27-30, 2012.

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14. **Frost, G.** & M. Connolly. *Real people/deep learning: negotiating necessary tensions with colleagues, learners and institutional policies in service-based and problem-based learning.* STLHE, Saskatoon, SK, June 15-18, 2011.
15. Longo, A., C. Mitchell, D. Gabriel and **G. Frost.** *Active Isolated Stretching: An investigation of the mechanisms of action.* 43rd Annual CATA National Conference, Vancouver, BC, May 27-30, 2009.
16. Longo, A., C. Mitchell, D. Gabriel and **G. Frost.** *Active Isolated Stretching: An investigation of the mechanical mechanisms.* Ontario Biomechanics Conference, Barrie, ON, March 13-15, 2009.
17. **Frost, G.** and M. Connolly. *Interactive Groups: Examining and interrogating issues of equity and diversity.* STLHE, Windsor, ON, June 19-21, 2008.
18. Lockwood, K. and **G. Frost.** *When metal meets ice: potential for performance or injury.* 5th International Safety in Ice Hockey Symposium, Denver, Colorado, May 4-5, 2008.
19. Wales, J., **G. Frost** and D. Gabriel. *3D movement and muscle activity patterns in a violin bowing task.* Canadian Society for Biomechanics 14th Biennial Conference, Waterloo, ON, August 16 - 19, 2006.
20. Wales, J., **G. Frost** and D. Gabriel. *3D movement patterns and muscle activity in violinists.* Mapping the New Knowledges, Brock University, St. Catharines, ON, February 24 – 25, 2006.
21. Burr, K., J. Wales and **G. Frost.** *Active Isolated Stretching and flexibility: investigation of a novel stretching technique using goniometry and EMG.* Sports Med '06, Toronto, ON, January 20 - 21, 2006.
22. **Frost, G.,** J. Wales, K. Wood and D. Gabriel. *Kinematic variability associated with a violin bowing task.* SCAPPS, Niagara Falls, ON, November 3 - 5, 2005.
23. **Frost, G.** and M. Connolly. *Helping students move beyond "literal" learning in problem-based and service-based learning contexts.* STLHE, Charlottetown, PEI, June 8 - 11, 2005.
24. Lockwood, K., and **G. Frost.** *Habituation of 10 year old Atom A hockey players to treadmill skating.* Canadian Society for Biomechanics 13th Biennial Conference, Halifax, NS, August 4 – 7, 2004.
25. **Frost, G.,** and M. Connolly. *From memorization to real life: helping students make the shift out of their comfort zones.* STLHE, Ottawa, ON, June 17 - 19, 2004.
26. Flouris A.D., T. Cieslak, **G. Frost,** J. Hay, and P. Klentrou. *Immune function and physical activity in children.* 8th Annual Congress, European College of Sport Science, Salzburg, Austria, July 9 - 12, 2003.
27. Davis, S., **G. Frost** and M. Aube. *Needs and implications of tree planting shovel design.* Workplace Hand Injuries: Rehabilitation and Preventive Design Conference, Sudbury,

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ON, March 2000.

28. Dowling, J., **G. Frost** and D. Andrews. *Facilitating the understanding of mechanics*. IVth National Symposium on Teaching Biomechanics, Denton, TX, June 1997.
29. Scherer, R., J. Dowling, **G. Frost**, M. Robinson and K. McLean. *Mechanical and metabolic work of lower extremity amputees walking with titanium and stainless steel prostheses*. Canadian Society for Biomechanics IXth Biennial Conference, Vancouver, BC, August 1996.
30. **Frost, G.**, O Bar-Or, J. Dowling and K. Dyson. *Explaining differences in the metabolic cost of locomotion among three age groups of children*. American College of Sports Medicine Annual Meeting (ACSM), Cincinnati, OH, May 1996. Abstract in *Medicine and Science in Sports and Exercise* 28(Supplement):S41, 1996.
31. Unnithan, V, J. Dowling, **G. Frost**, B. Volpe Ayub and O. Bar-Or. *Co-contraction and phasic activity during gait in children with cerebral palsy*. Exercise and Fitness - Benefits and Risks, Symposium XVIII, European Group of Pediatric Work Physiology (PWP), Odense, Denmark, September 1995. Abstract: *Pediatric Exercise Science* 8:182, 1996.
32. Dowling, J., **G. Frost** and O. Bar-Or. *The ability of mechanical power estimations to identify sources of running inefficiency in children*. XVth International Society for Biomechanics Meeting, Jyvaskyla, Finland, July 1995. Abstract in *Proceedings of the XVth Congress of the International Society of Biomechanics* 236-237, 1995.
33. **Frost, G.**, J. Dowling, O. Bar-Or and K. Dyson. *Comparison of co-contraction in three groups of children during treadmill locomotion*. Canadian Society for Exercise Physiology (CSEP) Annual Meeting, Hamilton, ON., October 1994. Abstract in *Canadian Journal of Applied Physiology* 19(Supplement):16P, 1994.
34. **Frost, G.**, O. Bar-Or, J. Dowling and K. Dyson. *Metabolic energy cost of submaximal walking and running in three age groups of children*. North American Society for Pediatric Exercise Medicine (NASPEM) Meeting, Pittsburgh, PA., August 1994. Abstract in *Pediatric Exercise Science* 7:104-105, 1995.
35. **Frost, G.**, J. Dowling, O. Bar-Or and K. Dyson. *Relationship between metabolic cost and mechanical power in children during treadmill running*. ACSM, Indianapolis, IN., June 1994. Abstract in *Medicine and Science in Sports and Exercise* 26(Supplement):S170, 1994.
36. **Frost, G.**, O. Bar-Or, J. Dowling and C. White. *Changes in amplitude of hip vertical movement during treadmill walking and running as an indicator of habituation*. NASPEM/PWP Conference, Alliston, ON., September 1993. Abstract in *Pediatric Exercise Science* 5:422, 1993.
37. **Frost, G.**, O. Bar-Or, J. Dowling and C. White. *Habituation of children to treadmill walking or running: metabolic and kinematic analysis*. ACSM, Seattle, WA., June 1993. Abstract in *Medicine and Science in Sports and Exercise* 25(Supplement):S8, 1993.

Invited presentations:

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Frost, G. and M. Connolly. Real people/deep learning. Scholarship of Teaching and Learning with Brock's Chancellor's Chairs for Teaching Excellence. Brock University, St. Catharines, ON, March 19, 2013.

Connolly, M. and **G. Frost**. Instructional strategies and effective feedback. Brock University TA Workshop Series, March 7, 2009.

Frost, G. Problem-based learning: smoothing the way for students. Inquiry Across the Disciplines: Integrating Teaching and Research, Brock University, St. Catharines, ON, April 10, 2007.

Grants obtained:

Internal grants:

- 2014 eLearning Incentive Grant (\$7000)
Conversion of PEKN 4P22 to "blended" format

- 2011 Service Learning Incentive Grant (\$700)
Teaching students to take effective "field notes" for critical reflection
- 2010 Chancellor's Chair for Teaching Excellence (with Dr. M. Connolly) (\$5000/yr for 3 years)
Real people/deep learning

- 2004 Brock University Advancement Fund Seed Grant, principal investigator (\$4500)
Assessment of three-dimensional movement patterns and muscle activation patterns of the trunk and upper extremities in violinists

- 2002 CIHR Team Development Internal Grant, coinvestigator (\$5000)
The effect of physical activity and body composition on humoral immunity and infection risk in children

- 2001 Decanal Fund Grant, principal investigator (\$1000)
Effect of physical maturation on performance of selected sport skills

- 1998 AUFA 25.55 Research Fund Grant, principal investigator (\$1675)
Assessing co-contraction in lower limb muscles during gait

Refereed external grants:

- 2001 EKM Foundation Grant, coinvestigator (\$14,160)
Home-based strength training program for older individuals

- 1991 Hospital for Sick Children Foundation External Grant, coinvestigator (\$91,000)
Multidisciplinary study of energy cost of locomotion in healthy children and those with a neuromuscular disease

Work in progress:

Research:

Bendus, V., **G. Frost**, D. Ditor & K. Lockwood. The effects of concurrent electrostimulation and maximal strength training on lower body strength and skating speed in ice hockey players. MSc thesis research for V. Bendus.

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Fox, J. & **G. Frost**. Educating coaches about concussion. MSc thesis research for J. Fox.

Frost, G. & M. Connolly. Real people/deep learning – Chancellor's Chair for Teaching Excellence Award ongoing projects.

Manuscript submitted:

Akseer, R., M. Connolly, J. Cosby & **G. Frost**. Graphic representations of qualitative research findings: bringing description, reduction and interpretation to consolidated expression. *Submitted to Qualitative Sociology*, April 2017.

Other creative and scholarly activities:

1. Assessor/referee for:

Pediatric Exercise Science
Canadian Journal of Applied Physiology
Medicine and Science in Sports and Exercise
British Journal of Sports Medicine
International Journal of Coaching Science
Journal of Neuroengineering and Rehabilitation

Primal Pictures 3D Interactive Anatomy Series software

A.D.A.M. online Lab Activity Guide

Introduction to the Human Body - Essentials of Anatomy and Physiology, 4th ed, by G. Tortora, John Wiley and Sons, Inc.

Cooperative Learning Object Exchange (CLOE) – Moment of force learning object

2. Memberships:

Society for Teaching and Learning in Higher Education

E. Teaching Activities

Student Supervision

Graduate Studies Supervisor

Jaclyn Fox MA Brock University (2015 – present)
Educating coaches about concussion

Alison Longo MSc Brock University (2007 – 2009)
Active Isolated Stretching: an investigation of the mechanical mechanisms

Jenn Wales MSc Brock University (2004 – 2007)
3D movement and muscle activity patterns in a violin bowing task

Jim Bilotta MEd Brock University (2005 – 2006)
Soft Tissue Release: a practical guide for health care professionals

Supervisory Committee Member

Steven Dol MSc Brock University (2016 – present)
Vicki Bendus MSc Brock University (2015 – present)

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Sharon Lai	MSc	Brock University	(2013 – 2015)
Riaz Akseer	PhD	Brock University	(2012 – 2014)
Andra Lenius	MSc	Brock University	(2012 – 2015)
Kathleen DaCosta	MSc	Brock University	(2011 – 2013)
Ben Leber	MSc	Brock University	(2009 – 2010)
Alana Harris	MSc	Brock University	(2007 – 2009)
Mike Moore	MSc	Brock University	(2007 – withdrawn)
Andrew Winchester	MSc	Brock University	(2004 – 2007)
Kristina Calder	MSc	Brock University	(2003 – 2004)
Heather Strong	MA	Brock University	(2002 – 2005)
Tom Cieslak	MSc	Brock University	(2002 – 2003)
Desiree Maltais	MSc	McMaster University	(1996 – 1998)
Daniel Benoit	MSc	McMaster University	(1996 – 1997)

External Examiner

Tera Winter	MSc	Dalhousie University	(2005)
Mat Mercuri	MSc	McMaster University	(2004)
Rich Trenholm	MSc	McMaster University	(1999)
Wendy Carmichael	MSc	McMaster University	(1995)

Comprehensive Exam Committee

Jennifer Durkin	PhD	McMaster University	(2001)
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Brock Science High School Student Mentorship Program

2005-06 Carlye Cirone – *3D movement and muscle activity analysis of the bowing arm shoulder in violinists*

Courses taught

At Brock University (2001-present):

AHSC 5F90 MA/MSc research and thesis
AHSC 5P60 Directed study
KINE 3P98 Functional anatomy
HLSC 2F95 Human anatomy
KINE 2P70/3P80 Care and prevention of injuries
KINE 4P22 Therapeutic applications of physical activity
PEKN 2P04 Musculoskeletal anatomy
KINE 3P99 Special studies in physical education and kinesiology
KINE 4P99 Advanced topics in physical education and kinesiology
KINE 4F91 Undergraduate thesis/project
KINE 4P89 Internship in clinical kinesiology
EDUC 5P90 Thesis/project proposal
EDUC 5P93 Thesis/project
HLSC 3P33 Internship in community health

At Acadia University (1999-2001)

KINE 1013 Foundations of kinesiology
BIOL 2813 Human anatomy & physiology I
KINE 3033 Biomechanics I
KINE 4573 Biomechanics II
KINE 4843 Principles of sport rehabilitation

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KINE 3883 Directed readings
KINE 4083 Independent study
KINE 4996 Honours thesis

F. University/Community Service

Brock University

2017 – present	Guidelines, Policies and Procedures subcommittee of the REB
2013 – present	Research Ethics Board
2006 – present	Teaching Council (including teaching award adjudication committees)
2013 – 2015	Life Sciences program committee
2010 – 2012	eLearning Steering Committee
2009	NSERC student scholarship application vetting
2007 – 2009	Research Ethics Board

Brock University, Faculty of Applied Health Sciences

2011 – 2012	Ad hoc committee to create an AHS Human Biology course
2010 – 2013	AHSC Undergraduate Affairs Committee
2010	NSERC scholarship ranking committee
2009	OGS scholarship ranking committee
2005	Search committee, Systems Management and Technical Support Assistant position

Brock University, Department of Kinesiology

2011 – 2014	Masters of Kinesiology-related ad hoc committees
2007 – 2008	Timetable Committee Ad hoc Hiring Committee
2006 – 2007	Curriculum Committee Admissions Review Committee
2005 – 2006	Curriculum Committee Admissions Review Committee
2004 – 2005	Timetable Committee Academic Integrity Committee Strategic Planning Committee
2003 – 2004	Timetable Committee Academic Integrity Committee Ad hoc Hiring Committee
2002 – 2003	Timetable Committee

Acadia University

2000 – 2001	Task Force on Information Society/Learning and Teaching Technology
1999, 2000	New Faculty Orientation co-leader

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Acadia University, Faculty of Professional Studies

1999 – 2001 Fund for Scholarly Development adjudication committee

Acadia University, School of Recreation Management and Kinesiology

1998 – 2001 SRMK Honours Committee chair
1999 - 2000 SRMK New Faculty Search Committee

Other Committees

2015 – 2016 3M National Student Fellow Award adjudication committee
2010 – 2011 2011 Ontario Biomechanics Conference organizing committee
2002 – 2003 2003 CSEP Conference organizing committee and symposium chair
1999 – 2000 2000 CIAU Women's Soccer Championship Tournament organizing committee

Community Service

2003 – 2008 Judge, Niagara Region Science and Engineering Fair