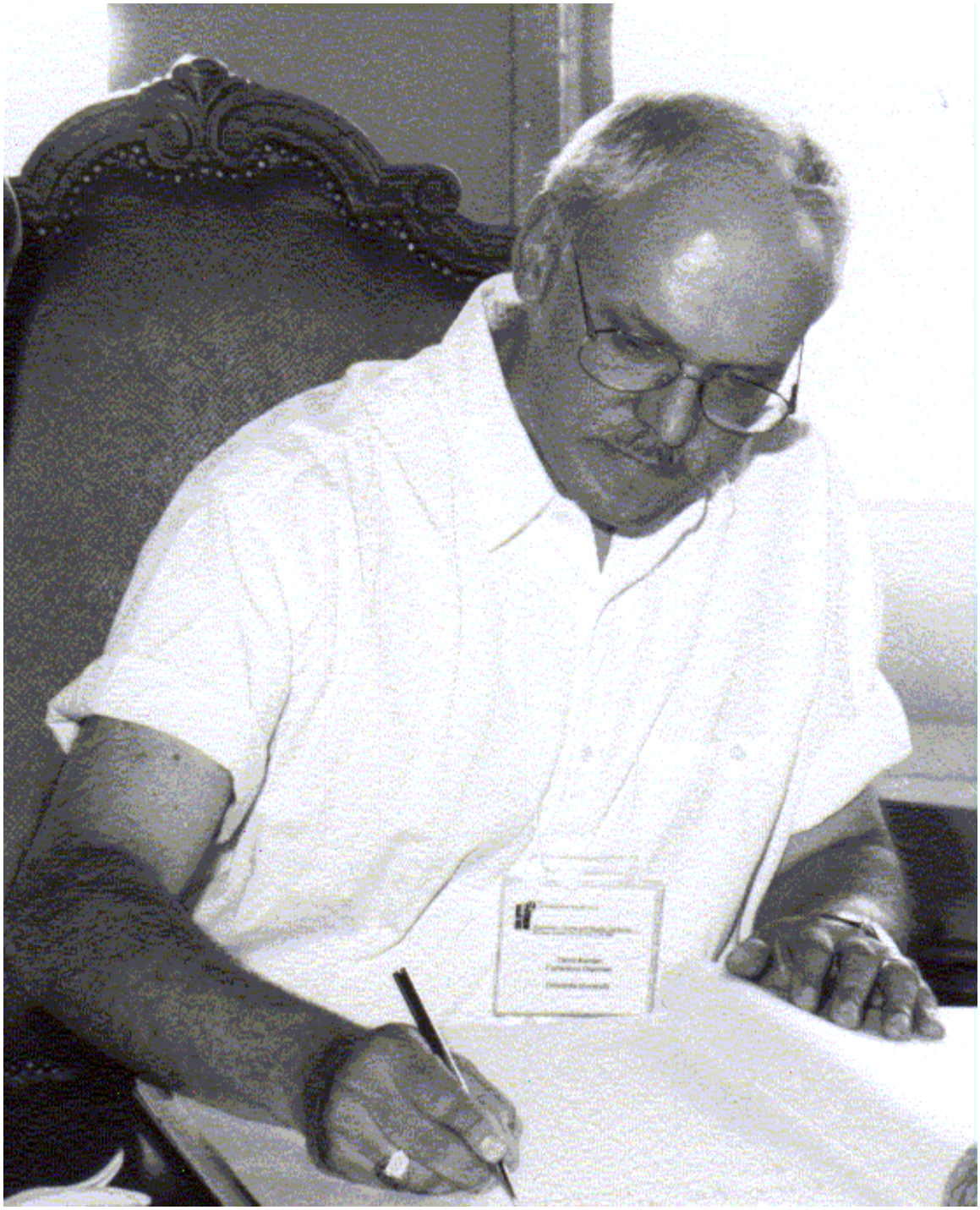

Prof. Calvin S. Kalman signing Golden Book at Montreal City Hall

Calvin S. Kalman
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Email: Calvin.Kalman@Concordia.ca
homepage- http://physics.concordia.ca/Facultypages/Kalman.html

PERSONAL DATA**:** Canadian Citizen, married, two children, three grandchildren.

PRESENT POSITION**:** Principal, Science College (2009-present)
Tenured Full Professor, Department of Physics
Also Adjunct Professor, Department of Educational and Counselling Psychology McGill University

EDUCATION: McGill University; J.W. McConnell Scholar Honours B.Sc. - 5/65,
University of Rochester;MA-1/67, Ph.D.-1/70

EXPERIENCE**:** Concordia University; 1968-Present
Chair Division of Physics Education, Canadian Association of Physicists 2013-2015
Chair Physics Department 1983-1989
Chair International series of conferences Hyperons Charm and Beauty Hadrons (Montreal 1997, Genoa 1998, Valencia 2000, Vancouver 2002, Chicago 2004, Lancaster UK, 2006, North Carolina 2008)
Indiana University (Bloomington),Visiting Associate Professor 1976-1977.
Chalk River Laboratories of AECL. Summers 1965, 1966.
University of Toronto Computer Center Summer 1964

HONOURS Member Provost's Circle of Distinction, Concordia University
Arts and Science Dean's lifetime achievement award for teaching excellence 2009.
Canadian Association of Physicists Medal for Excellence in Teaching 1999.
Concordia University Council on Student Life Teaching Award 1998.
Teaching and Creativity Awards Society for Teaching and Learning in Higher Education.

Listed in Canadian Who's Who , Who's Who in the World and
Who's Who in Science and Engineering

Referee for The Physical Review, American Journal of Physics: Physics Educational Research Supplement, Science & Education, Canadian Journal of Physics The Physics Teacher, Learning and Instruction, Canadian Journal of Scholarship of Teaching and Learning, Physics Essays, Nuclear Physics, Physics Letters, European Physical Journal A, Acta Mechanica, AERJ, Saunders, McGraw Hill, Wiley and Freeman.

## Books

"Preons: Models of Leptons, Quarks and Gauge Bosons as Composite Particles" C.S. Kalman and I. DeSouza published by World Scientific Publishing Company (1992)

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 2nd International Conference, Montreal 1996. C.S. Kalman, M. Bozzo, J. Gascon and J. McKenna published as volume 55A of Proc. Suppl. Nuclear Physics (1997)

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 3rd International Conference, Genoa 1998. C.S. Kalman, M. Bozzo, C. Caso, J. McKenna, M Angel Sanchis-Lozano, M.Pallavicini & P.Morettini published as volume 75B,Proc Suppl. Nuclear Physics (1999)

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 4th International Conference, Valencia 2000 C.S. Kalman, M A Sanchis-Lozano, J. Salt,J. McKenna, M. Bozzo, Z. Ligeti, V. Gimenez & E. Cortina published as volume 93 Proc Suppl. Nuclear Physics (2001)

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 5th International Conference, Vancouver 2002 C. S. Kalman, J. McKenna, M. Bozzo, Z. Ligeti, T. Mattison, J. Ng, M. A. Sanchis-Lozano & P. Singer published as volume 115 Proc Suppl. Nuclear Physics (2003).

"Proceedings of the 26th Annual Montreal-Rochester-Syracuse-Toronto (MRST) Conference on High Energy Physics, Montreal 2004. Mariana Frank and Calvin S Kalman published as volume 19 #31 International Journal of Modern Physics A (2004)

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 6th International Conference, Chicago 2004 C. S. Kalman, N. Solomey, M. Bozzo, I. Narodetski, J. McKenna,J. Rosner, H. Rubin & P. Singer published as volume 142 Proc Suppl. Nuclear Physics (2005).

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 7th International Conference, Lancaster (England)" G. Borissov, M. Bozzo, R.W.J. Jones, C.S. Kalman, P. Ratoff, M. Smizanska and N. Solomey published as volume 167, Proc Suppl. Nuclear Physics (2007).

"Hyperons, Charm and Beauty Hadrons" Proceedings of the 8th International Conference, South Carolina " M. Bozzo, C.S. Kalman, S. Mishra, P. Petti, M. Purohit, C. Rosenfeld, M A Sanchis-Lozano, N. Solomey and J. R. Wilson published as volume 187, Proc Suppl. Nuclear Physics (2009).

"How Did We All Begin Where Is God In All That?" Calvin S. Kalman, published by Nova Science Publishers Inc (2010).

"Successful Science and Engineering Teaching in Colleges and Universities" Calvin S. Kalman, published by Josssey Bass/Wiley (2007). Second edition published by Information Age Publishing (2017).

"Successful Science and Engineering Teaching: Theoretical and Learning Perspectives" Calvin S. Kalman, published by Springer (2008). Second edition published by Springer (2017).

## Science and Engineering Education Sources

Calvin S. Kalman, Series Editor

Successful Science and Engineering Teaching in Colleges and Universities second edition (2017)
by Calvin S. Kalman

Deep Learning in Introductory Physics: Exploratory Studies of Modeling-Based Reasoning (2016)
by Mark J. Lattery

Rethinking Science Education: Philosophical Perspectives (2014)
By Roland M. Schulz

Using and Developing Measurement Instruments in Science Education (2010)
by Xiufeng Liu

College Teaching and the Development of Reasoning (2009)
edited by Robert G. Fuller, Thomas C. Campbell,
Dewey I. Dykstra, Jr., and Scott M. Stevens

**I.1 Published papers related to teaching (See Section II.1 for 75 published papers related to Elementary Particle Physics)**

63 "Composing Science: A Facilitator's Guide to Writing in the Science Classroom" reviewed by Calvin S. Kalman
*Teachers College Record*, Date Published: January 22, 2018
http://www.tcrecord.org ID Number: 22245

62 "Reflective Writing for a Better Understanding of Scientific Concepts in High School"
Joseph El-Helou and Calvin S. Kalman
The Physics Teacher, 56, 88-91 (2018)
https://doi.org/10.1119/1.5021434

61 "Labatorials in Introductory Physics Courses"
Mandana Sobhanzadeh, Calvin S. Kalman, R.I. Thompson (2017)
European Journal of Physics 38, 1-18.
https://doi.org/10.1088/1361-6404/aa8757

60 "Changing Students' Approach to Learning Physics in Postsecondary Gateway Courses"
Calvin S. Kalman, Bruce M Shore, Mark W Aulls, Tetyana Antimirova, Juss Kaur Magon, Gyoungho Lee, Ricardo Coelho, Gul Unal Coban, Xiang Huang, Ahmed Ibrahim, Xihui Wang, Dang Diep Minh Tan, Guopeng Fu, Wahidun Khanam (2017)
International Research in Higher Education, 2 (3), 17-33.

59 "Research on Teaching Thinking"
Calvin S. Kalman (2017)
Science & Education DOI 10.1007/s11191-017-9907-1, 26(6), 743-745.

58 "Implementation and Evaluation of the Course Dossier Methodology," Khanam, Wahidun N. and Kalman, Calvin S. (2017) *The Canadian Journal for the Scholarship of Teaching and Learning*: Vol. 8: Iss. 1, Article 7Available at: http://ir.lib.uwo.ca/cjsotl_rcacea/vol8/iss1/7

57 "Combination of Interventions Can Change Students' Epistemological Beliefs."
Calvin S. Kalman, Mandana Sobhanzadeh, Robert Thompson, Ahmed Ibrahim, and Xihui Wang.
*Physical Review Special Topics - Physics Education Research*. 11, 020136 (2015) pp 1-17– Published 21 December 2015.

56 Foreword-Recent Developments in Physics Education in Canada
Tetanya Antimorova, Calvin Kalman and Nathaniel Lasry
Physics in Canada 2014; 70(2): 63-67.

55 Improving The Way Students Understand Their Knowledge Of Physics
Xihui Wang and Calvin Kalman
Physics in Canada / La Physique au Canada - 2014 (70.2): 78-79.

54 Understanding the nature of science and nonscientific modes of thinking in gateway science courses. In M. F. Taşar (Ed.),
Proceedings of the World Conference on Physics Education, 2012
Kalman, C. [S.], Milner-Bolotin, M., Aulls, M. W., Charles, E. S., Coban, G. U., Shore, B. [M.], Antimirova, T., Kaur Magon, J., Xiang, H., Ibrahim, A., Wang, X., Lee, G., Coelho, R. L., Tan, D. D. N., & Fu, G.
Ankara, Turkey: Pegem Akademi.
(ISBN:978-605-364-658-7) (pp. 1291-1299). 2014.

53 Physics Education / Enseignement de la physique Special Issue
Physics in Canada / La Physique au Canada - 2014 (70.2)
Co-Editors. Calvin S. Kalman, Tetyana Antimirova & Nathaniel Lasry

52 **Science and religion, separate pursuits**
Calvin S. Kalman
Phys. Today 66 (8), p.10 (2013)

51 Toward a Hermeneutic-Historical Approach in Resolving Dilemmas in Teaching: Newton's First Law as an Exemplar
Gyoungho Lee, Seoul National University, Seoul, Republic of Korea, Roland Schulz, Simon Fraser University, Calvin Kalman, Concordia University, and Richardo Coelho, University of Lisbon
Proceedings, 12th Biennial International History and Philosophy of Science Teaching Group Conference
http://conference.ihpst.net/conference-proceedings/ (7 pages), 2013.

50 Relationship between students' epistemological beliefs and the evolution of science philosophy and hermeneutics
Xiang Huang, Marianopolis College, and Calvin Kalman, Concordia University
Proceedings, 12th Biennial International History and Philosophy of Science Teaching Group Conference
http://conference.ihpst.net/conference-proceedings/ (17 pages) , 2013.

49 Workshop on Friction: Understanding and Addressing Students' Difficulties in Learning Science through a Hermeneutical perspective.
Gyoungho Lee, Sangwoo Ha & Calvin Kalman
Science & Education 22(6), 1405-1442, 2013.

48. A Case Study on Reflective Writing
Xiang Huang & Calvin S. Kalman

Journal of College Science Teaching.
Sep/Oct2012, 42 (1), 92-99.

47. Do students understand what you are saying?
Calvin S. Kalman
University Affairs. online March 14, 2012
universityaffairs.ca/do-students-understand-what-you-are-saying. aspx

46. How do we teach? How do students learn?
Calvin S. Kalman
In Science & Culture: Promise, Challenge and Demand. Book of Proceedings, 11th International IHPST and 6th Greek History, Philosophy and Science Teaching Conference , F. Saroglu, V. Koulountzos, and A. Siastras (eds.)
Epikentro publications ISBN:978-960-458-325-6, pp380-3, 2011

45. Enhancing Students' Understanding Of Concepts By Getting Students to Approach Text in The Manner of a Hermeneutical Circle
Calvin S. Kalman
Science & Education: 20(2), 159–172, 2011.

44. On the Concept of Force: A Comment on Lopes Coelho.
Science & Education.
Calvin S. Kalman
Science & Education: 20(1), 67-69, 2011.

43. Toolbox of activities to support students in a physics gateway course.
Physical Review Special Topics - Physics Education Research. 6(2),020111,1-15, 2010
DOI: 10.1103/PhysRevSTPER.6.020111
Calvin S. Kalman, and Shelley Rohar

42. Reading The Book Of Nature: The Hermeneutical Circle In Science
Book Chapter in Consistent incorporation of Professional Terminologies into the World's Languages: The Linguistic Engine of a Global Culture
(Michel Gueldry Ed. )
Calvin S. Kalman
The Mellen Press, 2010

41. Comparison of the Effectiveness of Collaborative Groups and Peer Instruction in a Large Introductory Physics Course for Science Majors
Calvin S. Kalman, Marina Milner-Bolotin, and Tetyana Antimirova
Canadian Journal of Physics 88, (5), 325-332, 2010.
doi: 10.1139/P10-024

40. Enabling Students to Develop a Scientific Mindset
Calvin S. Kalman
Science & Education: 19(2), 147 -163, 2010

39. Why Should I use Collaborative Groups in my Course?
(Invited article.)
Calvin S. Kalman
Physics in Canada, 65, 137-138, 2009.

38. The Need to Emphasize Epistemology in Teaching and Research
Calvin S. Kalman
Science & Education. 18, 325- 348, 2009.

37. A Role for Experiment in Using the Law of Inertia to Explain the Nature of Science: A Comment on Lopes Celho
Calvin S. Kalman
Science & Education 18, 25-31, 2009.

36 Students Perceptions of Reflective Writing as a Tool for Exploring an Introductory Textbook.
Calvin S. Kalman, Mark Aulls, Shelley Rohar and John Godley
Journal of College Science Teaching March/April 2008 37(4), 74-81

35 Book Review, The Physics of Hockey, by Alain Haché.
Calvin S. Kalman
The Physics Teacher 45, 586 January 2007

34. Enhancing conceptual change using argumentative essays
Calvin S. Kalman, Shelley Rohar and David Wells
Am. J. Phys 72, 715-717, 2004.

33. Can an analysis of the contrast between pre-Galilean and Newtonian theoretical frameworks help students develop a scientific mindset ?
Calvin S. Kalman, Mark Aulls
Science & Education 12, 761-772, 2003.

32. Course Design for an Introductory Science Course
Calvin S. Kalman
Academic Exchange Quarterly Winter issue 2003, 194-198 plus table
http://rapidintellect.com/AEQweb/2490table.htm

31. Generating Effective In-Class Discussions

Calvin S. Kalman
The Successful Professor volume 1, issue 5 (October 2002), 7-9
http://www.thesuccessfulprofessor.com

30. Developing Critical Thinking in Undergraduate Courses: A Philosophical Approach
Calvin S. Kalman
Science & Education 11, 83-94, 2002.

29. Invited Book Review of "Time for Science Education: How Teaching the History and Philosophy of Pendulum Motion Can Contribute to Science Literacy" by Michael R. Mathews. Physics in Canada 57, 301-302 2001. (This is a mini essay.)

28. Kalman, Calvin, Teaching Students to Solve Quantitative Problems in Science courses by Writing Their Way into the Solution, The Successful Professor, Sample Issue, May, 2001, 3-4.
http://www.thesuccessfulprofessor.com

27. "Teaching Science To Non–Science Students Using A Student–Centred Classroom"
Calvin S. Kalman chapter in book : "Inspiring Students:
Case Studies in Motivating the Learner"
edited by Kemal Ahmet and Stephen Fallows
SEDA—Staff and Educational Development Series (UK-Great Britain)
Kogan Page Limited (1999).

26. "Promoting Conceptual Change Using Collaborative Groups In Quantitative Gateway Courses"
Calvin S. Kalman, Stanley Morris, Christopher Cottin and Robert Gordon
Physics Educational Research Supplement. Am. J. Phys.67, S45-S51 1999.

25. "Developing Critical Thinking Using Writing to Learn Techniques"
J . Kalman and C .S. Kalman
Teaching Learning Connection:
Newsletter of the International Alliance of Teaching Scholars
http://WWW.IATS.COM/Newsletter.html **1,**#1,June 1998.

24 "Developing Critical Thinking Using Cooperative Learning Techniques "
Calvin Kalman
Physics in Canada January/ February 1998, 15 -17

23 "Writing to Learn"

J . Kalman and C .S. Kalman
in K. Gillespie, ed., Essays on Teaching Excellence. The Professional and Organizational Development in Higher Education. 9 #4,1997

22. Conceptual Writing Exercises, Essay Questions, Group Exercises.
in "The Hidden Curriculum: Faculty-Made Tests in Science"
Edited by Sheila Tobias and Jacqueline Raphael.
( Plenum Press copyright California State University Press 1997)

21. "Writing to Learn"
J . Kalman and C .S. Kalman
Am. J. Phys **64**,954-956 (1996)

20. "STLHE 1995 Perceiving and Conceiving"
J . Kalman and C. S. Kalman
STLHE Newsletter #17(Dec 1995) 3-4
Reprinted in "Teaching and Learning at Carleton University" A special supplement to "This week at Carleton" 5(3) 3.

19. "Writing to Learn"
C. S. Kalman
STLHE Newsletter #17(Dec 1995) 8-9

18. "Writing to Learn Mathematics and Science"
C. S. Kalman
The Point: The newsletter of SCENT-UPEI's Senate Committee on the Enhancement of Teaching **4**#2,3 May(1995)
Received Bright Ideas Award at the Annual Conference of the Society for Teaching and Learning in Higher Education, University of Western Ontario, June 1995

17. "Passing the Word to the Student; Transforming Each Lecture into a Part of a Mini-research Paper"
Received Bright Ideas Award at the Annual Conference of the Society for Teaching and Learning in Higher Education, York University, June 1992
C.S. Kalman
CORE

16. "Developing Critical Listening in the Classroom"
One of four finalists for the Teaching and Learning

Creativity Award offered at the Annual Conference on Teaching and Learning in Higher Education, Dalhousie University, June 1991.
C.S. Kalman
Focus, Issue #3, 1, October (1991)

15. "Continental Class Room Remembered"
C.S. Kalman
Am. J. Phys, 55, 583,1987 (refereed letter to the editor)

14. "A Computer Managed Undergraduate Physics Laboratory"
C. S. Kalman
Am. J. Phys. 55, 46, 1987.

13. Physics: Principles and Applications. First Edition by Walter C. Michaels, Alfonso M.
Albano, Stephen R. Smith, Rosalie C. Hoyt
Invited Book Review by Kalman, C. (1978). *Journal of College Science Teaching, 8*(1), 54-55. Retrieved from http://www.jstor.org/stable/42965763

12. "Cultural Influences on Physicists"
C.S. Kalman
Physics in Canada 32, 88, 1976.

11. Invited Book Review of "Portrait of Nature"
by Allan Cottrell
Am. J. Phys. 44 195, 1976.

10. Alternatives to Modern Science Abstracts of two articles by R. A Uritam
in American Journal of Physics
C. S. Kalman, Journal of College Science Teaching, 5 (3) 1976, p. 201

9. Kalman, C. (1976). Testing Tests. Journal of College Science Teaching, 5(3), 202-202.
Retrieved from http://www.jstor.org/stable/42965670

8. Kalman, C. (1976). Magnetism As A Clinical Tool. Journal of College Science Teaching, 5(4), 266-266. Retrieved from http://www.jstor.org/stable/42984368.

7. Kalman, C. (1976). Covalent Bonding Via Classical Physics. Journal of College Science Teaching, 5(4), 264-264. Retrieved from http://www.jstor.org/stable/42984360

6. "Constellation Course: The Interaction Between the Sciences and the Arts"
L.R. Hallett and C.S. Kalman
Am. J. Phys. 43, 606, 1975.

5. "Introductory CAI Dialogue in Differential Calculus for Freshman Physics"
C.S. Kalman, D. Kaufman, R. Smith
Am. J. Phys. 42, 39 2, 1974.

4. "Loyola CAI Language"
C.S. Kalman and D. Kaufman
ACIT Newsletter 3, 25, 1974.

3. Are We Consuming Our Way To Doomsday?
CS Kalman
Journal of College Science Teaching, 4, 66-67, 1974

2. "Origin of the Undergraduate Physics Conference"
C.S. Kalman
Physics in Canada 29, 111, 1973.

1. "CAI at Loyola"
C.S. Kalman
ACIT Newsletter 2, 14, 1972.

**I.2 Talks (Relating to Teaching) (See Section II.2 for 55 talks related to Elementary Particle Physics)**

112. Issues in Science Education Informed by History & Philosophy of Science and Psychology. Calvin S. Kalman & Mark Lattery
International History, Philosophy Philosophy and Science Teaching (IHPST) Conference. Hacettepe University, July 4-7, 2017.

111. Fostering Critical Thinking and Innovation in Teaching and Learning.
Calvin S. Kalman. The Teaching Exchange. Concordia University. Wednesday, October 26, 2016.

110. Changer les manières dont les étudiants apprennent dans les cours de sciences de niveau collegial. Two hour workshop.
Calvin S. Kalman. Colloque sur l'enseignement des sciences et des technologies au collégial de l'Association pour l'enseignement de la science et de la technologie au Québec (AESTQ). Collège Laflèche situé à Trois-Rivières. Aug 18, 2016.

109. Can Learning about History of Science and Nature of Science in a student-centred classroom change science students' conception of science?
Baptiste Roucau and Calvin S. Kalman
Canadian Association of Physicists Annual Congress, University of Ottawa, June 2016.

109. Teachers Workshop 30 minute invited presentation. Presented at the Canadian Association of Physicists Annual Congress, University of Ottawa, June 2016.

108. Changing How Students Learn in Gateway Physics Courses.
4 hour workshop sponsored by Committee on Physics in Undergraduate Education co- sponsored by Committee on Women in Physics
Winter meeting American Association of Physics Teachers
New Orleans. Jan 9, 2016.

107. Using Interventions that Change Student's Approach to Learning
Calvin S. Kalman, Mandana (Mandy) Sobhanzadeh, Robert I. Thompson
Winter meeting American Association of Physics Teachers
New Orleans. Jan 10, 2016.

106. Changing Students' Approach to Learning Physics.
Colloquium, Trent University, October 22, 2015.

105. "Origin of the Canadian Undergraduate Physics Conference."
Canadian Undergraduate Physics Conference 2015, Trent University
October 22, 2015.

104. Implementing Reflective Writing in Combination with Labatorials

Calvin S. Kalman, Mandana (Mandy) Sobhanzadeh, Robert I. Thompson
Mount Royal University, September 2015.

103. Can we change students' beliefs about learning physics?
Calvin S. Kalman, Mandana (Mandy) Sobhanzadeh, Robert I. Thompson, Ahmed Ibrahim, Xihui Wang.
Invited paper, SALTISE Conference, June 12, 2015. John Abbott College Montreal.

102. Utilizing Reflective Writing in Combination with Labatorials.
Mandana (Mandy) Sobhanzadeh, Calvin S. Kalman, Robert I. Thompson
Presented at the Canadian Association of Physicists Annual Congress, University of Alberta, June 2015.

101. Teachers Workshop 45 minute invited presentation. Presented at the Canadian Association of Physicists Annual Congress, University of Alberta, June 2015.

100. Helping Students to get a Better Understanding of Concepts; "Course Dossier Method". Wahidun Khanam & Calvin Kalman
Presented at the Canadian Association of Physicists Annual Congress, University of Alberta, June 2015.

99. Utilizing Reflective Writing in Combination with Labatorials
Mandana Sobhanzadeh, Mount Royal University, Robert I. Thompson, University of Calgary and Calvin S. Kalman, Concordia University
University of Calgary Conference on Postsecondary Learning and Teaching May 12 & 13, 2015.

98. Changing Students' Approach to Learning Physics. Wichita State University. Colloquium. April 2015.

97. Writing as a Means to Provide a Meaningful Classroom Experience
Invited presentation. Winter meeting American Association of Physics Teachers
San Diego. Jan 5, 2015.

96. Improving Pre-service Science Teachers' Views on Science Teaching: A Critical Examination of a Physics Teacher's Dilemma
Gyoungho Lee, Seoul National University, Seoul, Republic of Korea, Roland Schulz, Simon Fraser University, Calvin Kalman, Concordia University, and Ricardo Coelho, University of Lisbon Second Asian Regional IHPST Conference, Taipei, Taiwan, December 4-6, 2014

95. Why *must* Science Honours Students take a Mandatory Course in Historical, Philosophical, and Social Aspects of Science.
Invited Seminar Melanson Institute. Western Michigan University
Nov 10, 2014.

94. Changing Students' Approach to Learning
Colloquium Physics Department Western Michigan University
Nov 10, 2014. I also met throughout the day with individual professors to consult with them on ways they could improve teaching in their classes.

93. Changing students' approach to learning physics. Three 75 minute invited presentations at the International Workshop "New Trends in Physics Teaching" Autonomous University of Puebla (Puebla, Mexico) from May 29 to June 1, 2014.

92. Teachers Workshop 45 minute invited presentation. Presented at the Canadian Association of Physicists Annual Congress, Laurentian University, June 2014.

91. "Changing students' approach to learning physics in undergraduate gateway courses.
Calvin S. Kalman, Marina Milner-Bolotin, Bruce M. Shore, Gyoungho Lee, Gul U. Coban, Xiang Huang, Ahmed Ibrahim, Xihui Wang, Mandana Sobhanzadeh and Wahidun Khanam
Presented at the Canadian Association of Physicists Annual Congress, Laurentian University, June 2014.

90. "Changing Students' Approach to Learning"
Calvin S. Kalman. Invited paper, SALTISE Conference, June 12, 2014.
Dawson College Montreal.

89. "Changing students' approach to learning physics in undergraduate gateway courses"
Calvin S. Kalman, Marina Milner-Bolotin, Bruce M. Shore, Gyoungho Lee, Gul U. Coban, Xiang Huang, Ahmed Ibrahim, Xihui Wang, Mandana Sobhanzadeh and Wahidun Khanam
Refereed Paper National Association for Research in Science Teaching, Pittsburgh, PA, USA. March-April 2014.

88. "Relationship between students' epistemological beliefs and the evolution of science philosophy and hermeneutics"
Xiang Huang, Marianopolis College, and Calvin Kalman, Concordia University
International History, Philosophy and Science Teaching (IHPST) Conference
University of Pittsburgh June 2013

87. "Toward a Hermeneutic-Historical Approach in Resolving Dilemmas in Teaching: Newton's First Law as an Exemplar"
Gyoungho Lee, Seoul National University, Seoul, Republic of Korea, Roland Schulz, Simon Fraser University, Calvin Kalman, Concordia University, and Ricardo Coelho, University of Lisbon poster

International History, Philosophy and Science Teaching (IHPST) Conference
University of Pittsburgh June 2013

86. " 'Sources of knowledge' " for students entering a gateway science course"
Ahmed Ibrahim, Calvin S. Kalman, Marina Milner-Bolotin
Learning International Networks Consortium (LINC)
June 2013 – MIT, Cambridge, Massachusetts

85. "Active Learning Electronic Resources and Tools for Inquiry on Tablet Devices"
Ahmed Ibrahim, Mark W. Aulls, Bruce M. Shore, Calvin S. Kalman
Learning International Networks Consortium (LINC)
June 2013 – MIT, Cambridge, Massachusetts

84. "Toward a Hermeneutic-Historical Approach in Resolving Dilemmas in Teaching: Newton's First Law as an Exemplar"
Gyoungho Lee, Seoul National University, Seoul, Republic of Korea, Roland Schulz, Simon Fraser University, Calvin Kalman, Concordia University, and Richardo Coelho, University of Lisbon
Canadian Association of Physicists Annual Congress Universite de Montreal. May 2013.

83. "Promoting epistemic change in students through a physics gateway course: An intervention study
Xihui Wang, Xiang Huang, Ahmed Ibriham, Calvin Kalman, Mark Aulls
Refereed Paper National Association for Research in Science Teaching, Rio Grande, Puerto Rico. March 2013.

82. "Changing Students' Approach To Learning"
Keynote address (hour long), Conference on Tertiary Education: Realities & Challenges, Daffodil International University, Dhaka, Bangladesh, January, 2013.

81. "Understanding the Nature of Science and Nonscientific Modes of Thinking in Gateway Science Courses"
Kalman, C. [S.], Milner-Bolotin, M., Aulls, M. W., Charles, E. S., Coban (corresponding author gulunalcoban@gmail.com), G. U., Shore, B. [M.], Antimirova, T., Kaur Magon, J., Xiang, H., Ibrahim, A., Wang, X., Lee, G., Coelho, R. L., Tan, D. D. N., & Fu, G.
Refereed Paper, World Conference on Physics Education, Istambul, Turkey, July 2012.

80. "Workshop on Friction: Understanding and Addressing Students' Difficulties in Learning Science through a Hermeneutical perspective"

Ha, Lee, & Kalman. Canadian association of Physicists annual Congress, University of Calgary June 2012.

79. "Understanding the Nature of Science and Nonscientific Modes of Thinking in Gateway Science Courses"
Kalman, Charles, Aulls, Milner-Bolotin, Antimirova, Huang, Ibrahim, &Wang
Refereed Paper, Society for Teaching and Learning in Higher Education, Montreal June 2012.

78. "Understanding the nature of science and nonscientific modes of thinking in gateway science courses."
Kalman, Milner-Bolotin, Antimirova, Aulls, Charles, Huang, Ibrahim, Lee & Wang.
Refereed Paper National Association for Research in Science Teaching, Indianapolis, IN. March 2012.

77. "Helping Students to Change their ways of Learning in Science and Engineering"
Invited talk St. Francis Xavier University, Antigonish, NS, Nov 10 2011.

76. "Helping Students to Change their ways of Learning in Science and Engineering"
Invited talk Jadavpur University, Calcutta, Dec 16, 2011.

75. "How do we teach? How do students learn?" Presentation
International History, Philosophy and Science Teaching Conference
Aristotle University (Thesaloniki) July 1-5, 2011

74. "Teaching in Vietnam" talk presented at
Canadian association of Physicists annual Congress Memorial University. June 2011
Calvin Kalman

73. "Enhancing Your Course with Activities Arising from Physics Educational Research. Nine hour workshop. Sponsor: Committee on Research in Physics Education Co-sponsor: Committee on Physics in Undergraduate Education. American Association of Physics Teachers. July 2010.

72. "Personal epistemologies as barriers and facilitators to learning by Science and Engineering undergraduate students." Roundtable (1 ½ hour given twice). Physics Education Research Conference. July 2010.

71. "A Case Study on Reflective Writing". Poster presented at Physics Education Research Conference 2010 Portland, OR.
Xiang Huang, Calvin Kalman

70. "Helping Students Use Reflective Writing More Effectively". Contributed talk presented at American Association of Physics Teachers 2010 Portland, OR.
Xiang Huang, Calvin Kalman

69. “Reflective Writing as a Tool for Exploring Physics Courses”. Poster presented at American Association of Physics Teachers 2010 Portland, OR.
Xiang Huang, Calvin Kalman

68. “Enhancing Students' Understanding Of Concepts By Getting Students to Approach Text in The Manner of a Hermeneutical Circle”
Invited talk. Canadian association of Physicists annual Congress. University of Toronto, June 2010
Calvin Kalman

67. Reflective Writing as a Tool for Exploring an Introductory Textbook”
Paper presented at the Annual congress Canadian association of Physicists. University of Toronto. June 2010
Xiang Huang, Calvin Kalman

66. “Helping students use reflective writing more effectively” Poster Session Annual congress Canadian association of Physicists. University of Toronto. June 2010
Xiang Huang, Calvin Kalman

65. “Promoting Students’ Understanding of Science” Presentation
International History, Philosophy and Science Teaching Conference
Notre Dame University June 24-28, 2009

64. “Comparison of Two Active Learning Teaching Methods: Conceptual Conflict Collaborative Group and Peer Instruction” Poster Session Annual congress Canadian association of Physicists. June 2009
Marina Milner-Bolotin, Tetyana Antimirova, Calvin Kalman

63. “Comparison of Conceptual Conflict Collaborative Group Intervention with Modified Peer Instruction.” Paper presented at the American Association of Physics Teachers, Chicago, IL, February 11-16, 2009.
Kalman, C., Milner-Bolotin, M., & Antimirova, T.

62. "The Classroom of the Future: Human Interaction in an Age of Technology"
8- hour workshop American Association of Physics Teachers Summer Conference, University of Alberta, July 19-23, 2008. Sponsored by the Committee on Research in Physics Education and the Committee on Physics in Undergraduate Education

61. “Reflective Writing in the laboratory.” Presentation (Invited):
American Association of Physics Teachers Summer Conference, University of Alberta, July 19-23, 2008.

60. “The Need to Emphasize Epistemology in Teaching and Research.” Presentation (Invited): International History, Philosophy and Science Teaching Conference,

Calgary University June 24-28, 2007.

59. “Beyond Conceptual Change: Changing Students Epistemologies.” Presentation (Invited): Annual Congress Canadian Association of Physicists, University of Saskatchewan June 17, 2007.

58 "An Interactive Introductory Science Course" (refereed presentation) Society for Teaching and Learning in Higher Education University of Alberta, June 13, 2007.

57 "The Classroom of the Future: Human Interaction in an Age of Technology" One of only three 7 hour pre conference workshops (accepted after consideration by a panel.) Society for Teaching and Learning in Higher Education University of Alberta, June 13-16, 2007.

56. “The Need to Emphasize Epistemology in Teaching and Research.” (Invited Colloquium) Hebrew University (Jerusalem). May 30, 2007

55. “The Need to Emphasize Epistemology in Teaching and Research.” 30th McGraw-Hill Ryerson, National Teaching, Learning & Technology Conference Montreal, May 14, 15, 2007.

54. “Some Thoughts on Current Physics Educational Research.” Presentation (Invited): Annual Congress Canadian Association of Physicists, University of British Columbia June 5, 2005.

53. “Designing Activities for the introductory course based upon Physics Educational Research.” Workshop (Invited) Dawson College May 28,2005

52. Teaching seminar on Integrating Writing into Engineering and Computer Science Courses (Invited). Concordia University Faculty of Engineering. March 16, 2005.

51. Workshop (Invited): “Some Thoughts on Current Physics Educational Research” Canadian Association of Physicists Physics Teachers' Day Monday, March 22, 2004 at the 2004 March American Physical Society meeting.

50. An Interactive Introductory course Professional and Organizational Development (POD) Network Conference November 4 - 7, 2004

49. “Helping students get the most out of introductory gateway science courses” Roundtable presentation Physics Education Research Conference Madison Wisconsin August 2003.

48. “Helping students get the most out of the introductory course.” Talk at American Association Of Physics Teachers Conference

Madison Wisconsin August 2003.

47. “Using Writing to Enhance Understanding”
Invited talk; Sir Wilfred Laurier University
part of workshop on Critical Thinking and Writing across the Disciplines
May, 16th 2003

46. "Using Writing to promote Human Interaction in an Age of Technology."
Keynote address, Physics & Engineering Physics Division, Annual Meeting, American Society for Electrical Engineers. Montreal, June 19, 2002.

45 "The Classroom of the Future: Human Interaction in an Age of Technology"
3 Hr workshop for Concordia University's Center for Teaching and Learning Services. Dec 28,2001.
(Note that this is a very different presentation from the much shorter keynote address at Yale University of the same title.)

44 "What is the Point of Having Students Come to Class"
75-minute refereed talk Society for Teaching and Learning in Higher Education
Memorial University of Newfoundland, June 14-16, 2001.

43. "The Classroom of the Future: Human Interaction in an Age of Technology"
Invited keynote address Annual Spring Teaching Forum
"Teaching the Future: Innovation in the College Classroom"
Yale University, New Haven CT. March 23,2001

42. "Helping Students Take a Greater Responsibility for Their Learning"
90 minute workshop for faculty at the Physics Department and local High School Physics teachers University of Western Ontario March 21,2001

41 "Helping Students Take A Greater Responsibility for Their Learning
70-minute invited talk Society for Teaching and Learning in Higher Education
Brock University June 15-17 2000.

40 "Helping Students reach their full potential."
45-minute invited talk (Plenary session) Canadian Association of Physicists

39. “Comparison of the Student–Centered and Teacher–Centered Classroom
American Association of Physics Teachers meeting
New Orleans, Louisiana Jan. 2-8,1998.

38 "Developing Critical thinking in a Student-Centered Classroom."
Workshop W15: American Association of Physics Teachers (Sponsored by Committee on Research in Physics Education) meeting at New Orleans,

Louisiana Jan. 2-8,1998.

37 "Developing Critical Thinking in Undergraduate Courses: A Philosophical Approach". Invited paper American Association of Physics Teachers Summer Meeting The University of Denver August 1997.

36. "Developing Critical thinking using a student-centered classroom." 90 minute refereed workshop presented to the seventeenth annual meeting of the Society for Teaching and Learning in Higher Education, The University of Regina June 1997.

35. "A Comparison of Teacher-Centered Learning with Student-Centered Learning" Poster session in Concordia University Teaching Fair Concordia University Nov 13,1996

34. "Developing Critical writing and critical thinking using a student-centered classroom." 21/2 hr. Invited workshops to the entire 100 member faculty of Gainesville College Gainesville, Georgia, September 1996.

33. "Learning Styles" 20 minute presentation as part of Teaching Assistant Orientation Concordia University Sept. 4, 1996

32. "Helping Students See the Big Picture: Interdisciplinary Collaboration and Science Teaching" Invited paper American Association of Physics Teachers Summer Meeting The University of Maryland August 1996.

31. " Student-Centered Learning" 45-minute invited paper at the Canadian Association of Physicists Congress The University of Ottawa June 1996.

30. "A Comparison of Teacher-Centered Learning with Student-Centered Learning II" 1-hour refereed workshop presented to the sixteenth annual meeting of the Society for Teaching and Learning in Higher Education, The University of Ottawa June 1996.

29. "Cooperative Education and Student-Centred Learning" 4-hour workshop presented to Concordia University sponsored by Concordia's Learning Development Office May 15,1996.

28. "A Comparison of Teacher-Centered Learning with Student-Centered Learning"

1-hour workshop presented to the Concordia University
Physics Department, Nov. 10, 1995

27. Presentation on Problem Solving; one of the sessions in
Cognitive Seminar 1995-1996 of Centre for Study of Classroom Processes
(Concordia U) Oct. 6,1995.

26. "A Comparison of Teacher-Centered Learning with Student-Centered Learning"
1-hour refereed workshop presented to the Fifteenth annual
meeting of the Society for Teaching and Learning in Higher
Education, The University of Western Ontario June 1995.

25. "Learning Styles"
20 minute presentation as part of Teaching Assistant Orientation
Concordia University Sept. 9, 1994

24. "Cooperative Learning and Student Centered Instruction"
3-hour refereed workshop presented to the Fourteenth annual
meeting of the Society for Teaching and Learning in Higher
Education, Vancouver June 1994.

23. "Student-Centered Education in Physics" "1 1/2-hr. "Brown bag" workshop at
Centre for study of classroom processes (Concordia U) March 1994

22. "Introducing Critical Thinking in Physics Courses"
Workshop W01: American Association of Physics Teachers (Cosponsored by
Committees on Physics in Undergraduate Education and Physics in Two-Year
Colleges) meeting at San Diego California Jan. 3-8,1994.

21. "Promoting Discussion"
Two hour workshop for TAs, Graduate Students and New Faculty
Concordia University Oct. 1,1993

20. "Cooperative Learning"
Two hour workshop as part of Teaching Assistant Orientation
Concordia University Sept 10,1993

19. "Learning Styles"
30 minute presentation as part of Teaching Assistant Orientation
Concordia University Sept 10,1993

18. "Developing"Critical Thinking in Science Courses"
90 minute refereed workshop presented to the Thirteenth annual
meeting of the Society for Teaching and Learning in Higher

Education, University of Manitoba June 1993.

17. "2-hr. "Brown bag" workshop on cooperative learning in Science courses" Centre for study of classroom processes (Concordia U) April 1993

16. "Enhancing Thinking Skills in Science Courses"
2-1/2 Hr Workshop sponsored by Learning Development Office, Concordia University, November 1992.

15. "Introducing Critical Thinking in Physics Courses"
2 Hr. Workshop. Concordia University, December 1991.

14. "Developing Critical Thinking in Introductory Science Courses"
Refereed 85 minute presentation to the Eleventh Annual Meeting of the Society for Teaching and Learning in Higher Education Dalhousie University June 1991.

13. "Experimenting in Teaching Physics; Classroom Research"
Calvin Kalman and Ronald Smith
Concordia University December 1990

12. "Leibnitz vs. Newton: Does the Universe Require Repairs"
Liberal Arts College March 1980.

11. "Cultural Influences on Physicists" invited talk,
Joint Meeting American Physics Society, Mexican Physics Society Canadian Association of Physicists"
Quebec City, June 1976.

10. "Do The Arts and Sciences Have Anything To Say to Each Other"
Loyola Faculty of Arts and Science Series; Conversation with Arts and Science, February 1976.

9. "A Study of Computer-Assisted Instructural Strategies and Learner Characteristics"
Refereed Paper presented at 1975 AERA Meeting

8. "Constellation Course-Interaction Between Sciences and the Arts" American Association of Physics Teachers"
(Bull APS 20, 78 (1975))

7. "What is Physics All About"
Series of 3 lectures to Course Thinking 100
(Prof. B. Cavanaugh, Philosophy Dept.)

Spring 1974

6. "Logic of Quantum Mechanics"
   Prof. Kawczak's Logic Class April 1974

4,5. "Computer Aided Instruction"
   Computing Science Students Association Feb. 1974 and to
   French 538 (Mme. Van Toch) Fall 1973

3. "Evaluation of Some Computer Dialogs"
   American Association of Physics Teachers
   New York January 1973.

2. "Are we Consuming our way to Doomsday".
   Thursday Open Forum
   Loyola College
   February 1972

1. "How to Use the Computer in Your classroom". General presentation at the invitation of the Academic Vice President (Loyola) covered by Channel 12 Television and the Gazette, October 1972.

## II.1 Published Research Papers in Elementary Particle Physics

75. "Why Quarks cannot be Fundamental Particles"
C. S. Kalman
Nuclear Physics B (Proc. Suppl.). **142**, 235-237 (2005).

74. "Why Quarks cannot be Fundamental Particles"
C. S. Kalman
International Journal of Modern Physics A **19**, 5433 (2004).

73. "The bound state corrections to the semileptonic decays of heavy baryons"
I. D'Souza , C. S. Kalman, P. Yu Kulikov and I. M. Narodetski,
Nuclear Physics B (Proc. Suppl.). **115**,15-19 (2003).

72. "The Kalman-Tran-D'Souza model and SL decays of heavy baryons"
I. D'Souza , C. S. Kalman, P. Yu Kulikov and I. M. Narodetski,
Nuclear Physics B (Proc. Suppl.). **93**,3-8 (2001).

71. "Baryon Spectroscopy in the Charm and Beauty Sectors using a Renormalization Group Improved Quark Phenomenological Model"
C. S. Kalman and I. D'Souza
Nuclear Physics B (Proc. Suppl.). **75B**,3-9 (1999).

70. "Low Energy $Z_R^0$ Based on an SO(10) SUSY-GUT"
C. S. Kalman
pp. 263-270 in"Toward the Theory of Everything: MRST'98"
edited by J. M. Cline, M. E. Knutt, G. D. Mahlon, G. D. Moore
(American Institute of Physics, conference proceedings 452, Woodbury, NY 1998)

69. "Review of Spectroscopy and Strong Decays of Heavy Flavored Baryons"
C. S. Kalman
Nuclear Physics B (Proc. Suppl.). **55A**, 27-32 (1997).

68. "Decay and Spectra of Baryons Especially Beauty Baryons""
C. S. Kalman
Nuclear Physics B (Proc. Suppl.),**50**, 135-139(1996)

67. "Chargino and Neutralino Pair Production at the pp collider in the Left-Right Supersymmetric Model"
M. Frank,C. S. Kalman and H.N. Saif
Journal of Physics G: Nuclear and Particle Physics **21**, 601-614 (1995)

66. "Production of Charginos and Neutralinos for the Reaction $e^+e^- \rightarrow Z' \rightarrow \tilde{\chi}^{+,i}\tilde{\chi}^{+,j}\tilde{\chi}^{0,i}\tilde{\chi}^{0,}$ in $SU(2)_L \times SU(2)_R \times U(1)_{B-L}$."
S. W. Frederick and C. S. Kalman
*Il Nuovo Cimento.* **A 108**, 189-204 (1995)

65. "Experimental consequences of left-right supersymmetry"
C. S. Kalman
pp 24-29 in "MRST '94: "What Next? Exploring the Future of High -Energy Physics" edited by J. R. Cudell, K. R. Dienes,and B. Margolis
(World Scientific, Singapore 1994)

64. "Slepton and squark production at ep colliders in a left-right supersymmetric model"
C. S. Kalman
*Il Nuovo Cimento.* **A 107**,2805-2812 (1994)

63."Left- Right Supersymmetry"
C. S. Kalman
pp.391-397 in "International Workshop on Supersymmetry and Unification of Fundamental Interactions;SUSY Ninety Three" edited by Pran Nath (World Scientific, Singapore 1993)

62. "Masses of Charginos and Neutralinos in a Left-Right Supersymmetric Model"
M. Frank,C. S. Kalman and H.N. Saif
Zeits für Physik **C 59,**655-668(1993)

61. "Chargino-Neutralino Production in pp collisions for the Left-right Supersymmetric Model"
C. S. Kalman and H.N. Saif
Zeits fur Physik **C 56**, 447-455 (1992)

60. "Preons: Models of Leptons, Quarks and Guage Bosons as Composite Particles"
C.S. Kalman and I. DeSouza
published by World Scientific Publishing Company (1992)

59. "Hadronic Decay Widths of Higgs Bosons in the Left-right Symmetric Model"
M. Frank, H. Hamidian and C.S. Kalman
Phys. Rev.**D45**, 241 (1992)

58. "Anomalous Magnetic Moment of the Muon Arising from the Extensions of the Supersymmetric Standard Model Based on Left-Right Symmetry"
R.M. Francis, M. Frank and C.S. Kalman
Phys. Rev. **D43**, 2369 (1991)

57. "Photoproduction of W Bosons as a Test of the Standard Model"
Mark A. Samuel, C. Kalman, M. Frank and Guowen Li
Can. J. Phys. **69**, 52(1991)

56. "Strong Decays of Baryons"
C. S. Kalman, B. Tran
Nuovo Cimento **104**, 177 (1991) (25 pages in the Journal)

55. "The Anomalous Magnetic Moment of the Muon in a Supersymmetric Left-right symmetric Model"
C.S. Kalman, M. Frank, and R.M. Francis
P. 203 Proceedings of the Twelfth Annual Montreal-Rochester-Syracuse-Toronto High Energy Theory Meeting Edited by B. Margolis & P. Valin (1990)

54. "Baryon Spectrum in a Potential Quark Model"
C.S. Kalman, B. Tran
Nuovo Cimento **102**, 835 (1989) (45 pages in the Journal)

53. "Renormalization as a Criterion for choosing a Realistic Quantum Field Theory: $\phi^N$ theories as an example of the selection process"
R.M.Francis, M.A.Husain and C.S.Kalman
Physics Essays **2**, 60 (1989)

52. "Dibaryons in a Quantum Chromodynamics Based Consistent Quark Model
C. S. Kalman and S. Barbari
Nuovo Cimento **101**, 193(1989) (19 pages in the Journal)

51. "Anomalous Magnetic Moment of the Muon and Neutral Current Constraints in a Supersymmetric SU(2) xU(1) xU(1) Model inspired by Superstring Theories"
M. Frank and C. S. Kalman
Phys. Rev. **D38**, 1469 (1988)

50. "Calculation of the Ground-State Baryons as a test of the hypothesis that the potential is a combination of a Coulomb and a linear potential.
C. S. Kalman, B. Tran, Richard L. Hall
Nuovo Cimento **98A**, 125 (1987).

49. "Constraints on Supersymmetric Preon Models"
C. S. Kalman and N. R. Lewis
Europhysics Lett. **3**, 1079 (1987)

48. "Unequal Mass Quarkonium Spectra in a Consistent Quark Model"
C.S. Kalman and I. D'Sousa
Nuovo Cimento **96A**, 286, (l986)

47. "Ground-State and Low-Lying Positive Parity Excited Baryons Containing u, d, s, c and b Quarks in a Consistent Quark Model with Chromodynamics"
C.S. Kalman
Nuovo Cimento **94A**, 219 (1986)

46. "Calculation of The Masses of all The Stable States in the ψ and U Systems
N. Mukerji and C.S. Kalman
Lett. Nuovo Cimento **41**, 513 (1984)

45. "Ground-State and P-wave b-flavored Baryons in a Consistent Quark Model"
C.S. Kalman and D. Pfeffer
Phys. Rev. **D28**, 2324 (1983)

44. "A Test of the Identity of Forces in Mesons and Baryons: Calculating Quarkonium Spectra using only Baryon Parameters"
C.S. Kalman and S. Barbari
Phys. Rev. **D28**, 2321 (1983)

43. "The ψ and U Systems in a Consistent Quark Model"
C.S. Kalman , N. Mukerji
Phys. Rev. **D27**, 2114 (1983)

42. "Ground State and P-Wave Charmed Baryons in a Consistent Quark Model with Hyperfine Interactions"
C.S. Kalman, D. Pfeffer
Phys. Rev. **D27**, 1648 (1983)

4l. "Application of the Isgur-Karl Model to the Low-Lying S States of Charmonium"
C.S. Kalman, N. Mukerji
Phys. Rev. **D26**, 3264 (1982)

40. "P-Wave Baryons in A Consistent Quark Model with Hyperfine Interactions"
C.S. Kalman
Phys. Rev. **D26**, 2326 (1982)

39. "Baryonium Internal Color Transitions in the L=O state"
C.S. Kalman. Sushil K. Misra
Phys. Rev. **D26**, 233 (1982)

38. "A Consistent Quark Model with Hyperfine Interactions For the Ground and Low-Lying Excited Baryon States"
C.S. Kalman and Richard L. Hall
Phys. Rev. **D25**, 217 (1982)

37. "Subquark Structure"
C.S. Kalman
Can. J. Phys. **59**, 1774 (1981)

36. "SU (1,4) As a Dynamical Group for Hadron Scattering States"
E. Athanassakos and C.S. Kalman
Lett. Nuovo Ciment **30**, 199 (1981)

35. "Hyperfine Splitting of the Ground State of Baryonium"
C.S. Kalman, Richard L. Hall and Sushil K. Misra
Phys. Rev. **D21**, 1908 (1980)

34. "SU (l,3) as a Dynamical Group for Hadron Scattering States"
S. Barbari, C.S. Kalman
Lett. Nuovo Cimento **27**, 513 (1980)

33. "Masses of Charmed Baryons in SU(1,4) Dynamical Group Theory"
M. O'Neill, C.S. Kalman
Lett. Nuovo Cimento **27** , 481 (1980)

32. "Calculation of the Mass Spectrum in SU (1,3) Dynamical Group Theory"
M. O'Neill, C.S. Kalman
Lett. Nuovo Cimento **27**, 551 (1980)

31. "$\chi$ (2800) as a Four Quark System"
C.S. Kalman and G. Jakimow
Lett. Nuovo Cimento **25**, 271 (1979)

30. "Baryonium, the Diquark Model and the Prediction of Mesons with Exotic Quantum Numbers"
C.S. Kalman
Lett. Nuovo Cimento **25**, 133 (1979)

29. "Extension of the Logarithmic Potential to Multiquark Systems: Dependence of the Energy on Depth and Range"
Richard L. Hall and C.S. Kalman
Phys. Lett. **83B**, 80 (1979)

28. "Origin of Quarkonium: Prediction of New Quark Masses"
C.S. Kalman
Lett. Nuovo Cimento **24**, 318 (1979)

27. "Dynamical Groups and the Quarkonium Problem"
C.S. Kalman
Appeared in p. 528 Group Theoretical Methods in Physics. Volume **94** of Lecture notes in Physics (Springer Verlag, New York 1979)

26. "Charmed Baryons in the SU(4) Symmetric 20plet Representation"
C.S. Kalman, G. Jakimow, E. Yakimiw
Lett. Nuovo Cimento **21**, 609 (1978)

25. "How Many Y Are There?
C.S. Kalman
Lett. Nuovo Cimento **21**, 145 (1978)

24. "Selection of a Dynamical Group for the Charmed Baryons"
C.S. Kalman
Lett. Nuovo Cimento **21**, 29l (1978)

23. "Masses of 27-plet Mesons-Possible Existence of low-mass long-lived exotics"
C.S. Kalman
Lett. Nuovo Cimento **21**, 201 (1978)

22. "SU (1,4) as a Dynamical Group for the Mesons: Analysis of all the Discrete Representations"
C.S. Kalman
Lett. Nuovo Cimento, **19**, 474 (1977)

2l. "Charmed Baryon Electromagnetic Mass Differences"
C.S. Kalman, G. Jakimow
Lett. Nuovo Cimento **19**, 403 (1977)

20. "Effect of u and d Quark Differences on the Masses of Charmed Mesons"
G. Jakimow, C.S. Kalman
Lett. Nuovo Cimento **18**, 544 (1977)

l9. "Mass Formulae for 27-plet Mesons"
C.S. Kalman
Lett. Nuovo Cimento **18**, 20l (1977)

18. "SU (1,4) as a Dynamical Group: Analysis of all the Discrete Representations I. Baryons"
C.S. Kalman
Can. J. Phys. **55**, 673 (1977)

17. "Masses of Quarks from an SU (1,3) Dynamical Group Model"
C.S. Kalman
Particles and Nuclei **9**, 21 (1976)

16. "The Role of the Decuplets in the SU (1,3) Dynamical Group Scheme"
C.S. Kalman
Particles and Nuclei **9**, 11 (1976)

15. "Masses of Charmed Baryons"
G. Jakimow and C.S. Kalman
Lett. Nuovo Cimento **17**, 516 (1976)

14. "Masses of Charmed Mesons"
G. Jakimow and C.S. Kalman
Lett. Nuovo Cimento **17**, 511 (1976)

13. "Are Apparent Violations of the $\Delta S = \Delta Q$ Rule Due to Charmed Particles or Ordinary SU(3) 27-plet Hadrons"
C.S. Kalman
Lett. Nuovo Cimento **17**, 447 (1976)

12. "Mass Formulae for 27-plet Baryons"
M. Hongoh and C.S. Kalman
Lett. Nuovo Cimento **17**, 145 (1976)

11. "A One Parameter Mass Formula for Charmed Baryons"
G. Jakimow and C.S. Kalman
Lett. Nuovo Cimento **17** 65 (1976)

10. "Isoplet Mass Splitting Determined by the Difference in Action of the u and d Quarks"
C.S. Kalman
Lett. Nuovo Cimento **16**, 276 (1976)

9. "Production of ψ & Charmed Vector Mesons"
C.S. Kalman
Lett. Nuovo Cimento **14,** 605 (1975)

8. "Are There Four ψ Particles?

C.S. Kalman
Lett. Nuovo Cimento **14**, 115 (1975)

7. "SU (l,3) as a Dynamical Group: Analysis of all the Discrete Representations"
C.S. Kalman
Can. J. Phys. **51**, 111 (1973)

6. "Classification of the Baryons"
C.S. Kalman
Particles and Nuclei **5** 183 (1973)

5. "A Mass Formula for Resonances with Identical Strangeness, Parity, Ordinary and Isotopic Spin"
C.S. Kalman and J. Patera
Lett. Nuovo Cimento **5**, 78 (1972)

4. "Total Scattering Cross Sections in Two Body Strong Interactions Calculated by an Algebraic Approach Using the Group SU(1,3)"
C.S. Kalman
Can. J. Phys. **50**, 481 (1972)

3. "Total Scattering Cross Sections in Two Body Strong Interactions Calculated by an Algebraic Approach Using the Group SU(4)"
C.S. Kalman
Particles and Nuclei **2**, 185 (1971)

2. "Thermalization in Cylindrical Shell"
S.A. Kushneriuk, C.S. Kalman, A.M. Malecki
Nuclear Thermalization and Reactor Spectra **1**, 303 (1968)

l. "Effects in Pairing in the 20 Ne Nucleus"
C.S. Kalman, J.P. Bernier, M. Harvey
Can. J. Phys. **45**, 1297 (1967)

## II.2 Papers read at Conferences and other Universities related to Physics

55. “Why Quarks cannot be Fundamental Particles”
"6th International conference; Hyperons, Charm and Beauty Hadrons"
Chicago June 27-July 3, 2004.

54. “Why Quarks cannot be Fundamental Particles”
MRST 26. Concordia University
12-14 May 2004.

53. “The bound state corrections to the semileptonic decays of the heavy baryons”
"5th International conference; Hyperons, Charm and Beauty Hadrons"
Vancouver June 25-29 2002.

52."How does the inside of a Proton Explain the Creation of the Universe?"
Canadian Association of Physicists Lecture Tour
University of Western Ontario March 21,2001

51. "The Kalman--Tran-D'Souza Model and the Semileptonic Decay Rates of Heavy Baryons "
"4th International conference; Hyperons, Charm and Beauty Hadrons"
Valencia June 27-30 2000.

50. "Low Energy $Z_R^0$ Based on an SO(10) SUSY-GUT" Presented at
MRST-98: "Toward the Theory of Everything "
McGill University, Montréal, Québec, Canada May 13-15, 1998

49. "Baryon Spectroscopy in the Charm and Beauty Sectors using a Renormalization Group Improved Quark Phenomenological Model"
"3rd International conference; Hyperons, Charm and Beauty Hadrons"
Genoa June 30-July 31 1998.

48. "Review of Spectroscopy and strong decays of heavy baryons."
"2nd International conference; Hyperons, Charm and Beauty Hadrons"
Montreal Aug 26-30 1996.

47. "Who needs the T quark: Neutrons and Protons, the Atoms of the Strong Interaction",
invited talk: Physics Department McMaster University. Nov. 10, 1995

46."Decay of baryons, especially beauty baryons" presented at
"Production and Decay of Hyperons, Charm and Beauty Hadrons"
conference sponsored by CERN (Genève), CRN(Strasbourg),DESY(Hamburg)
Strasburg France, Sept. 5-8,1995

39,40,41,42,43,44,45. "Experimental Consequences of Supergravity"' Invited talk presented at 1) TRIUMF June 1994 2) Winnepeg Institute for Theoretical Physics June 1993 3)Brown University Feb 1993 4) Université de Montréal January 1993 5) Atomic Energy of Canada Ltd., July 1992; 6) University of Rochester, March 1992 7) Syracuse University, March 1992.

38."Experimental consequences of left-right supersymmetry"-Invited talk presented at MRST-94: "what Next? Exploring the Future of High -Energy Physics", McGill University, Montréal, Québec, Canada May 11-13, 1994

37 "Left-Right Supersymmetry"-Invited talk presented at SUSY 93 (International workshop on Supersymmetry and Unification of fundamental interactions), Northeastern university,Boston March 1993.

34,35,36. "Neutrons and Protons, the Atoms of the Strong Interaction", "Strong Decays of Baryons", "Experimental Consequences of Supersymmetry", Three invited talks presented at Jadavpur University, Calcutta, India, August 1990.

33. "The Anomalous Magnetic Moment of the Muon in a Supersymmetric Left-right Model", Proceedings of the twelfth Annual Montreal-Rochester-Syracuse-Toronto Meeting, McGill University May 14-15 1990, Edited by B. Margolis & P. Valin P.203.

32. "Neutrons and Protons, the Atoms of the Strong Interaction", invited talk: Altantic Universities Undergraduate Physics Conference, Mount Allison University, February 1990.

31,30 "Experimental Consequences of Supergravity", invited talk presented at (1) York University, November 1989, (2) McGill University, November 1989.

29. "Strong Decays of Baryons", American Physics Society, Spring Meeting, Baltimore, May 1989. (Bull APS 34, 1248(1989))

28. "Strong Decays of Baryons", invited talk, Indiana University, February 1989.

27. "Baryon Spectrum in a Potential Quark Model", Canadian Association of Physicists Annual Meeting, American Physics Society June meeting, Université de Montréal June 1988. (Bull APS 33, 1212(1988)).

26. "(g-2) and neutral current constraints in a superstring inspired model",Canadian Association of Physicists annual meeting, American Physics Society June meeting, Université de Montréal June 1988 (Bull APS 33, 1212 (1988)).

25. "A Supersymmetric Model as a Low Energy Limit of Superstring Theories", invited talk presented at Université de Montréal February 1987.

24. "The Colourful World of Quarks", invited talk presented at MIND High School, December 1985.

23. "The Experimental Implications of Subquark Structure at the SSC", invited talk presented at Université de Montréal November l985.

22. "The Colourful World of Quarks", invited talk presented at Marianapolis College, May 1984.

21. "Consistent Quark Model for Mesons, Baryons and other Hadrons" Invited talk presented at Université de Québec, à Trois Rivieres, April 1983.

20. "Subquark Physics" European Physical Society International Conference on High Energy Physics, Lisbon 1981.

19. "Computation of the Baryonium Spectrum", European Physical Society International Conference on High Energy Physics

18. "Origin of Quarkonium: Prediction of New Quark Masses", Institute of Particle Physics Symposium, McGill University April 1979.

17. "Two-Body Meson Baryon Cross Sections", American Physics Society, Washington, 1979.(Bull. A.P.S. 24, 673 (1979)

16. "Dynamical Groups and the Quarkonium Problem", Invited talk: Integrative Conference on Group Theory and Mathematical Physics, VIIth International Colloquium, Austin, Texas, Sept. 1978.

15. "Possible Existance of Low-Mass Long-Lived Exotics", American Physical Society, Chicago 1977 (Bull.A.P.S. 22,23 (1977))

14,13,12 "Beyond Charm What Next?" Invited Talk presented at:
(1) Simon Fraser University March 1978
(2) York University Nov. 1977

11. "Long-Lived Low-Mass Exotics", Invited Talk, High Energy Physics Seminar, Indiana University, Dec. 1976.

10. "Gelfand Patterns and Charmed Mesons", Invited Talk, Theoretical Physics Seminar, Indiana University, October 1976.

9. "Mass Formulas. Cross Sections and Non-Symmetry Groups", Invited talk, Theoretical Physics Seminar, Indiana University, Jan. 1975.

8. "Are There Four $\psi$ Particles?" Canadian Association of Physicists and Institute of Particle Physics, Carleton, April 1975.

7. "Extension of the SU(1,3) Classification Scheme to Quarks and Decuplets", Canadian Association of Physicists and Institute of Particle Physics, University of Toronto, April 1974.

6. "Dynamical Group Theory Applied to Atomic Systems"
Concordia University
Nov 18 1974

5. "New Classification of the Baryons", Canadian Association of Physicists and Institute of Particle Physics, McGill, March 1973.

4. "Beyond SU(3) - New Classification of the Baryons", American Physics Society, New York, January 1973 (Bull, A.P.S. 18, 29 (1973).

3. "Total Scattering Cross Sections in the Two Body Strong Interactions Calculated by an Algebraic Approach Using the Group SU(4)", Division of Particles and Fields American Physics Society, Rochester, N.Y., Aug. 1971.

2. "Dynamical Groups in Elementary Particle Physics", Invited Talk, Theoretical Physics Seminar, McGill University, Nov. 1969.

1. "On the Connection Between Symmetry Principles and Conservation Laws; the Unitary Unimodular Group in Three Dimensions", Invited Talk, Math-Physics Seminar, University of Rochester, Nov. 1967.

**III. Theses and Reports Supervised**

22. “Reflective writing for a better understanding of scientific concepts in high school”
J. El-Helou. 2016 (MSc Thesis)

21. “Engagement with student-centred learning: the student perspective.”
Baptiste Roucau. Undergraduate honours thesis, Educational Psychology (2016).

20. “Implementing Reflective Writing in Combination with Labatorials.”
Mandana Sobhanzadeh 2015 (PhD Thesis)

19. “Helping Students to get a better Understanding of Physics Concepts using the Learning Tool ‘Course Dossier Method’ “
W. N. Khanam 2014 (MSc Thesis)

18. “Changing The Way Students Learn In Physics Gateway Courses”
X. Huang 2012 (PhD Thesis)

17. "Baryon Spectroscopy in the Charm and Beauty Sector"
I. D'Souza 1998 (PhD Thesis)

16. "Symbolic Computation of Electron-Proton to Slepton Quark Scattering Cross Sections Based on a Left-Right Supersymmetric Extension of the Standard Model"
M. Adcock 1997 (M.Sc. Thesis)

15. "Production of Charginos and Neutralinos for the reaction
$e^+e^- \to Z' \to \tilde{\chi}_i^+ \tilde{\chi}_j^-, \tilde{\chi}_i^0 \tilde{\chi}_j^0$ in $SU(2)_L \rtimes SU(2)_R \rtimes U(1)_{B-L}$
S. W. Eby-Frederick 1993 (M.Sc. Thesis)

14. "Chargino-neutralino production in pp-collision for the left-right supersymmetric model"
H. Saif December 1992 (Ph.D. Thesis)

13. "Gauge Fields and Feynman Rules in a Fully Left-Right Supersymmetric Extension of the Standard Model"
R.M. Francis September 1989 (M.Sc. Thesis)

12. "Spectroscopy and Strong Decays of Baryons"
B. Tran March 1989 (Ph.D. Thesis)

11. "Meson and Dibaryon Masses in A QCD Based Consistent

Quark Model"
S. Barbari April l986 (Ph. D. Thesis)

10. "The lÌ Theory: Feynman Rules, Renormalizability, Regularization and Renormalization"
M. A. Husain April l986 (M.Sc. Thesis)

9. "A Review of Substructure Models of Quarks and Leptons
F. R. Patel April l986 (M.Sc. Report).

8. "Ground State Baryons in a Consistent Quark Model with Coulomb plus Linear Potential"
B. Tran April 1985 (M.Sc. Thesis)

7. "Spectra of the j and U Systems in a Consistent Quark Model with Fine and Hyperfine Corrections".
N. Mukerji September 1984 (Ph.D. Thesis)

6. "Unequal Mass Quarkonium Spectra in a Consistent Quark Model with Fine and Hyperfine Interaction".
I. D'Souza April 1984 (M.Sc. Thesis)

5. "Charmed Baryons in a Consistent Quark Model with Hyperfine Interactions".
D. Pfeffer April 1983 (M.Sc. Thesis)

4. "Application of a Variational Technique for Two-Quark Systems in Diverse Central Potentials".
W. Coulter April 1982 (M.Sc. Report)

3. "Calculation of Exclusive Cross Sections of Two Body Strong Interaction Using The Dynamical Group SU(1,4)".
E. Athanassakos June 1980 (M.Sc. Thesis)

2. "Calculation of Baryon Masses Using the Dynamical Group SU(n+1)".
M. O'Neill April 1980 (M.Sc. Thesis)

1. "SU (3, 1) As a Dynamical Group for Meson-Baryon Strong Interactions".
S.A.S. Barbari March 1979 (M.Sc. Thesis)

## IV Community Activities

### a Talks Given

1. "From Israel to Egypt: A spritual Journey"
Power Breakfast. Shaar Hashomayim Synagogue February 2008.
see Bulletin volume 80#5 p.11, 2008.
A more comprehensive written piece is found in Congregation Agudas Israel Bulletin November/December 2007, P. 7 & 15.

2. Chair of a panel discussion on "The Interactions of Religion and culture in Modern Times" at the Joseph & Ida Berman Auditorium, Jewish Public Library Nov 13,1995

3. "Would a Perfect G-d Create a Perfect Universe
Manoir Montefiore, July 6,1994

### b Educational

1. Chair Hampstead School Committee

2. Chair Mind School Committee

3. Chair, Wagar School Committee

4. Vice Chair, FACE School Committee

5. Chair Region IV Parents Committee PSBGM

6. Member Central Parents Committee PSBGM

7. Commissioner Elementary Schools PSBGM

8. Commissioner High Schools PSBGM
PSBGM: Protestant School Board of Greater Montreal
9. Council of Canadian of Association of Physicists (2002-2004)

## V. Committees

### A NON DEPARTMENTAL

1. Chair Loyola Faculty of Arts and Science Curriculum Coordinating Committee

2. Chair Loyola Science Curriculum Committee

3. Treasurer Loyola Faculty Association

4. Faculty Council, Concordia Faculty of Arts and Science

5. Steering Committee, Faculty Council, Concordia Faculty of Arts and Science

6. Senate and Loyola Faculty of Arts and Science Honours Committee

7. CUFA Grievance Committee

8. Loyola Faculty of Arts and Science Dean's Task Force on Future of Science at Concordia

9. Loyola Senate Committee on Computer Science and its Special Subcommittee

10. Loyola Science Committee on Future of Loyola

11. Dean's Advisory Committee, Concordia Faculty of Arts and Science

12. Concordia Faculty of Arts and Science Committee on General Education

13. University Teaching Team

14. Visiting Lecturer's Committee, Concordia University

15. Search Committee Chair, Geology, Chemistry, Mathematics, Philosophy Departments, Principal Science College.

16. "Responsable" FCAR (Quebec Province) Committee for Fellowships in Physics

17. on the Review Board of RESEARCH AND REFLECTION: A Journal of Educational Praxis

18. Chair of The Concordia University Teaching Forum, an informal discussion group on teaching mandated by the vice-rector academic:

19. Chair Library Review Committee

20. Chair, A&S Committee on Teaching and Learning in the 21st Century

**B DEPARTMENTAL**

1. Departmental Chair
2. Undergraduate Programme Director
3. Graduate Programme Director
4. Course Allocations
5. Contractual & Tenure
6. Medical Physics
7. Ph.D./M.Sc. Committee
8. Graduate Studies Committee
9. Curriculum Committee
10. Chair, Recruitment Committee

VI Grants

| Date of Application | Date of Acceptance | Title of Project | Granting Agency | Amount |
|---|---|---|---|---|
| Oct 2010 | Apr 2011 | The identification and evaluation of outcomes of inquiry-based teaching and learning, phase 2: Alignment and tools that support professional development | FQRSC | $438,680 PI Krista R. Muis* |
| Oct 2009 | Apr 2010 | Personal epistemologies as barriers and facilitators to learning by science and engineering undergraduate students | SSHRC | $139,654 PI Calvin Kalman |
| Oct 2007 | Apr 2008 | What university students know and do not know about inquiry-based teaching and learning: The alignment of teacher education and science education with a model of inquiry | SSHRC | $190,687 PI Bruce Shore* |
| Oct 2006 | Apr 2007 | L'identification et l'évaluation des résultats de la participation dans l'apprentissage et l'enseignement basés sur l'enquête: Lancer les passerelles entre la recherche et la pratique | FQRSC | $319 630 PI Mark Aulls* |
| Oct 2002 | Apr 2003 | The interaction of inquiry instruction and learning: Context and process. | SSHRC | $114,075 PI Bruce Shore* |
| | 2000 | Concordia University General Research Fund Competition | SSHRC | $1000 Calvin Kalman |

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| | 1999 | Concordia University General Research Fund Competition | SSHRC | $500 Calvin Kalman |
| Oct 1996 | Apr 1997 | Application of Grand Unified Left - Right... | NSERC | $23,700 Calvin Kalman |
| | 1996 | Hyperons, charm and beauty hadrons | Ministry of Research, Science, and Tech-nology | $10,000 Calvin Kalman |

* All grant holders participate equally in all grant decisions.

Muis,Krista U.
evaluation des retombées de l'enseignement et l'apprentissage par investigation raisonnée, phase 2 : l'alignement et les outils soutenant le developpement professionnel

Each year: $110858 Total $438,680