

Joel FELDMAN
Department of Mathematics
University of British Columbia

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| Education | B. Sc. | University of Toronto | 1970 |
| | A.M. | Harvard University | 1971 |
| | Ph.D. | Harvard University | 1974 |

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| Employment Record | Research fellow | Harvard University | 1974-75 |
| | Moore Instructor | Massachusetts Institute of Technology | 1975-77 |
| | Asst. Professor | University of British Columbia | 1977-1982 |
| | Assoc. Professor | University of British Columbia | 1982-1987 |
| | Full Professor | University of British Columbia | 1987-present |

Selected academic awards and distinctions

Woodrow Wilson Fellowship
UBC Killam Research Prize, 1989/90/91
Fellow of the Royal Society of Canada, 1990–
John L. Synge Award, Royal Society of Canada, 1996
Aisenstadt Chair Lectureship, CRM, 1999/2000
Jeffery–Williams Prize, Canadian Mathematical Society, 2004
Faculty of Science Achievement Award for Teaching, 2003/04
CRM–Fields–PIMS Prize, 2007
CAP–CRM Prize in Theoretical and Mathematical Physics, 2007
UBC Killam Teaching Prize, 2006/07
Fields Institute Fellow, 2007–

Selected professional service and experience

Organizer, Semester on Mathematical Quantum Field Theory, Sept. 1- Dec. 15 1987,
CRM Université de Montréal.
Member, Advisory Committee, 1988 IAMP Congress, Swansea, Wales.
Nachdiplom lecturer, ETH Zürich, 1991-92
Chairman, organizing committee, CMS Annual Seminar, “Mathematical Quantum Theory”, Vancouver,
August 4-14, 1993.
Member, International Advisory Committee, CRM-CAP Summer School, “Particles and Fields ’94”,
Banff, Canada.
Associate editor, Reviews in Mathematical Physics, 1989-
Associate editor, Canadian Journal of Mathematics, 1995-1999
Associate editor, Canadian Mathematical Bulletin, 1995-1999
Associate editor, Mathematical Physics EJ, 1994-
Editor, CRM Series in Mathematical Physics, 1996-
Associate editor, Comptes rendus Mathématiques de l’Académie des Sciences / Mathematical reports
of the Academy of Science
Editor, Annales Henri Poincaré, 1999-
Member, Grant Selection Committee in Mathematics, Natural Sciences and Engineering Research
Council, 1996-98
Member, Scientific Advisory Panel, Fields Institute, 1996-2000
Member, CRM–CAP Prize jury, 2001-2003
Chair, CRM–CAP Prize jury, 2002-2003
Member, Fields Institute Editorial Board, 2004-2006
Editor, Journal of Mathematical Physics, 2005-2010

Selected Invited Lectures

- International School of Mathematical Physics, Erice, Sicily, 1975.
Les Houches XLIII: Critical Phenomena , Random Sytems, Gauge Theories, Les Houches, France, 1984.
Principal speaker, Summer Meeting of the CMS, St. John's Nfld, 1986.
26th Internationale Universitätswochen für Kernphysik, Schladming, Austria, 1987.
IAMP Congress, Swansea, Wales, 1988.
International Congress of Mathematicians, Kyoto, Japan, 1990.
“Mathematische Aspekte der Quantentheorie großer Systeme”, Oberwohlfach, Germany,
June 19-25, 1994
Plenary speaker, 50th anniversary meeting of the CMS, Toronto, Ontario, June 4-8, 1995
Plenary speaker, XIIth International Congress on Mathematical Physics, Brisbane, Australia, July 1997.
Aisenstadt Chair Lectureship, CRM, 1999-2000.
Plenary speaker, Second Pacific Rim Conference on Mathematics, Taipei, Taiwan, January 2001.
Konrad–Fest Symposium, Zürich, June 2002.
Meeting “Renormalization Group”, Oberwohlfach, Germany, June 9-15, 2002.
Invited speaker, XIVth International Congress on Mathematical Physics, Lisbon, Portugal, July 2003.
Jeffery–Williams Prize Lecture, Halifax, June, 2004.
CRM–Fields–PIMS Prize Lectures, Toronto, April, 2007, Montreal, October 2007, Vancouver,
November, 2007.
Invited speaker, Analysis and Stochastics in Quantum Many-Body Systems, MPI, Leipzig,
May 17-19, 2007
CAP-CRM Prize Lecture, 2007 Canadian Association of Physicists Congress, Saskatoon, June 2007.
Invited session speaker, 2007 Canadian Association of Physicists Congress, Saskatoon, June 2007.
CAP-CRM Prize Lecture, Montreal, October 2007.
Andrejewski Lectureship, Universität Leipzig, June 2008.
Constructive and Multiscale Methods in Quantum Theory, Universitaet Heidelberg, July, 2009.
Invited minicourse speaker, Quantum Theory from Small to Large Scales, Ecole de Physique des
Houches, Les Houches, France, August 2-27, 2010.

Selected Publications

- J. Feldman, K. Osterwalder, The Wightman Axioms and the Mass Gap for Weakly Coupled $(\phi^4)_3$ Quantum Field Theories, *Ann. Physics* **97** (1976), 80-135.
J. Feldman, A. Cooper and L. Rosen, Legendre Transforms and r-Particle Irreducibility in Quantum Field Theory: The Formalism for $r=1,2$, *Ann. Phys. (N.Y.)* **137** (1981), 146-209.
J. Feldman, J. Magnen, V. Rivasseau and R. Sénéor, Bounds on Renormalized Feynman Graphs, *Commun. Math. Phys.* **100** (1985), 23-55.
J. Feldman, J. Magnen, V. Rivasseau and R. Sénéor, A Renormalizable Field Theory: The Massive Gross-Neveu Model in Two Dimensions, *Commun. Math. Phys.* **103** (1986), 67-103.
J. Feldman, J. Magnen, V. Rivasseau and R. Sénéor, Infrared Φ_4^4 , in *Critical Phenomena, random systems, gauge theories, Les Houches XLIII* eds. K. Osterwalder and R. Stora, North Holland (1986), 505-537.
J. Feldman, T. Hurd, L. Rosen and J. Wright, QED: A Proof of Renormalizability, *Springer Lecture Notes in Physics* **312** (1988), 176 pages.
J. Feldman, H. Knörrer and E. Trubowitz, The Perturbatively Stable Spectrum of a Periodic Schrödinger Operator, *Invent. math.* **100** (1990) 259-300.

- J. Feldman and E. Trubowitz, Perturbation Theory for Many Fermion Systems, *Helvetica Physica Acta* **63** (1990) 156-260.
- J. Feldman, H. Knörrer and E. Trubowitz, Perturbatively Unstable Eigenvalues of a Periodic Schrödinger Operator, *Commentarii Mathematici Helvetici*, **66** (1991) 557-579.
- J. Feldman and E. Trubowitz, The Flow of an Electron-Phonon System to the Superconducting State, *Helvetica Physica Acta*, **64** (1991) 214-357.
- J. Feldman, H. Knörrer, D. Lehmann and E. Trubowitz, Fermi Liquids in Two Space Dimensions, in *Constructive Physics. Results in Field Theory, Statistical Mechanics and Solid State Physics*, ed. V. Rivasseau, Springer Verlag (1995) 267-300.
- J. Feldman, H. Knörrer, M. Salmhofer and E. Trubowitz, The Temperature Zero Limit, *Journal of Statistical Physics*, **94** (1999), 113-157.
- J. Feldman, M. Salmhofer and E. Trubowitz, An inversion theorem in Fermi surface theory, *Communications on Pure and Applied Mathematics*, **LIII**, 1350–1389 (2000).
- J. Feldman, H. Knörrer and E. Trubowitz, Riemann Surfaces of Infinite Genus, *Riemann CRM Monograph Series of the American Mathematical Society*, **20** (2003) 296 pages.
- J. Feldman, H. Knörrer and E. Trubowitz, A Two Dimensional Fermi Liquid, Part 1: Overview. Part 2: Convergence. Part 3: The Fermi Surface, *Communications in Mathematical Physics* **247** (2004), 1-177.
- J. Feldman, H. Knörrer and E. Trubowitz, Particle–Hole Ladders, *Communications in Mathematical Physics* **247** (2004), 179-194 and <http://dx.doi.org/10.1007/s00220-004-1038-2>.
- J. Feldman, H. Knörrer and E. Trubowitz, Single Scale Analysis of Many Fermion Systems, Part 1: Insulators. Part 2: The First Scale. Part 3: Sectorized Norms. Part 4: Sector Counting, *Reviews in Mathematical Physics* **15** (2003), 949–1169.
- J. Feldman and M. Salmhofer, Singular Fermi Surfaces I. General Power Counting and Higher Dimensional Cases, II. The Two-Dimensional Case, *Reviews in Mathematical Physics* **20** (2008), 233–274 and 275–334.
- T. Balaban, J. Feldman, H. Knörrer and E. Trubowitz, A Functional Integral Representation for Many Boson Systems I: The Partition Function, II: Correlation Functions, *Annales Institut Poincaré* **9** (2008), 1229–1273 and 1275–1307.
- T. Balaban, J. Feldman, H. Knörrer and E. Trubowitz, Power Series Representations for Bosonic Effective Actions, *Journal of Statistical Physics* **134** (2009), 839–857.
- T. Balaban, J. Feldman, H. Knörrer and E. Trubowitz, Power Series Representations for Complex Bosonic Effective Actions I: A Small Field Renormalization Group Step, II: A Small Field Renormalization Group Flow, *Journal of Mathematical Physics* **51** (2010), 053305 and **51** (2010), 053306.
- T. Balaban, J. Feldman, H. Knörrer and E. Trubowitz, The Temporal Ultraviolet Limit for Complex Bosonic Many-body Models, *Annales Institut Poincaré* **11** (2010), 151–350.
- T. Balaban, J. Feldman, H. Knörrer and E. Trubowitz, The Temporal Ultraviolet Limit, to appear in *Quantum Theory from Small to Large Scales*, Ecole de Physique des Houches, 2010.

Most of my publications since 1992 are available at <http://www.math.ubc.ca/~feldman/>