

UNIVERSITY OF VICTORIA - CURRICULUM VITAE

Last Update: 24 January, 2012

Name: Reinhard Illner

Faculty: Science

Department: Mathematics and Statistics

1. EDUCATION and TRAINING

<u>Degree</u>	<u>Institution</u>	<u>Year obtained</u>
Diploma	University of Heidelberg	1973
Ph.D.	University of Bonn	1976
Professor (Habilitation)	University of Kaiserslautern	1982

Postdoctoral experience

2. POSITIONS HELD PRIOR to APPOINTMENT at UVic

1974-76	Assistant	University of Bonn
1976-79	Assistant (Post Doctoral)	University of Kaiserslautern
1979-82	Assistant Professor	University of Kaiserslautern
1982-1983	Visiting Assistant Professor	Duke University
1983-1985	Assistant Professor	University of Kaiserslautern

3. APPOINTMENTS at the UNIVERSITY of VICTORIA

<u>Period</u>	<u>Rank</u>	<u>Academic unit</u>
1985-87	Assistant Professor	Mathematics
1987-89	Associate Professor with tenure	Mathematics
1989-	Professor with tenure	Mathematics & Statistics

4. MAJOR FIELD(S) of SCHOLARLY or PROFESSIONAL INTEREST

Nonlinear Partial Differential Equations in Fluid Dynamics and the Kinetic Theory of Gases (Boltzmann Equation, Vlasov Equation). Kinetic Models and Applications. Traffic Flow Dynamics.

5. RESEARCH GRANTS and FELLOWSHIPS

a. Research operating grants (since 1994)

<u>Agency</u>	<u>Title</u>	<u>Grant holders (indicate PI)</u>	<u>Time period</u>	<u>Amount awarded per annum to me</u>
UVic	Internal Grant		1994	\$1,075

UVic	Internal Research Grant	1995	\$1,020
UVic	Internal Research Grant	1996	\$1,020
UVic	Internal Research Grant	1997	\$1,035
UVic	Internal Research Grant	1999	\$1,021
UVic	Internal Research Grant	2000	\$1,021
UVic	Internal Research Grant	2001	\$1,021
UVic	Internal Research Grant	2002	\$925
UVic	Internal Research Grant	2003	\$1,068
NSERC	Operating Grant	1995	\$27,900
	Mathematical investigations in interacting particle systems	1996	\$27,900
		1997	\$27,900
		1998	\$30,690
		1999	\$32,225
NSERC	Operating Grant	2000-2004	\$35,000/yr.
	Mathematical Investigations in Kinetic Theory		
NSERC	Operating Grant	2004-2009	\$33,000/yr.
	Mathematical Theory and Applications Of Kinetic Models		
PIMS	Conference Grant for "Topics in Kinetic Theory", Summer School and workshop (29.6.09-3.7.09), part of a CRG on Partial Differential Equations	2009	\$ 25,000
NSERC	Discovery Grant	2010-2014	\$ 24,000/yr.
	Mathematical Theory and Application of Kinetic And Related Models		

b. Equipment grants (since 1994)

Agency	Equipment	Grant holders	Year	Amount awarded
NSERC	Infrastructure Grant	Davidson, Hewgill Lesperance, Illner, etc.	1994 1995	\$12,000 \$12,000
NSERC	Equipment Grant	Illner, Bose, Diacu, Lesperance, etc.	1996	\$45,000
NSERC	Equipment Grant Mathematics Computing Facility	van den Driessche, Diacu, Edwards, Illner	1998	\$40,000
PIMS	UVic-site PIMS Computer Facility	Diacu, Edwards, Illner MacGillivray	1999	\$48,986

c. Honours, fellowships, and scholarships

Fellow of the "Studienstiftung des deutschen Volkes" 1970-74 (award of a fellowship that enabled me to spend one year doing graduate work at Berkeley).

Winner of the "Hausdorff-Gedächtnis-Preis" of the University of Bonn 1976.

6. PUBLICATIONS and PRESENTATIONS

a. Articles published in refereed journals

Illner, R., 1975, A Class of L^p -bounded Pseudo Differential Operators, Proc. AMS, 51(2), 347-355.

Illner, R., 1977, On Algebras of Pseudo Differential Operators in $L^p(\mathbb{R}^n)$, Comm. Partial Diff. Eq., 2 (4), 349-393.

Illner, R., 1978, On the Derivation of the Time-Dependent Equations of Motion for an Ideal Gas with Discrete Velocity Distribution, Journal de Mécanique, 17 (4), 781-796.

Illner, R., 1979, Global Existence for Two-Velocity Models of the Boltzmann Equation, Math. Meth. Appl. Sci. 1, 187-193.

Illner, R., Kuščer, I., 1979, Collision Operators as Generators of Markov Processes and their Spectra, J. Statist. Phys., 20, 303-316.

Illner, R., Kuščer, I., 1980, Eigenvalues of Fokker-Planck Operators, J. Phys. A: Math. Gen., 13, 2599-2608.

Illner, R., Neunzert, H., 1979, An Existence Theorem for the Unmodified Vlasov Equation, Math. Meth. Appl. Sci., 1, 530-554.

Illner, R., Wick, J., 1981, Statistical Solutions of Differential Equations with Non-Uniquely Solvable Cauchy Problems, J. Diff. Eq. 41 (3), 289-300.

Illner, R., Reed, M.C., 1981, The Decay of Solutions of the Carleman Model, Math. Meth. Appl. Sci., 3, 121-127.

Illner, R., 1982, Global Existence Results for Discrete Velocity Models of the Boltzmann Equation in Several Dimensions, Journal de Mécanique Th. et Appl. 1 (4), 611-622.

Illner, R., 1984, The Broadwell Model for Initial Values in $L^1_+(\mathbb{R})$, Comm. Math. Phys. 93, 341-353.

Illner, R., 1984, Mild Solutions of Hyperbolic Systems with L^1_+ and L^1_- Initial Data, Transport Th. and Stat. Phys. 13 (3,4), 431-453.

Illner, R., Reed, M.C., 1984, Decay to Equilibrium for the Carleman Model in a Box, SIAM J. on Appl. Math. 44 (6), 1067-1075.

Illner, R., Shinbrot, M., 1984, The Boltzmann Equation: Global Existence for a Rare Gas in an Infinite Vacuum, Comm. Math. Phys. 95, 217-226.

Illner, R., Pulvirenti, M., 1986, Global Validity of the Boltzmann Equation for a Two-Dimensional Rare Gas in Vacuum, Comm. Math. Phys. 105, 189-203.

Illner, R., 1986, Examples of Non-Bounded Solutions in Discrete Kinetic Theory, Journal de Mécanique Th. et Appl. 5 (4), 561-571.

Illner, R., Pulvirenti, M., 1987, A Derivation of the BBGKY-Hierarchy for Hard Sphere Particle Systems, Transport Th. Stat. Phys. 16(7), 97-102.

Illner, R., Neunzert, H., 1987, On Simulation Methods for the Boltzmann Equation, Proceedings of the 2nd MAFPD, Paris, June 1985, Transport Th. Stat. Phys. 16(2 & 3), 141-154.

Illner, R., Shinbrot, M., 1987, Blow-up of Solutions of the Gain-Term Only Boltzmann Equation, Math. Meth. Appl. Sci., 9, 251-259.

- Illner, R., Neunzert, H., 1987, The Concept of Irreversibility in the Kinetic Theory of Gases, *Transport Th. Stat. Phys.* 16(1), 89-112.
- Illner, R., Cercignani, C., Shinbrot, M., 1987, A Boundary Value Problem for Discrete Velocity Models, *Duke Math. J.*, 55(4), 889-900.
- Illner, R., Cercignani, C., Shinbrot, M., 1988, A Boundary Value Problem for the Two-Dimensional Broadwell Model, *Comm. Math. Phys.* 114, 687-698.
- Illner, R., Platkowski, T., 1988, Discrete Velocity Models of the Boltzmann Equation: A Survey on the Mathematical Aspects of the Theory, *SIAM Review* 30(2), 213-255.
- Illner, R., Cercignani, C., Pulvirenti, M., Shinbrot, M., 1988, On Nonlinear Stationary Half-Space Problems in Discrete Kinetic Theory, *J. Stat. Phys.* 52(314), 885-896.
- Illner, R., Babovsky, H., 1989, A Convergence Proof for Nanbu's Simulation Method for the Full Boltzmann Equation, *SIAM J. Num. An.* 26(1), 45-65.
- Illner, R., 1989, Marvin Shinbrot: 1928-1987, A Scientific Biography, *Transport Th. Stat. Phys.* 18(1), 1-12.
- Illner, R., 1989, On the Number of Collisions in a Hard Sphere Particle System in all Space, *Transport Th. Stat. Phys.* 18(1), 71-86.
- Illner, R., Pulvirenti, M., 1989, Global Validity of the Boltzmann Equation for Two- and Three-dimensional Rare Gases in Vacuum: Erratum and Improved Result, *Commun. Math. Phys.* 121, 143-146.
- Illner, R., 1990, Finiteness of the Number of Collisions in a Hard Sphere Particle System in All Space, II: Arbitrary Diameters and Masses, *Transport Th. Stat. Phys.* 19(6), 573-579.
- Illner, R., Wick, J., 1991, On Statistical and Measure-Valued Solutions of Differential Equations, *J. Math. An. Appl.* 157(2), 351-365.
- Illner, R., Arkeryd, L., Cercignani, C., 1991, Measure Solutions of the Steady Boltzmann Equation in a Slab, *Commun. Math. Phys.* 142, 285-196.
- Illner, R., Evans, N., Kwan, H., 1992, On Information Processing Abilities of Chaotic Dynamical Systems, *J. Stat. Phys.* 66(1/2), 549-561.
- Illner, R., Bohun, C.S., Zweifel, P., 1991, Some Remarks on the Wigner Transform and the Wigner-Poisson System, *Le Matematiche* 46(1), 429-438.
- Illner, R., 1992, The Wigner-Poisson and Schrödinger-Poisson Systems, *Transport Th. Stat. Phys.* 21(4-6), 753-767.
- Illner, R., Neunzert, H., 1993, Relative Entropy Maximization and Directed Diffusion Equations, *Math. Meth. Appl. Sci.*, 16, 545-554.
- Illner, R., Tie, J., 1993, On Directed Diffusion with Measurable Background, *Math. Meth. Appl. Sci.*, 16, 681-690.
- Illner, R., Wagner, W., 1993, A Random Discrete Velocity Model and Approximation of the Boltzmann Equation, *J. Stat. Phys.*, 70(3/4), 773-792.

- Illner, R., Wagner, W., 1994, Random Discrete Velocity Models and Approximation of the Boltzmann Equation. Conservation of Momentum and Energy, *Transport Theory Stat. Phys.*, 23(1-3), 27-38.
- Illner, R., 1994, Formal Justice and Functional Equations. *Mathematics Magazine* 67(4), 214-219.
- Illner, R., Lange, H., Zweifel, P., 1994, Global Existence, Uniqueness and Asymptotic Behavior of Solutions of the Wigner-Poisson and Schrödinger-Poisson Systems. *Math. Meth. Appl. Sci.* 17, 349-376.
- Illner, R., Rjasanow, S., 1994, Numerical Solution of the Boltzmann Equation by Random Discrete Velocity Models. *Eur. J. Mech.* 13(2), 197-210.
- Illner, R., 1994, On Approximation Methods for the Boltzmann Equation, in: *Rarefied Gas Dynamics. Space Science and Engineering*, vol. 159, 551-564.
- Illner, R., Bose, C., Grzegorzczak, P., 1994, Asymptotic Behavior of One-Dimensional Discrete Velocity Models in a Slab, *Arch. Rat. Mech. Anal.* 127, 337-360.
- Illner, R., Arkeryd, L., 1995, The Broadwell Model in a Box: Strong L^1 -Convergence to Equilibrium, *SIAM J. Appl. Math.* 55(3), 641-650.
- Illner, R., Bohun, S., Lange, H., Zweifel, P., 1995, Error Estimates for Galerkin Approximations to the Periodic Schrödinger-Poisson System, *ZAMM* 76(1), 5-11.
- Illner, R., Cercignani, C., 1996, Global Weak Solutions of the Boltzmann Equation in a Slab with Diffusive Boundary Conditions, *Arch. Rat. Mech. Anal.* 134, 1-16.
- Illner, R., Struckmeier, J., 1996, Boundary Value Problems for the Steady Boltzmann Equation, *J. Stat. Phys.* 84(3/4), 427-454.
- Illner, R., Rein, G., 1996, Time Decay of the Solutions of the Vlasov-Poisson System in the Plasma Physical Case, *Math. Meth. Appl. Sci.* 19, 1409-1413.
- Illner, R., 1997, Existence, Uniqueness and Asymptotic Behavior of Wigner-Poisson and Vlasov-Poisson Systems: A Survey, *Transport Th. Stat. Phys.* 26,(1/2), 195-207.
- Illner, R., Bobylev, A.V., Dukes, P., Victory, H.D., 1997, On Vlasov-Manev Equations. I: Foundations, Properties, and Nonglobal Existence, *J. Stat. Phys.* 88(3/4), 885-912.
- Illner, R., Lange, H., Toomire, B., Zweifel, P., 1997, On Quasi-Linear Schroedinger-Poisson Systems, *Math. Meth. Appl. Sci.* 20(14), 1223-1238.
- Illner, R., Bobylev, A.V., Dukes, P., Victory, H.D., 1998, On Vlasov-Manev Equations, II: Local Existence and Uniqueness, *J. Stat. Phys.* 91(314), 625-654.
- Illner, R., Bose, C., Ukai, S., 1998, On Shock Wave Solutions for Discrete Velocity Models of the Boltzmann Equation, *Transport Th. Stat. Phys.* 27(1), 35-66.
- Illner, R., Kavian, O., Lange, H., 1998, Stationary Solutions of Quasi-Linear Schrödinger-Poisson Systems, *J. Diff. Eq.* 145(1), 1-16.
- Illner, R., Gasser, I., Markowich, P., Schmeiser, C., 1998, Semiclassical, $t \rightarrow \infty$ Asymptotics and Dispersive Effects for Hartree-Fock Systems, *Math. Mod. Num. An.* 32(6), 699-713.
- Illner, R., Gough, T.E., Rowat, T.E., 1998, Modeling the Solid State Reaction $\text{CO}_2 \bullet \text{C}_2\text{H}_2 \rightarrow \text{CO}_2 + \text{C}_2\text{H}_2$, *Chem. Phys. Lett.* 298, 196-200.

- Illner, R., Rjasanow, S., 1999, A Difference Scheme for the Vlasov-Manev System, Doc. Math. J. DMV 4, 179-201.
- Illner, R., Gough, T.E., 1999, Modeling Crystallization Dynamics When the Avrami Model Fails, VLSI Design 9(4), 377-383.
- Illner, R., Klar, A., Lange, H., Unterreiter, A., Wegener, R., 1999, A Kinetic Model for Vehicular Traffic: Existence of Stationary Solutions, J. Math. Anal. Appl. 237, 622-643.
- Illner, R., Bobylev, A.V., 1999, Collision Integrals for Attractive Potentials, J. Stat. Phys. 95(3/4), 633-650.
- Illner, R., Hadeler, K.-P., van den Driessche, Pauline, 2000. A Disease Transport Model, in: Evolution Equations and their Applications in Physical and Life Sciences, ed. G. Lumer and L. Weis, Lecture Notes in Pure and Appl. Math. Ser. 215, Marcel Dekker.
- Illner, R., 2000. Stellar Dynamics and Plasma Physics with Corrected Potentials: Vlasov, Manev, Boltzmann, Smoluchowski, in Fields Institute Communications 27, 2000: Hydrodynamic Limits and Related Topics, AMS Publications, 95-108.
- Illner, R., Cercignani, C., (2001). Discrete Velocity Models with General Boundary Conditions in a Slab, Math. Meth. Appl. Sci. 24: 137-141.
- Illner, R., Cercignani, C. Stoica, C., (2001). On Diffusive Equilibria in Generalized Kinetic Theory, Journal Stat. Phys. 105 No. 1/2, 337-352.
- Illner, R., Dolbeault, J., Lange, H., (2002). On Asymmetric Quasiperiodic Solutions of Hartree-Fock Systems, J. Diff. Eq., 178: 314-324.
- Illner, R., Klar, A., Stoica, C., Wegener, R., (2002). Kinetic Equilibria in Traffic Flow Models, Transport Th. Stat. Phys. 31(7), 615-634.
- Illner, R., Bohun, C.S., Carruthers, S.J., Edwards, R., (2003). Generic Emergence of Cognitive Behaviour in Self-Generating Neural Networks, in Nonlinear Dynamics and Systems Theory 3(1), 43-63.
- Illner, R., Klar, A., Materne, Th. (2003). Vlasov-Fokker-Planck Models for Multilane Traffic Flow, Comm. Math. Sci. 1(1), 1-12.
- Illner, R., Dolbeault, J., (2003). Entropy Methods for Kinetic Models of Traffic Flow, Comm. Math. Sci. 1(3), 409-421.
- Illner, R., Chen, X., (2004). Finite Range Repulsive Systems of Finitely Many Particles, Arch. Rat. Mech. Anal. 173(1), 1-24.
- Illner, R., Andreasson, H., Calogero, S., (2004). On Blowup for Gain-Term-Only Classical and Relativistic Boltzmann Equations, Math. Meth. Appl. Sci. 27(18), 2231-2240.
- Illner, R., Herty, M., Klar, A., Panferov, V. (2006). Qualitative Properties of Solutions of Systems of Fokker-Planck Equations in Multilane Traffic Flow, Transport Th. Stat. Phys. 35(1&2), 31-54.
- Illner, R., Lange, H., Teismann, H., (2006). Limitations on the Control of Schrödinger Equations, ESAIM:COCV 12, 615-635.
- Illner, R., Junk, M., (2007). A new derivation of Jeffery's equation, J. Math. Fluid Mech., 9(4), 455-488.

Illner, R., Paetkau, V., Edwards, R., (2006). A model for generating circadian rhythm by coupling ultradian oscillators, *Theoretical Biology and Medical Modelling* 2006, 3:12, <http://www.tbiomed.com/content/3/1/12>.

Illner, R., Gibson, R., Edwards, R., Paetkau, V., (2007). Coupled Stochastic Ordinary Differential Equations and Circadian Rhythms, *Theoretical Biology and Medical Modelling*, 2007, 4:1, <http://www.tbiomed.com/content/4/1/1>.

Illner, R., Dolbeault, J., Bartier, Ph. and M. Kowalczyk (2007). A Qualitative Study of Linear Drift-Diffusion Equations with Time-Dependent or Degenerate Coefficients, *Mathematical Models and Methods in Applied Sciences* 17(3), 327-362.

Illner, R., (2007). Modeling with Dynamical Systems and Kinetic Equations, *Riv. di Mat. Università de Parma*, (7) 6, 199-243.

Illner, R., Herty, M., (2008). On Stop-and-Go Waves in Dense Traffic, *Kinetic and Related Models* 1(3), 437-452

Illner, R., Kirchner, C., and Pinnau, R., (2009). A Derivation of the Aw-Rascle Traffic Models from Fokker-Planck Type Kinetic Models, *Quart. Appl. Meth.* 67(1), 39-45

Illner, R., Sospedra- Alfonso, R., (2010). Classical Solvability of the Relativistic Vlasov-Maxwell System with Bounded Spatial Density, *Math. Meth. Appl. Sci.* 33(6), 751-757 (published online June 2009).

Illner, R., Herty, M., (2010). Analytical and Numerical Investigations of Refined Macroscopic Traffic Flow Models, *Kinetic and Related Models* 2(3), 311-334

Illner, R., Agueh, M., Richardson, A., (2011). Analysis and Simulations of a Refined Flocking and Swarming Model of Cucker-Smale Type, *Kinetic and Related Models* 4(1), 1-16

Illner, R., Godlovitch, D., Monahan A., (2011). Smoluchowski Coagulation models of sea Ice Thickness Distribution Dynamics, *J Geophys. Res.* 116, C12005

Illner, R., Agueh, M., Sospedra-Alfonso, R. (2011). Global Classical Solutions of the Relativistic Vlasov-Darwin System with Small Cauchy Data: the Generalized Variables Approach, submitted to *Archive Rat. Mech. Anal.* (31 pages)

Illner, R., McGregor, G., (2012) On a Functional-Differential Equation arising from a Traffic Flow Model, submitted to *SIAM J. Appl. Math.*

Illner, R., De la Chevrotiere, M., (2012). On Random Dynamical Systems and Levels of their Description, submitted to *Indian J. Appl. Ind. Math.*

b. Refereed conference proceedings

Illner, R., Babovsky, H., (1991). The Essence of Particle Simulation of the Boltzmann Equation, in *Multidimensional Hyperbolic Problems and Computations*, J. Glimm and A. Majda (eds.), IMA series vol. 29, Springer-Verlag, 13-22.

Illner, R., (1991). Solutions of the Steady Boltzmann Equation in a Slab: Applied Problems, Pure Results, in: Proceedings of a Symposium on Discrete Kinetic Theory, Lattice Gas Dynamics and Foundations of Hydrodynamics, World Scientific Publ. Singapore (refereed)

Illner, R., Lange, H., Teismann, H., (2002). On Some Mathematical Aspects of the Ring Cavity Problem, in: Progress in Nonlinear Diff. Eq. And Their Appl., vol. 50, 179-195

Illner, R., Lange, H., Teismann, H. (2003). A Note on the Exact Internal Control of Nonlinear Schrödinger Equations, CRM Proceedings and Lecture Notes, 33, 127-137.

c. Books and chapters in books

Illner, R., Cercignani, C., Pulvirenti, M., (1994). The Mathematical Theory of Dilute Gases, Springer-Verlag New York, 347 pages.

Illner, R., Bohun, S., McCollum, S., van Roode, T., (2005). Mathematical Modeling: A Case Studies Approach, AMS Student Math. Lib., vol. 27 (appeared Jan. '05).

d. Other publications

Patents

Illner, R., Burton-Krahn, N., Steacy, R., (1998). ECG P-QRS-T Onset and peak detection method, United States Patent No. 5,758,654.

Short Notes

Illner, R., Bellomo, N. and Toscani, G., 1984, Sur le problème de Cauchy pour l'équation de Boltzmann semi-discrète, C.R. Acad. Sci. Paris, 299 (16), 835-838.

Conference Proceedings (not refereed)

Illner, R., 1983, Discrete Velocity Models and the Boltzmann Equation, proceedings of the 5th Symposium on Trends in Applications of Pure Mathematics to Mechanics, Palaiseau, Lecture Notes in Phys. 195, 188-193.

Illner, R., 1984, On the Global Existence Problem for the Spatially Inhomogeneous Boltzmann Equation, Proceedings of the German-Italian Symposium: Applications of Mathematics in Technology, Rome, Teubner-Verlag, 386-395.

Illner, R., 1988, Derivation and Validity of the Boltzmann Equation: Some Remarks on Reversibility Concepts, the H-Functional and Coarse-Graining, in: Material Instabilities in Continuum Mechanics and Related Mathematical Problems, J.M. Ball, [ed.], Clarendon Press, Oxford.

Illner, R., 1989, On Steady Boundary Value Problems in Discrete Kinetic theory, and an Application to Digital Image Processing, in: Proceedings of a workshop on Discrete Kinetic Theory, Lattices Gas Dynamics and Foundations of Hydrodynamics, World Scientific Publ., Singapore.

Illner, R., Babovsky, H., 1991, The Essence of Particle Simulation of the Boltzmann Equation, in Multidimensional Hyperbolic Problems and Computations, J. Glimm and A. Majda (eds.), IMA series vol. 29, Springer-Verlag, 13-22.

Illner, R., 1991, On Uniform Boundedness of Solutions to Discrete Velocity Models in Several Dimensions, in *Advances in Kinetic Theory and Continuum Mechanics*, R. Gatignol and Soubbarameyer (eds.), Springer-Verlag, 99-108.

Illner, R., 1991, Solutions of the Steady Boltzmann Equation in a Slab: Applied Problems, Pure Results, in: *Proceedings of a Symposium on Discrete Kinetic Theory, Lattice Gas Dynamics and Foundations of Hydrodynamics*, World Scientific Publ. Singapore (**refereed**).

Illner, R., Rjasanow, S., 1992, Random Discrete Velocity Models: Possible Bridges Between the Boltzmann Equation, Discrete Velocity Models and Particle Simulation, in: *Nonlinear Kinetic Theory and Mathematical Aspects of Hyperbolic Waves*, World Scientific Publ., 152-158.

Illner, R., 1997, On Vlasov-Poisson and Vlasov-Manev Equations, in: *Proceedings of Fields Institute workshop on Fluid Dynamics*, Vancouver, July 1996.

Illner, R., Klar, A., Materne, Th. (2003). On Vlasov-Fokker-Planck Type Kinetic Models for Multilane Traffic Flow, *Proceedings of the 23rd International Symposium on Rarefied Gas Dynamics*, Whistler, BC, July 2002.

Ph.D. Thesis

Illner, R., 1976. Über Banachalgebren beschränkter Pseudodifferentialoperatoren und Fredholmkriterien in $L^p(\mathbb{R}^n)$, *Bonner Math. Schriften* Nr. 86.

Habilitation Thesis

Illner, R., 1981, Zur Theorie diskreter Geschwindigkeitsmodelle der Boltzmann-Gleichung, *Kaiserslautern* 1981.

Other Publications

Illner, R., Neunzert, H., 1980. Bemerkungen zur Boltzmann-Gleichung, einem altgewordenen Stiefkind der Mathematik, *Festschrift zur 10 - Jahresfeier der Universität Kaiserslautern*.

Preprints

Illner, R., Neunzert, H., (1994). Domain Decomposition: Linking Kinetic with Aerodynamic Descriptions, University of Kaiserslautern, preprint.

Illner, R., Edwards, R., Leeming, G., (1996). A Class of Self-Generating Neural Networks, preprint Nr. DMS-710-IR, University of Victoria.

Illner, R., Rjasanow, S., (1998). Difference Scheme for the Vlasov-Manev System, preprint Nr. DMS-820-IR, University of Victoria.

Illner, R., Gibson, R., (2005). Stop-and-Go Waves in Traffic Flow Via Microscopic Simulation, preprint <http://www.math.uvic.ca/faculty/rillner/papers/gibson-traffic.pdf>

Illner, R., Koch, D., Ma, J. (2012). Edge Removal in Random Contact Networks and the Basic Reproduction Number. Under revision for *J. Math. Biol.*

Book Review

- Illner, R., 1997. The Cauchy Problem in Kinetic Theory, by Robert T. Glassey. SIAM Rev. 39(3), 532-533.
- Illner, R., 2000. Boundary Value Problems for Transport Equations, by Valeri Agoshkov. SIAM Rev. 42(1), 147-148.
- Illner, R., 2004. Mathematical Foundations of Classical Statistical Mechanics: Continuous Systems - 2nd Ed. by D. Ya. Petrina, V.I. Gerasimenko, and P.V. Malyshev. SIAM Rev. 46(1), 143-185.
- Illner, R., 2005. Introduction to Monte-Carlo Methods for Transport and Diffusion Equations, by B. Lapeyre, E. Pardoux and R. Sentis. SIAM Rev. 47(3), 610-612.
- Illner, R., 2009. From Hyperbolic Systems to Kinetic Theory—a Personalized Quest, by L. Tartar. SIAM Rev. 51(2), 435-452.
- Illner, R., 2011. An Introduction to the Boltzmann Equation and Transport Processes in Gases, by G. M. Kremer. SIAM Rev. 53(4), 811-813.

e. Presentations at conferences or institutions

INVITED LECTURES, COLLOQUIA, PARTICIPATION IN MEETINGS ETC.

- 1972: On dual spaces of C^* -algebras, address delivered to a meeting on operator algebras, Oberwolfach.
- 1975: DMV - meeting, Tuebingen
meeting on partial differential equations, Oberwolfach.
- 1976: Meeting on transport theory, Oberwolfach.
- 1977: On algebras of pseudo differential operators in L^p , address delivered to a meeting on partial differential equations, Oberwolfach, March '77.

On the derivation of the time-dependent equations of motion of a rarefied gas with discrete velocity distribution, address delivered to the 1st workshop on transport theory, Graz, September '77.

Colloquia talks on the same topic, delivered to the Universities of Bonn and Paderborn, Fall '77.
- 1978: On spectra of Fokker-Planck operators, invited address at the meeting on transport theory and statistical mechanics, Florence, June '78.

Rarefied gases with discrete velocity distribution, colloquium talk delivered to the University of Warsaw, August '78.

- 1979: A global existence theory for the Vlasov equation, address delivered to a meeting on "Mathematical problems in the kinetic theory of gases", Oberwolfach, May '79.
- Global existence for the Vlasov equation, contribution to the Symposium on Fluid Dynamics, Poznan, Poland, September '79.
- Weak solutions are better than none, address to a meeting on "Mathematical methods in fluid and plasma dynamics", Oberwolfach, November '79.
- 1980: Global solvability of the Carleman model, contribution to the GAMM-meeting, Wiesbaden, April '80.
- Statistical solutions of non-uniquely solvable Cauchy problems, invited address to the 2nd workshop on transport theory, Vienna, June '80.
- Asymptotic behavior of solutions of the Carleman model, invited address to the Mathematics colloquium, Munich, Fall '80.
- 1981: Two-months visit as associate professor to the University Paris VI.
- A global existence theorem for discrete velocity models of the Boltzmann equation, invited address to the Mathematics colloquium, University Paris 6, March '81.
- Global existence results in discrete kinetic theory, invited address to the Applied Mathematics Seminar, Heidelberg, June '81.
- 1982: Global existence results in discrete kinetic theory, contribution to the GAMM meeting, Wuerzburg, April '82.
- Global existence results in discrete kinetic theory, contribution to the Southeastern Conference on Differential Equations, Raleigh, October '82.
- Global existence results for discrete velocity models of the Boltzmann equation, address delivered to the Seminar on Differential Equations, Duke University, October '82, the Mathematics Colloquium at North Carolina State University, November '82, and the Virginia Polytechnic Institute and State University, November '82.
- 1983: Meeting on Combustion Theory, Duke University, May '83.
- Meeting on Statistical Mechanics, Rutgers University, May '83.
- Summer Meeting on Partial Differential Equations, Berkeley, July '83.
- Existence of solutions and validity for the modified Vlasov equation, address delivered to the Seminar on Differential Equations, Duke University, March '83, and to the Mathematics Colloquium, Berkeley, June '83.
- A global existence theorem in discrete kinetic theory, address delivered to the Mathematical Colloquium at the Georgia Institute of Technology, Atlanta, February '83, to the Mathematics Colloquium at the Courant Institute, New York, May '83, and to the Colloquium of the Mathematics Division at the Argonne National Laboratories, May '83.

A global existence theorem for the full Boltzmann equation, invited address to the Symposium on the applications of pure mathematics to mechanics, Palaiseau, December '83.

A global existence theorem for the full Boltzmann equation, invited address to the Mathematics Colloquium at the University of Paris 6, December '83.

1984: One-month visit to the University of Rome.
Meeting on the applications of mathematics in industry, Rome.
Global existence for the Boltzmann equation, invited address to the Mathematics Colloquium at the Politecnico di Torino (January '84), the University of Rome (March '84), the University of Saarbruecken (May '84) and contribution to the GAMM Meeting in Regensburg (April '84).

DMV-meeting in Kaiserslautern (member of the organization committee).

1985: Mathematical models and methods in the kinetic theory of gases, invited address to the GAMM meeting in Dubrovnik, Yugoslavia, April '85.

On simulation methods for the Boltzmann equation, invited address at the 2nd International Workshop on Mathematical Aspects of Fluid and Plasma Dynamics, Paris, June '85.

The concept of irreversibility in the kinetic theory of gases, address delivered to the Mathematics Colloquium at the University of Victoria, April '85.

Recent progress in nonequilibrium statistical mechanics, address delivered to a meeting on mathematical methods in the kinetic theory of gases, Oberwolfach, May '85.

Meeting on nonlinear partial differential equations, Madison, November '85.

1986: One-month visit to Heriot-Watt University, Edinburgh

The concept of irreversibility, and blow-up of solutions of the gain-term only Boltzmann equation, two addresses delivered to the seminar on differential equations, Heriot-Watt University, June '86.

Blow up of solutions to the gain-term only Boltzmann equation, contribution to the International Congress of Mathematics, Berkeley, August '86.

Colloquia talks on the same topics at Kaiserslautern and Rome, May '86.

1987: Meeting on Conservation laws, MRC Berkeley, May '87.

Boundary value problems for steady discrete velocity models of the Boltzmann equation, invited address to the Mathematics Colloquium at the University of California at Santa Cruz, May '87.

A Boundary value problem for the two-dimensional steady Broadwell model, address delivered to the Mathematics Colloquium at the University of Kaiserslautern, June '87, and to a meeting on partial differential equations, Oberwolfach, June '87.

The concept of irreversibility in the kinetic theory of gases, invited address delivered to the Mathematics Colloquium at the University of British Columbia, Vancouver, October '87.

- 1988: The number of collisions in Sinai's billiard in R^3 , invited address to a meeting on mathematical methods in the kinetic theory of gases, Oberwolfach, May '88.
- Global validity of the Boltzmann equation for rare gas clouds in 2 and 3 dimensions - Numerical simulation of the Boltzmann equation - A boundary value problem for the steady 2-dimensional Broadwell model in a box.
- Three invited addresses to the workshop on kinetic theories and applications, L'Aquila, May '88.
- Recent results in the kinetic theory of gases, 12 invited lectures to the XIII Summer School on Mathematical Physics, Ravello, Italy, September '88.
- On steady boundary value problems in discrete kinetic theory, and an application to digital image processing, invited address to a meeting on Discrete Kinetic Theory, Lattice Gas Dynamics and Foundations of Hydrodynamics, Torino, Italy, September '88.
- 1989: The essence of particle simulation of the Boltzmann equation, invited address to the IMA workshop on Nonlinear Hyperbolic Waves, Minneapolis, April '89, and to a meeting on Transport Theory at VPI & SU, Blacksburg, May '89.
- Finiteness of the Number of Collisions in a hard sphere particle system in all space, colloquium talk to the Dept. of Mathematics, University of Victoria, January '89, the Dept. of Mathematics, Duke University, May '89, and to the Institute for Theoretical Dynamics, Davis, September '89.
- 1990: Searching for potentials for interaction in discrete kinetic theory, invited address to a meeting on hyperbolic partial differential equations, Bonn, Germany, March '90.
- Numerical simulation methods in kinetic theory and plasma dynamics, 2-week workshop in Venice, Italy, June 18-30, 1990 (sponsored by the Italian CNR and the University of Padova).
- 4 velocities and a million problems, contributed lecture to a symposium in honor of H. Cabannes, Université Paris 6, July 6, 1990.
- Solutions of the steady Boltzmann equation in a slab: Applied problems, pure results, invited address to the Euromech Colloquium 267, Figueira da Foz, Portugal, September 1990.
- 1990: Finiteness of the number of collisions in a hard sphere particle system in all space, colloquium talk, Department of Chemistry, UBC, Vancouver, November 1990.
- Also seminar talk, University of Washington, Seattle, April 1991.
- 1991: 4 invited talks at the Universities Paris VI and VII, May 1991:
 Neural Networks - What they are and what they do.
 Random Discrete Velocity Models.
 Finiteness of the Number of Collisions ...
 Measure solutions of the steady Boltzmann equation in a slab.
- 1991-92: Sabbatical leave. Stay at the University of Kaiserslautern, Germany, 1.8.'91 - 1.8.'92.
- Participation in conferences:

- IVth MAFFPD, Kyoto, October 1991
invited speaker: The Wigner-Poisson and Schrödinger-Poisson systems
- CMS Winter meeting, Victoria, December 1991 (member of the scientific committee)
- 2nd international meeting on hyperbolic equations and kinetic theory, Rapallo, April 1992
invited speaker: Random Discrete Velocity Models
- 18th international symposium on rarefied gas dynamics, Vancouver, July 1992
plenary address: On Approximation Methods for the Boltzmann Equation.

Short visits with colloquia talks to Göteborg, Nice, Tokyo and Milan.

Other colloquia and seminar talks in Cologne, Heidelberg, Munich and Kaiserslautern.

1993: Colloquium talks about "Validation of the Boltzmann Equation" at the Université du Québec à Montréal, Université de Sherbrooke and Carleton University, Ottawa, March 1993.

Colloquium talk to the Department of Mathematics, University of Madison, Wisconsin, April 1993.

Participation in a workshop on "Homogenization, H-measures and the theory of compensated compactness", Santa Cruz, July 1993.

Asymptotic Behavior of Discrete Velocity Models in a Slab with Stochastic Boundary Conditions, invited talk to a conference on "Nonlinear Equations in Many-Particle-Systems", Oberwolfach, December 1993.

1994: Minisymposium speaker (invited) at the annual SIAM meeting in San Diego, July 1994. Topic: "Domain Decomposition Problems in Kinetic Theory".

Invited speaker at the 2nd International Workshop on Nonlinear Kinetic Theories and Mathematical Aspects of Hyperbolic Systems, San Remo, 1994. Topic: "Shock Wave Solutions for Discrete Velocity Models of the Boltzmann Equation".

1995: Plenary speaker at the 14th International Conference on Transport Theory, Beijing, June 1995. Topic: "On Wigner-Poisson and Schrödinger-Poisson Systems".

Invited speaker at a workshop on "Wigner Measures, Homogenization Limits and Kinetic Equations, Vienna, November 1995. Topic: "Global Weak Solutions of the Boltzmann Equation in a Slab with Diffusive Boundary Conditions".

Invited talks at UBC and at the University of Kaiserslautern, Germany.

1996: Invited speaker at the 12th Canadian Symposium on Fluid Dynamics, Winnipeg, May 1996. Topic: "On Steady Boundary Value Problems for the Boltzmann Equation".

Invited speaker to a meeting on the Navier-Stokes equations and related topics, Vancouver, July 1996. Topic: "On Vlasov-Poisson and Vlasov-Manev Equations".

- Invited speaker to a festive colloquium in honor of H. Neunzert's 60th birthday, Kaiserslautern, September 1996. Topic: "Stories on Irreversibility".
- Invited talk to a conference on Nonlinear Equations in Many-Particle-Systems, Oberwolfach, December 1996. Topic "On a Stellar Dynamic Equation with a Manev Type Force Term".
- 1997: Colloquium talk, Department of Mathematics, University of Washington, Seattle, February 1997. Topic "On Vlasov-Poisson and Vlasov-Manev Equations".
- 2 invited talks to 2nd International workshop on Quantum Kinetic Theory, Breckenridge, Colorado, August 1997. Topics: "Modeling Crystallization Dynamics when the Avrami Model fails" and "A Stellar Dynamic Equation with a Manev Type Force Term".
- Colloquium talk, Department of Mathematics, Simon Fraser University, November 1997. Topic "Understanding the Boltzmann Equation: The Agony and the Ecstasy".
- 2 invited talks at the CMS Winter meeting, Victoria, December 1997. Topics: "Teaching Math without Pain" (Education Session) and "On Vlasov-Poisson and related Equations" (PDE Session).
- External reviewer for Habilitation Thesis (Thèse 3 ème cycle) "Modèles Classiques et Quantiques de Transport de Particules Chargées" by Dr. N. Ben Abdallah, Toulouse.
- 1998: Invited speaker at the 1st Symposium on Kinetic Theory at the Université Paul Sabatier, Toulouse, May 1998. Topic: "On Stellar Dynamic Equations with Manev Type Force Terms".
- Invited speaker at a Fields Institute workshop on Hydrodynamic Limits, October 1998. Topic: "Vlasov-Manev Equations and Collision Integrals for Attractive Potentials".
- Visitor at the Erwin-Schrödinger Institute, Vienna, October 1998. Colloquium Talk on: "Vlasov-Manev Equations and Collision Integrals for Attractive Potentials".
- 1999: Poster presentation at the 16th ICTT, Atlanta, GA, May 1999. Topic: "On Asymmetric Quasi-periodic Solutions of the Hartree-Fock System".
- Invited speaker at a workshop on Kinetic Theories, Technion, Haifa, June 1999. Topic: "Quasi-periodic Solutions of the Hartree-Fock System".
- Invited speaker to the session on Transport Equations, AMS Fall Sectional meeting, Austin, Texas, October 1999. Topic: "Hartree-Fock System".
- 2000: Invited contributor to a meeting on "Charged Particle Transport in Transition Regimes", IMA Minneapolis, May 2000.
- Two seminar talks in the Applied Mathematics Seminar, Mathematics and Statistics Dept., UVic, October 2000. Topic: "Kinetic Models in Traffic Dynamics".
- Invited talk in the PDE Session of the CMS Winter Meeting, Vancouver, December 9-12, 2000. Topic: "Existence and Use of Kinetic Equilibria in Traffic Dynamics, Diffusive Granular Flow and Rarefied Gases".

- 2001: Colloquium Talk, Department of Mathematics, UNBC, April 9, 2001. Topic: "Diffusive Equilibria in Granular Flow".
- Two invited lectures at SIAM Annual Meeting, San Diego, July 8-13, 2001.
 Topic 1: Driver Behaviour and Equilibria for Kinetic Models in Traffic Flow (Minisymposium on Traffic Flow; MS 48)
 Topic 2: Quantum Transport with the Fock Correction: Generalization of Wigner-Poisson Results to the Hartree-Fock system (Minisymposium on Charge Transport in Nanoscale Devices; MS 95)
- Invited Lecture at the International Conference on Theoretical and Numerical Fluid Mechanics II, Vancouver, August 20-24, 2001. Topic: "Diffusive Equilibria in Kinetic Granular Flow".
- Invited Talk at the European Symposium on Kinetic Theory and its Applications, University of Granada, September 17-21, 2001. Topic: "Diffusive Equilibria in Kinetic Granular Flow".
- Two seminar talks in the Applied Mathematics Seminar, Mathematics and Statistics Dept., UVic, October 2001. Topic: "Kinetic Granular Flow".
- Seminar Talk, IAM at UBC, November 5, 2001. Topic: "Diffusive Equilibria for the Inelastic Boltzmann Equation".
- Invited Seminar Talk on "Finiteness of the Number of Collisions in a Hard Sphere Particle System", Department of Mathematics, University of Pittsburgh, November 8, 2001.
- Joint Colloquium, Dept. of Mathematics at Carnegie-Mellon University and the University of Pittsburgh, November 9, 2001. Topic: "Kinetic Granular Flow".
- 2002 Seminar Talk, University Paris IX (Ceremade), June 2002. Topic: "Vlasov-Fokker-Planck Models for Multilane Traffic Flow".
- Seminar Talk, Ecole Normale Supérieure Paris, June 2002. Topic: "Vlasov-Fokker-Planck Models for Multilane Traffic Flow".
- Seminar Talk, Ecole Normale Supérieure, Lyon, June 2002. Topic: "Vlasov-Fokker-Planck Models for Multilane Traffic Flow".
- Plenary Speaker, 23rd International Symposium on Rarefied Gas Dynamics, Whistler, BC, July 2002. Topic: "Vlasov-Fokker-Planck Models for Multilane Traffic Flow".
- Two seminar talks on same topic, and on Entropy Methods for Kinetic Models in Traffic Flow, at the University of Texas at Austin, November 2002.
- Colloquium Talk, Texas Tech University, Lubbock, Texas, November 2002
- 2003 Seminar Talks on Traffic Flow Models, University of Saarbrücken (Germany), 25.3.03, and University of Heidelberg (Germany), 27.3.03.
- Invited Minisymposium Speaker at the Combined CAIMS/SIAM Summer meeting in Montreal, June 2003. Topic: "Fokker-Planck Models for Multilane Traffic Flow".
- Session organizer and invited speaker at the 18th ICTT, Rio de Janeiro, July 2003. Topic: "Fokker-Planck Models for Multilane Traffic Flow".

- Invited speaker at a meeting on "Classical and Quantum Mechanical Models of Many-Particle Systems", Oberwolfach, Germany, 23-29.11.2003. Topic: "Fokker-Planck Equations as Models for Multilane Traffic Flow: Degeneracy, Nonlocality, and Other Complications".
- Invited Seminar talk at Applied Math. Dept., University of Washington, Seattle, Dec. 9, 2003, and Colloquium talk at Western Washington University, Dec. 10, 2003. Topic: "Traffic Flow".
- 2004 Invited Lecture at a Fields Institute Workshop on PDEs and Kinetic Theory, March 2004. Topic: "3 Exotic Applications of Kinetic Theory".
- Invited Talk on "Multilane Traffic Flow" at the ICNDEE (International Conference on Nonlinear Dynamics and Evolution Equations), St. John's , Nfld., July 2004.
- Co-Organizer (and speaker) of a Focussed Research Group on "Multiscale Methods and Kinetic Equations", BIRS at Banff, August 21-September 3, 2004.
- Invited Lecture on "Multilane Traffic Flow" at the 6th MAFPD, Kyoto, September 2004.
- Minisymposium Speaker at a SIAM Conference on PDEs, Houston, TX, December. Topic: "Blowup for Gain-Term-Only Boltzmann Equations".
- 2005 Minisymposium speaker, CMS Summer Meeting, Waterloo, June 2005. Topic: Jefferey's Equation.
- Invited Colloquium Talk, June 24, 2005 at the occasion of H. Lange's retirement, University of Cologne. Topic: "Collisions, the Arrow of Time, and Real Encounters".
- Seminar Talk, University of Kaiserslautern, June 29, 2005. Topic: "Modelling Circadian Rhythms".
- CMS Winter Meeting, Victoria, December 2005. Session co-organizer and speaker. Topic: "Entropy Methods for Degenerate Drift-Diffusion Equations".
- 2006 Invited lecturer at the Porto Ercole (Tuscany) Summer School on "Methods and Models on Kinetic Theory" (M&MKT 2006). Topic: "Modeling with Dynamical Systems and Kinetic Equations". June 5-10, 2006 (6 lectures)
- 3 invited lectures at the Conference on Mathematical Problems for Kinetic Equations and Applications, Cartagena, Colombia, September 2006.
- Participant in the Oberwolfach meeting on "Many-Particle Systems and Kinetic Equations", Oberwolfach, Germany, December 2006.
- 2007 Invited speaker at the 3rd International Conference of Theoretical and Numerical Fluid Mechanics, Vancouver, August 13-17, 2007. Topic: "On Kinetic Fokker-Planck Multilane Traffic Models".
- Invited speaker at the PIMS Northwest PDE meeting, SFU, September 29, 2007. Topic: "Kinetic Fokker-Planck Multilane Traffic Models".

Minisymposium speaker at the SIAM meeting on PDEs, Phoenix, AZ, December 10-13, 2007. Topic: "From Kinetic Fokker-Planck to Conservation Law Traffic Models, and Beyond".

2008

January 21-23, 2008: Visit to the Fields Institute, Toronto.

January 22, 2008. Seminar Talk on "Transcriptional-Translational Oscillators and Circadian Rhythms", Applied Mathematics Seminar, McMaster University.

January 23, 2008. Participation in Symposium of Traffic Flow in the Greater Toronto Area, and Colloquium Talk on "Fokker-Planck Traffic Models" at the Fields Institute.

March 1-23, 2008. Visit to the Department of Aeronautical Engineering, Kyoto University. Two Seminar talks (on transcriptional-translational oscillations, and on kinetic and macroscopic traffic models) and a talk on traffic flow (on the occasion of a ceremonial conference celebrating the opening of a new engineering building on the new University Campus).

March 27, 2008. Seminar talk (on traffic flow) at the Universiti Brunei Darussalam.

April 19-24, 2008. Visit to the City and Chinese Universities of Hong Kong. Seminar Talk (City University) on transcriptional-translational oscillations, and conference talk (Chinese University) on traffic flow.

June 21-July 20, 2008. Visit to Germany and Austria. Seminar talk at the University of Hamburg (Traffic flow), then participant and invited speaker at a Symposium on traffic and pedestrian flow held at the Wolfgang Pauli Institute, University of Vienna. Visits to the universities at Aachen and Kaiserslautern for research collaboration.

December 4, 2008. Colloquium speaker at UVic. Topic: "Stuck in Traffic: The Mathematics of Traffic Flow on Freeways."

2009

March 31, 2009. Invited Seminar at Jiaotong University, Shanghai. Topic: "Traffic Flow on Freeways: Models, Analysis, Simulations."

April 1-3, 2009. Invited speaker and Banquet speaker at a conference on "Kinetic And Related Models", Wuhan, China. Same talk as in Shanghai.

April 15- May 3, 2009. Extended visit to IPAM, UCLA. Participation in a Conference (April 15-17) on "The Boltzmann Equation: 20 Years after The DiPerna-Lions Theorem." Talk on Discrete Velocity Models. Participation in a workshop (April 27-May 1) on "Flows in Networks and Complex Media". Talk on traffic flow.

July 6-9, 2009. Invited speaker in a session on Partial Differential Equations at the first PRIMA meeting, Sydney, Australia (talk on Traffic Flow).

November 12, 2009, PIMS UBC. Seminar Talk on "Traffic Flows and Traffic Jams: From Kinetic Models to Functional-Differential Equations."

- 2010 June 2010: Invited speaker at a workshop on Kinetic Theory at Stanford University (Tai-Ping Liu, organizer). Talk on revised flocking models.
- August 2010: Invited speaker at a workshop in Mopani Rest Camp, Kruger National Park, South Africa. Two lectures (on flocking models; on traffic flow models with non-localities).
- November 5, 2010. Seminar talk at SFU: "From kinetic models for traffic flow to functional-differential equations".
- 2011 Invited minisymposium speaker at the ICIAM, Vancouver, July 22, 2011. "On a Functional differential equation arising from a traffic flow model".
- Invited Speaker at a meeting on "Hyperbolic Systems and extended thermodynamics", Cortona, Italy, September 6-10, 2011 (same talk)
- Invited Speaker to a conference on Applications of Kinetic Models, ICERM, Brown University, Providence, R.I., October 17-22, 2011.

7. SERVICE and PROFESSIONAL ACTIVITIES

a. University and Faculty committees

Member of the Advisory Committee for the Bookstore (1987)
 Member of the Salary Committee of the Faculty Association (1988)
 Chair, Salary Committee of the Faculty Association (1989)
 Member of the Executive of the Faculty Association (1990)
 Member of the Project Planning Committee for a new Science Building (2001)
 Member of the Users' Committee for a new Science Building (2001)
 Member of the Search Committee for a Dean of Graduate Studies (2002)
 Member of the Salary Committee of the Faculty Association (2003/2004)

b. Departmental committees and responsibilities

Member of the ARPT Committee, Department of Mathematics (1989)
 Member of the ARPT Committee, Department of Mathematics (1990)
 Colloquium Chairman (1990)
 Member of the Curriculum Committee (1990)
 Member of the ARPT Committee, Department of Mathematics (1991)
 Colloquium Chairman (1991)
 Member of the Curriculum Modernization Committee, Department of Mathematics (1990/91)
 Colloquium Chairman (1992)
 Colloquium Chairman (1993)
 Graduate Advisor (1993)
 Member of the Chair Search Committee (1993/94)
 Graduate Advisor (1994)
 Graduate Advisor (1995-1996)
 Chair, Department of Mathematics and Statistics 01Jul97-30Jun00
 Member of the ARPT Committee, Dept. of Mathematics and Statistics (2003/2004)
 Acting Chair, Department of Mathematics and Statistics, May 15, 2006 – November 15, 2006
 Member of the ARPT Committee, Department of Mathematics and Statistics (2006/2007)

Member of the Chair Search Committee, Department of Mathematics and Statistics (2009).
Member of the ARPT Committee, Dept. of Mathematics and Statistics (2009/2010).
Member of the writing committee for the departmental review document (2010/2011).
Member of the departmental committee on multi-section grading standards (2011).

c. Membership and service on international, national and provincial professional bodies and societies

Member of SIAM (1992), CMS (1985) and CAIMS (1992)

d. Conference organisational committees

Member of the Organizing Committee of the DMV meeting, Kaiserslautern, 1984
Member of the Scientific Committee of the winter meeting of the CMS 1991/92 in Victoria.
(session chairman)

Member of the Scientific Committee of the IVth meeting on Mathematical Aspects of Fluid and Plasma Dynamics, Kyoto, October 1991. (invited speaker)

Member of the Organizing Committee for the 18th International Symposium on Rarefied Gas Dynamics, UBC, Vancouver, July 26-31, 1992. (invited plenary speaker)

Organizer of a Workshop on "Theory and Application of the Wigner Representation in Quantum Kinetic Theory", Victoria, August 1995.

Chair of the Organization Committee of the Vth International Symposium on Mathematical Aspects of Fluid and Plasma Dynamics, Maui (Hawaii), June 1998.

Session organiser for the 16th International meeting on Transport Theory, Atlanta, May 1999.

Co-organizer of a meeting on "Asymptotic and Numerical Methods for Kinetic Equations", Oberwolfach, Germany, April 16 - April 20, 2001.

Co-organizer of the CAIMS Annual Meeting, Victoria, June 7-9, 2001.

Session organiser for the 18th International Meeting on Transport Theory, Rio de Janeiro, July 2003.

Member of the organization committee of the 6th International Symposium on Mathematical Aspects of Fluid and Plasma Dynamics, Kyoto, September 2004.

Session organizer (joint with B. Khouider and A. Bourlioux) for the CMS winter meeting, December 2005, Victoria.

Organizer of a Symposium on Kinetic Theory on the occasion of PIMS 10th anniversary, University of Victoria, April 27-28, 2007.

Session organizer for a session on Kinetic Theory, 2nd France-Canada Symposium, Montreal, June 1-5, 2008.

Principal Organizer of a BIRS workshop on Theory and Applications of Classical and Quantum Kinetic Theory, June 21-26, 2009.

Organizer of a Summer School and workshop on "Topics in Kinetic Theory", June 29- July 3, 2009, UVic. Part of the "PIMS/ Accelerate Canada Thematic Program on Partial Differential Equations."

e. Grant committees

Department Representative on the Science and Engineering Sub-Committee (1993)
Department Representative on the Science and Engineering Sub-Committee (1994)
Department Representative on the Science and Engineering Sub-Committee (1995-1996)

f. Grant proposals reviewed

I typically review 1 grant application for NSERC per year and 1-2 grant applications for NSF. Occasionally I review for grant applications in Italy, France, and Germany.

Upon invitation by the Ontario Council on Graduate Studies (OCGS) I appraised the Graduate Program in the Department of Mathematics and Statistics at York University, January 20-22, 2002.

g. Visiting scientists hosted

I host 2-3 visitors every year for a period of 1 week to 2 months.

h. Editorships

Member of the editorial board of "Transport Theory and Statistical Physics" (May 1990-present)
Member of the editorial board of "Journal of Statistical Physics" (1994-1997)
Member of the editorial board of "Journal of Mathematical Fluid Mechanics" (1997-present)
Co-editor (joint w/D. Leeming) of the Proceedings of the 7th Graduate Industrial Mathematics Modelling Camp (GIMMC), Victoria, May 2004. (available on PIMS website).
Co-editor of the Proceedings of the 6th MAFPD (Kyoto, September 2004); joint with K. Aoki and P. Degond
Member of the editorial board of "Kinetic and Related Models" (2009-present)

i. Reviews for journals, book reviews, published commentaries

Reviewer for both Math. Reviews and Zentralblatt für Mathematik. Over 140 reviews on articles and books. Active referee for many journals.

j. Other professional activities

Member of the Interim Executive Committee for the foundation of a "Pacific Institute for the Mathematical Sciences", September 1995 - July 1997
Associate Director of the Pacific Institute for the Mathematical Sciences
Acting PIMS UVic site director, July 2008-June 2010

Contributions to many international meetings.

Visits to University Paris VI (February-March 1981)
 Università di Roma (March 1984)
 Duke University (9 months 1982/83)
 Heriot-Watt University, Edinburgh (June 1986)
 University Paris VI (May 1991)

Sabbatical Leave to University of Kaiserslautern, 1.7.91-1.7.92
Erwin-Schrödinger Institute, Vienna, 10.10.98-24.10.98
Universidad de Granada, Spain, 7.9.01-22.9.01
University Paris IX (Ceremade) and University Paris VII, 1-30.6.2002
University of Texas at Austin (2 weeks (November 2002)
University of Kaiserslautern, 1.2.2003-31.3.2003
Kyoto University, 1.3.2008-23.3.2008
Chennai Institute of Technology, 2.2.2012-15.2.2012
RWTH Aachen, Germany, 3.3.2012-6.4.2012

8. OTHER ACTIVITIES

Active speaker for UVic Speakers Bureau (6 events in (2000/2001)
Guest Lectures for Department of Germanic and Slavonic Studies (last March 3, 2004)