

Areas of specialization

Mathematical Physics: Foundations of Quantum Theory and General Relativity;
Operator Theory: Non-commutative Probability, Ergodic Theory and Geometry;
Logic: Model Theory and Quantum Logic;
Philosophy and History of Science.

Educational background

Ph.D., Universit  de Gen ve, 1963.
M.Sc., Universit  de Gen ve, 1959.
B.Sc., Coll ge Calvin, Gen ve, 1955.

Principal Employment

2005 Emeritus Professor of Mathematics, Univ. of Florida
1986-2005: Professor, Mathematics, Univ. Florida, Tenured
1986-1988: Chairman, Math. Dept., Univ. Florida
1978-1986: Professor, Mathematics/Physics, Univ. Rochester, Tenured
1971-1978: Assoc.Prof., Mathematics/Physics, Univ. Rochester, Tenured
Spr. 1973: Acting Director, Inst. Fund. Studies, Univ. Rochester
1966-1971: Assist. Prof., Physics, Univ. Rochester, Tenure accruing
1965-1966: Research Assoc., Inst. Appl. Math., Univ. Maryland
1964-1965: Research Associate, Math.-Phys., Princeton Univ.
1963-1964: Chef des travaux, Phys.- Math., Univ. Gen ve
1959-1963: Assistant, Phys. th or., Univ. Gen ve,

Visiting positions

Hilary term 2004: Visiting Fellow All Souls College, and concurrently, Visiting
Philosopher, Philosophy Department, Oxford University.
May 1994: Visiting Professor, LTPM, Univ. Paris VII

April 1994: Visiting Member, Erwin Schroedinger Institute, Vienna [at that occasion I served as Representative of the Institute to the Russian Science Minister during his visit in Austria.]

1993-1994: Visiting Professor, Univ. Vienna

Sept. 1993 & March 1994: SERC Research Fellow, QMW College, Univ. London

Summer 1992: Visiting Professor, LPTM, Univ. Paris VII

May–Dec. 1985, **Gauss Professor**, Univ. Göttingen, Akademie für Wissenschaften.

Summer 1984: Fellow, Center for interdisciplinary Research, Univ. Bielefeld.

Fall 1981: Visiting Scholar, Mathematics, Univ. Pennsylvania.

Spring 1981: Visiting Scholar, Mathematics, Harvard Univ.

Summer 1978: Visiting Professor, Math.-Phys., Univ. Sao Paulo.

Summer 1977: Lecturer, School on Groups & Many-Body Physics, Univ. Tübingen

January 1977: Visiting Professor, Math.-Phys., Univ. Genève

1975-1976: Fellow, Center for interdisciplinary research, Univ. Bielefeld

Spring and Summer 1974: Visiting professor, Mathematical physics, EPF-Lausanne

Spring 1971: Solvay Visiting Professor, Univ. Brussels

1970-1971: Visiting Professor, Math.–Phys., Univ. Nijmegen.

Summer 1970, Group Leader, NSF Workshop Stat. Mech., Montana State Univ.

Summer 1969: Scient. Collaborator, Math.–Phys., Univ. Nijmegen

Summer 1967: Scient. Collaborator, Math.–Phys., Univ. Nijmegen

Summer 1965: Visiting Fellow, JILA & NBS, Boulder CO; and
Lecturer, NSF Summer School Theor. Physics, Univ. Colorado.

Honors

2002: Elected Visiting Fellow, All Souls College, Oxford University.

2001: STEP Award (Senior Tenured Excellence Performance) for Faculty, Univ. Florida

2000: Selected to give the laudacio for Prof. W. Thirring, Poincaré Prize, at the International Congress for Mathematical Physics, London.

1998: Anderson Scholar (Teaching) for Faculty, Univ. Florida

1996: PEP Award (Professional Excellence Performance) for Faculty, Univ. of Florida

1993: Elected Honorary Member, Phi Beta Kappa National Honor Soc.

1985: Elected to the **Gauss Professorship** for May-Dec. 1985, by the Akademie für Wissenschaften zu Göttingen.

Activities on behalf of scholarly journals

1998–2002: Board, Studies in History and Philosophy of Modern Physics

1988–2001: Editor, Reviews in Mathematical Physics

1976–1986: Board, Reports on Mathematical Physics

1969–1971: Assoc. Editor, Journal of Mathematical Physics.

Books (Author)

(with C. Liu) The Logics of Thermostatistical Physics, (xiv + 703 pp.), Springer-Verlag, Berlin-Heidelberg, 2002.

Mathematical and Conceptual Foundations of 20th-Century Physics, (x + 550 pp.), Elsevier North-Holland Mathematical Studies, No. **100**, Amsterdam, 1984.

Algebraic Methods in Statistical Mechanics and Quantum Field Theory, (xiv + 333 pp.), J. Wiley-Interscience, New York, 1972. **Russian** transl. G. A. Zaitsev, 1975.

Books (Editor)

(with R. Sridharan and M.D. Srinivas) “Contributions to the History of Indian Mathematics”, (ix + 288 pp.) Hindustan Book Agency (India), New Delhi, 2005.

(with S.T. Ali, A. Odziejewicz, M. Schlichenmaier and S.L. Woronowicz) “Twenty Years of Bialowieza: A Mathematical Anthology, Aspects of Differential Geometric Methods in Physics”, (xii + 251 pp.) World Scientific Monograph series in Mathematics, Vol. 8, World Scientific Publishers, Singapore, 2005.

(with J. Mehra and A.S. Wightman) Philosophical Reflections and Syntheses, (vii + 632 pp.), Vol. VI of The Collected Works of Eugene Paul Wigner, Springer, Heidelberg, 1995; 2nd printing, 1997.

(with G. Hegerfeldt and L. Streit, eds.) On Klauder’s Path: a Field Trip, (xxi + 263 pp.), World Scientific Publishers, Singapore, 1994.

Journal Articles and/or Book Chapters (listed in chronological order)**1955**

1. Le caract re de Saint-Exup ry, *Ann. Coll ge de Gen ve* **14** (1955) 54–58.

1959

2. Contribution   l’ tude de $Cr(H_2O)_6^{+++}$, Travail de dipl me, Universit  de Gen ve, 1959.

1960

3. (with R. Lacroix) R sonance paramagn tique du complexe $Cr(H_2O)_6^{+++}$, *Arch. des Sciences* **13** (1960) 157-158.
4. (with R. Lacroix) R sonance paramagn tique de l’ion Cr^{+++} , *Helv. Phys. Acta* **33** (1960) 1021-1031.

1961

5. Représentations du groupe de Lorentz, *Publ. Sem. Phys. Math., Geneva* (1961) 1- 41.

1962

6. (with R. Lacroix) Covalence et résonance paramagnétique, *Helv. Phys. Acta.* **35** (1962) 592-616.
7. (with C. Piron) Note sur les symétries en théorie quantique, *Helv. Phys. Acta.* **35** (1962) 542-543.

1963

8. (with C. Piron) On the Symmetries in Quantum Theory, *J. Math. Phys.* **4** (1963) 469-473.
9. A propos d'une mécanique quantique quaternionienne, *Helv. Phys. Acta.* **36** (1963) 499.
10. Mécanique quantique quaternionienne et Relativité restreinte I, *Helv. Phys. Acta* **36** (1963) 739-769.
11. Mécanique quantique quaternionienne et Relativité restreinte II, *Helv. Phys. Acta* **36** (1963) 770-788.

1964

12. Sur la généralité des équations maitresses quantiques, *Helv. Phys. Acta* **37** (1964) 270-283.
13. Coarse-graining in Liouville Space and Master Equations, *Helv. Phys. Acta.* **37** (1964) 532-544.

1965

14. On the Markov Character of the Master Equations, *Helv. Phys. Acta* **38** (1965) 164-171.
15. (with C. Favre) Coarse-graining in Liouville Space and Ergodicity, *Publ. Sem. Phys. Math., Geneva* (1965) 1-32.
16. (with J.M. Jauch) Structures logiques et mathématiques en physique quantique, *Dialectica* **19** (1965) 259-279.
17. Representations of the Lorentz Group in Quaternionic Quantum Mechanics, *in Lectures in Theoretical Physics VIIa (= Boulder Summer School 1964)*, W.E. Brittin, ed., University of Colorado Press (1965) 1-36.

1966

18. (with M. Guenin) A Gauge Invariant Formulation of the BCS Model, *J. Math. Phys.* **7** (1966) 915-921.
19. Rigorous Results in Non-Equilibrium Statistical Mechanics, in *Lectures in Theoretical Physics VIIIa (= Boulder Summer School 1965)*, W.E. Brittin, ed., University of Colorado Press (1966) 65-99.
20. A Non-Markovian Model for the Approach to Equilibrium, *J. Math. Phys.* **7** (1966) 1198-1206.
21. On the Definition of States in Quantum Statistical Mechanics, *J. Math. Phys.* **7** (1966) 1413-1420.

1967

22. A Common Interpretation of Phase Transitions in Various Models, *Journ Math. Phys.* **8** (1967) 13-18.
23. On the Origin of Phase Transitions in Various Models, *Techn. Notes in Appl. Math.*, University of Maryland, **BN-433** (1955)
24. van der Waals Wiggles, Maxwell Rule and Temperature Dependent Excitations, *J. Math. Phys.* **8** (1967) 19-25.

1968

25. (with H.J.F. Knops and E.J. Verboven) On the Extension of Invariant Partial States in Statistical Mechanics, *Commun. Math. Phys.* **7** (1968) 164-172.
26. Projective representations of Groups in Quaternionic Hilbert Spaces, NSF Conference on Orthomodular Lattices and Empirical Logic, University of Massachusetts, Amherst (1968)
27. (with R. Herman) A Generalization of Hugenholtz's Theorem on Types, *Notices Amer. Math. Soc.* **15** (1968) 219.
28. (with G.L. Sewell) Non-Equilibrium Statistical Mechanics of Open Systems, *J. Math. Phys.* **9** (1968) 946-958.
29. (with K.B. Sinha) An Adaptation of Powers' Non-Interaction Theorem to the case of Boson Fields, *Bull. Amer. Phys. Soc.* **14** (1968) 86.
30. (with H.J.K. Knops and E.J. Verboven) On Partial Weakly Clustering States with an Application to the Ising Model, *Commun. Math. Phys.* **8** (1968) 300-314.

1969

31. (with H.J.K. Knops and E.J. Verboven) Ergodic States and Phase Transitions, *Journ. Phys. Soc. Japan (Suppl.)* **26** (1969) 301-303.

1970

32. (with H.J.K. Knops and E.J. Verboven) The Breaking of Euclidean Symmetry with an Application to the Theory of Crystallization, *J. Math. Phys.* **11** (1970) 1655-1668.
33. (with H.J.K. Knops) Pure Thermodynamical Phases as KMS States, *J. Math. Phys.* **11** (1970) 3008-3018.
34. (with C. Radin) Time evolution in Generalized Ising Models, *Bull. Amer. Phys. Soc.* **15** (1970) 33.

1971

35. (with C. Radin) Relaxation of Local Deviations from Equilibrium, *J. Math. Phys.* **12** (1971) 2013-2046.
36. (Notes by J. Dufty) An Introduction to C^* -algebraic Methods in Many-Body Problems, NSF Summer School, Bozeman, Montana, 1971.

1972

37. An Introduction to C^* -algebraic Methods in Physics, *Adv. Chem. Phys.* **22** (1972) 315-364.
38. Algebraic Methods in Statistical Mechanics and Quantum Field Theory, (xiv + 333 pp.), J. Wiley-Interscience, New York, 1972. [Russian transl. G. A. Zaitsev, 1975.]
39. On Quantum Measurement Processes, *Helv. Phys. Acta* **45** (1972) 1049-1056.
40. (with J.C. Wolfe) A Model for Dissipative Behavior in Nonlinear Quantum Optics, *J. Math. Phys.* **13** (1972) 1236-1243.
41. The C^* -algebraic Approach to Phase Transitions, Chapter 4 in Volume 1 of *Phase Transitions and Critical Phenomena*, C. Domb and M.S. Green, eds., Academic Press, London (1972) 137-175.

1973

42. Diffusion, Einstein Formula, and Mechanics, *J. Math. Phys.* **14** (1973) 1775-1783.

1974

43. (with S.T. Ali) Fuzzy Observables in Quantum Mechanics, *J. Math. Phys.* **15** (1974) 176-182.
44. (with J.C. Wolfe) C^* -algebraic Formalism for Coarse-graining I, General Theory, *J. Math. Phys.* **15** (1974) 1343-1347.
45. (with J.C. Wolfe) C^* -algebraic Formalism for Coarse-graining II, Momentum Coarse-graining of Fermi Systems in Finite Volume, *J. Math. Phys.* **15** (1974) 1348-1350.

46. (with J.C. Wolfe) C^* -algebraic Formalism for Coarse-graining III, Momentum Coarse-graining of Fermi Systems in Infinite Free Space, *J. Math. Phys.* **15** (1974) 1351-1365.
47. Positivity of the K-entropy on Non-Abelian K-Flows, *Z. Wahrscheinlichkeitstheorie u. verw. Gebiete* **29** (1974) 241-252.
48. Quantum Generalizations of the Kolmogorov Entropy, Workshop on Dynamical Systems, Repino, 1974 79-131.
49. Minimal K-Flow Associated to a Quantum Diffusion Process, in *Physical Reality and Mathematical Description, a volume in honor of Josef M. Jauch*; C.P. Enz and J. Mehra, eds., Reidel, Dordrecht (1974) 477-493.
50. (with C.W. Burckardt) Discipline and Interdisciplinarity, Polyrama, EPF-Lausanne, **21** (1974) 2.
51. (with S.T. Ali) Covariant Conditional Expectations in Quantum Probability Theory, *Rep. ICTP, Trieste* (1974) 1-17.

1975

52. Non-Abelian Special K-Flows, *J. Funct. Analysis* **19** (1975) 1-12.
53. An Algebraic Approach to the Theory of K-Flows and K-Entropy, in *Mathematical Problems in Theoretical Physics*, H. Araki, ed., Springer LNP **39** Heidelberg (1975) 315-318.
54. (with Ph. Martin) A Rigorous Model Sustaining van Hove's Phenomenon, *Helv. Phys. Acta.* **48** (1975) 59-78.

1976

55. (with B. Whitten-Wolfe) A Mechanical Quantum Measuring Process, *Helv. Phys. Acta.* **49** (1976) 45-55.
56. Non-Equilibrium Quantum Statistical Mechanics, in *Current Problems in Elementary Particle and Mathematical Physics*, *Acta. Phys. Austriaca Suppl.* **XV** (= *Schladmig Winter School 1975*), P. Urban, ed., Springer, Wien (1976)
57. Algebraic K-Flows, in *Dynamical Systems in Mathematical Physics*, M. Keane, ed., *Astérisque (Soc. Math. de France)* **40** (1976) 63-65.
58. Generalized K-Flows, *Commun. Math. Phys.* **49** (1976) 191-215.

1977

59. A Dilation Problem in Non-equilibrium Statistical Mechanics, in *Statistical Mechanics and Statistical Methods, a volume in honor of Elliott W. Montroll*, U. Landman, ed., Plenum Press, New York (1977) 313-329.

1978

60. Minimal Dilations of CP -Flows, in *C^* -Algebras and Applications to Physics*, H. Araki and R.V. Kadison, eds., Springer LNM **650**, Heidelberg (1978) 156-161.
61. Phase Transitions, Approach to Equilibrium and Structural Stability, in *Group Theoretical Methods in Physics*, P. Kramer and A. Rieckers, eds., Springer LNP **79**, Heidelberg (1978) 223-246.
62. Stochasticity and Irreversibility in Infinite Mechanical Systems, in *Mathematical Problems in Theoretical Physics*, G. dell'Antonio, S. Doplicher, and G. Jona-Lasino, eds., Springer LNP **80**, Heidelberg (1978) 426-432.
63. (with S. Albeverio and J.-P. Eckmann) Quasi-free Generalized K-Flows, *Reports on Mathematical Physics* **13** (1978) 73-85.

1979

64. (with K.B. Sinha) Weak Quantization in a Non-perturbative Model, *J. Math. Phys.* **20** (1979) 1336-1340.
65. (with J.C. Varilly) On the Standard Form of the Bloch Equation, *Lett. Math. Phys.* **3** (1979) 113-116.

1980

66. (with J.C. Varilly) Some Remarks on Dilating Semigroups of Completely Positive Mappings, *Reports on Math. Phys.* **18** (1980) 97-102.
67. An Algebraic Approach for Spontaneous Symmetry Breaking in Quantum Statistical Mechanics, Chapter 5 in *Groups, Systems and Many-body Physics*, P. Kramer and M. Dal Cin, eds., Vieweg, Braunschweig/Wiesbaden (1980) 246-284.
68. Irreversibility, Decay and Asymptotic Dynamics, *J. Quant. Chem.* **XVII**(1980)107-120.

1981

69. Some Mathematical Problems in Non-equilibrium Statistical Mechanics, in *Advances in Functional Analysis, Holomorphy and Approximation Theory*, S. Machado, ed., Springer LNM **843**, Heidelberg (1981) 264-295.
70. Von Neumann's Uniqueness Theorem Revisited, in *Mathematical Analysis and Applications, 2 volumes in honour of Laurent Schwartz*; L. Nachbin, ed., Academic Press, New York (1981) *Adv. Math. Suppl. Studies* **7A** 361-368.
71. Quantum Measurement Processes: A Gedanken Experiment, in *Quantum Theory and the Structures of Time and Space, 4*, L. Castell, M. Drieschner, and C.F. von Weizsaecker, eds., Carl Hanser Verlag, Munchen (1981) 137-151.
72. Prequantization and KMS Structures, *Intern'l J. Theor. Phys.* **20** (1981) 891-903.

1982

73. (with W.P.C. King) Faithful Normal States on *JBW*-algebras, in *Proceedings of the 1980 Summer Institute on Operator Algebras and Applications, AMS Proc. of Symposia in Pure Mathematics, R.V. Kadison, ed., 38 Part 2* (1982) 305-307.
74. Quantum and Classical Mechanics on Homogeneous Riemannian Manifolds, *J. Math. Phys.* **23** (1982) 1785-1791.
75. Stochasticity in Non-equilibrium Statistical Mechanics, in *Stochastic Processes in Quantum Theory and Statistical Physics, S. Albeverio, ed., Springer LNP 173, Heidelberg* (1982) 147-153.

1983

76. A Geometric Dequantization Programme for the Solution of the Dirac Problem, *International J. Theor. Phys.* **22** (1983) 397-420.
77. Classical Implications of the Quantum Statistical Interpretation, in *New Horizons of Quantum Chemistry, 5, P.O. Lowdin & B. Pullman, eds., Reidel Publ., Dordrecht* (1983) 5.
78. A Derivation of the Wigner-Moyal Correspondence and its Extension beyond Flat Spaces, in *Quantum Theory and the Structures of Space and Time, 5, L. Castell & C.F. von Weizsaecker, eds., Carl Hanser Verlag, Munchen* (1983) 19-33.

1984

79. Mathematical and Conceptual Foundations of 20th-Century Physics, (x + 550 pp.), Elsevier North-Holland Mathematical Studies, No. **100**, Amsterdam, 1984.
80. Review of "Angular Momentum in Quantum Physics: Theory and Application, The Racah-Wigner Algebra in Quantum Theory, by L.C. Biedenharn and J.D. Louck", *Bull. Amer. Math. Soc.* **10** (1984) 150-152.

1985

81. (with S. DeBièvre) Relativistic Particle Scattering, *Commun. Math. Phys.* **101** (1985) 539-557.

1986

82. (with G.C. Hegerfeldt) New Classical Properties of Quantum Coherent States, *J. Math. Phys.* **27** (1986) 2731-2737.
83. (with S.T. Ali) Geometric Quantization: Modular Reduction Theory and Coherent States, *J. Math. Phys.* **27** (1986) 2936-2943.

1987

84. (with Sungpyo Hong) Time-like Geodesic Flows on Lorentz Manifolds, *Ergodic Th. & Dynam. Sys.* **7** (1987) 175-192.

85. KMS Structures in Geometric Quantization, *Contemporary Mathematics (AMS)* **62** (1987) 175-186.

1988

86. (with A.J. Rica da Silva) Algebraic aspects of geometric quantization, *Abstract AMS* **9** (1988) 375, # 845-53-167; see also (with A.J. Rica da Silva) The Weyl Group for Curved Manifolds in Classical and Quantum Theories; *and* On an Algebraic Property of Geometric Quantization for the Weyl Group, Physics preprints, University of Florida, 1989.

1989

1990

1991

87. Geometric Quantization: Regular Representations and Modular Algebras, *in Group Theoretical Methods in Physics, Moscow, V.V. Dodonov and V.I. Man'ko, eds., Springer LNP 382, Heidelberg* (1991) 356-364.

1992

88. Kolmogorov Flows, Dynamical Entropies and Mechanics, *in Quantum Probability and Related Topics, VII, L. Accardi, K.R. Parthasarathy and K.B. Sinha, eds., World Scientific, Singapore* (1992) 125-137.
89. (with P.E. Ehrlich) The Conjugacy Index and Simple Astigmatic Focusing, *in Contemporary Mathematics 127: Geometry, Physics and Nonlinear PDE's, V. Oliker and A. Treibergs, eds., AMS, Providence, RI* (1992) 27-39.
90. (with P.E. Ehrlich) Quasi-Time Functions in Lorentzian Geometry, *in Geometric Analysis and Nonlinear Partial Differential Equations, I.J. Bakelman, ed., Marcel Dekker, New York* (1992) 203-212.
91. (with P.E. Ehrlich) Gravitational Waves and Causality, *Rev. Math. Phys.* **4** (1992) 163-221.

1993

92. (with P.E. Ehrlich) Geodesic and Causal Behavior of Gravitational Plane Waves: Astigmatic Conjugacy, *in Proc. of Symposia in Pure Mathematics 54, Part 2, R. Greene and S.T. Yau, eds., AMS, Providence RI* (1993) 203-209.
93. Chaos in Classical and Quantum Theories, *in Symposium on the Foundations of Modern Physics, Cologne, P. Busch, P. Lahti and P. Mittelstaedt, eds., World Scientific Publ. Singapore* (1993) 176-177.
94. Models vs. Models, *Proc. Oxford Wigner Symposium 1993; Intern'l Journ. Modern Phys. B* (to appear); reproduced as Appendix E in Emch and Liu (see below).

95. The Philosophy of E.P. Wigner, in *Classical and Quantum Systems, Foundations and Symmetries, Wigner Symposium*, H.-D. Doebner, W. Scherer and F. Schroeck, eds. World Scientific, Singapore (1993) 2-8.

96. Central Extensions for the Weyl CCR in curved Space, *Proc. 19th International Colloquium on Group Theoretical Methods in Physics, Salamanca*, M.A. del Olmo, M. Santander and J. Mateos Guilarte, eds., Anales de Fisica, Monografias, Ciemat/RSEF, Madrid (1993) 426-429.

1994

97. (with H. Narnhofer, W. Thirring and G.L. Sewell) Anosov Actions on Non-Commutative Algebras, *J. Math. Phys.* **35** (1994) 5582-5599.

98. (with G.C. Hegerfeldt and L. Streit) Preface (p.ix) in *On Klauder's Path: a Field Trip*, G.G. Emch, G.C. Hegerfeldt and L. Streit, eds., World Scientific Publishers, Singapore, 1994. 149-158.

99. (with A. El Gradechi and S.T. Ali) Modular Algebras in Geometric Quantization, *J. Math. Phys.* **35** (1994) 6237-6243.

1995

100. Annotation (pp. 1-28), in *Philosophical Reflections and Syntheses, Vol. VI of The Collected Works of Eugene Paul Wigner*, J. Mehra and A.S. Wightman, eds., Springer, Heidelberg, 1995; 2nd printing, 1997.

101. (with J. Bertrand and G. Rideau) The Cohomology of the Classical and Quantum Weyl CCR on Curved spaces, *Lett. Math. Phys.* **34** (1995) 149-158.

102. Modular Structures in Geometric Quantization, in *Quantization, Coherent States and Complex Structures*, J.P. Antoine et al., eds., Plenum Press, New York (1995) 33-42.

103. De l'ubiquité de la condition KMS, in *Modern Group Theoretical Methods in Physics*, J. Bertrand et al., eds., Kluwer Academic Publ., Dordrecht, The Netherlands (1995) 115-128.

1996

104. Comments on a Recent Paper by S. Adler on Projective Group Representations in Quaternionic Hilbert Spaces, *J. Math. Phys.* **37** (1996) 6582-6585.

1997

105. (with S.L. Adler) A Rejoinder on Quaternionic Projective Representations, *J. Math. Phys.* **38** (1997) 4758-4762.

106. Chaotic Dynamics in Non-Commutative Geometry, in *Quantizations, Deformations and Coherent States*, J.P. Antoine et al., eds., Polish Scientific Publ., Warsaw (1997) 33-42.

107. Beyond Irreducibility and Back, *Rep. Math. Phys.* **40** (1997) 187–193.
108. Foundations of Quantum Mechanics: Building on Von Neumann’s Heritage, *Intern. J. Quantum Chemistry* **65** (1997) 379-387.

1998

109. On the Need to Adapt de Finetti’s Probability Interpretation to QM, in *Quantum Probability, Banach Center Publications* **43** (1998) 157-166.
110. (with I. Peter) Quantum Anosov Flows: A new Family of Examples, *J. Math. Phys.* **39** (1998) 4513-4539.

1999

111. Wavelets from Coherent states, Part I *Proc. Intern’l Soc. Opt. Eng. Conference: Wavelets Applications VI* H. Szu, ed. **3733** (1999) 34-43 [for Part II, see J. Klauder. *ibid.*]
112. (with A. Emch–Dériaz) Madame du Châtelet, a Fair presentation of Newton’s *Principia*. *Proc. X^e Congrès International des Lumières, Dublin, 1999*.

2000

113. (with A.Z. Jadcyk) Weak Projective Representations, Quaternions and Monopoles, *Stochastic Processes, Physics and Geometry: New Interplays. A CMS/AMS Volume in Honor of Sergio Albeverio Conf. Proc. Canad. Math. Soc.* **29** (2000) 157-164.

2002

114. (with C. Liu) The Logics of Thermostatistical Physics, (xiv + 703 pp.), Springer-Verlag, Berlin-Heidelberg, 2002.
115. Review of “John von Neumann and the Foundations of Quantum Physics, M. Rédei and M. Stöltzner, eds., Kluwer Academic Publisher, Dordrecht,” *Foundations of Physics* **32** (2002) 981-985.
116. Review of “Mathematical Topics between Classical and Quantum mechanics, by N. P. Landsman, Springer Monographs in Mathematics, New York, Springer-Verlag, 1998” *Studies in History and Philosophy of Modern Physics* **33** (2002) 148-150.

2003

117. On Wigner’s different usages of models, *Electronic Proceedings of the Wigner Centennial Conference, held in Pécs 2002*, Paper No. 59, 1-4 (2003); to appear also in *Acta Physica Hungarica: Heavy Ion Physics*.
118. Is there a Quantum de Finetti Programme? in *Foundations of Probability and Physics-2, Ser. Math. Modelling in Phys., Eng., and Cogn. Sci.*, **5**, Växjö Univ. Press (2003) 159-178.

119. The Dynamics of Modelling, in *Time, Quantum & Information, Festschrift zum 90. Geburtstag von Prof. C.F. von Weizsäcker*, L. Castell and O. Ischebeck, eds., Springer-Verlag, Heidelberg, 2003, pp. 243-259.

120. Quantum Measurement: a bridge to Classical Physics, in *Quantum Information and Computation*, E. Donkor, A.R. Pirich and H.E. Brandt, eds., Intern. Soc. Opt. Eng. (SPIE) Proceedings 5105 (2003), pp. 255-264.

2004

121. Interactive modelling, *J. Stat. Phys.* **116** (2004) 17–28.

122. Review of “Quantum Mechanics and its Emergent Macrophysics, by G.L. Sewell, Princeton University Press, Princeton and Oxford, 2002”, *Studies in History and Philosophy of Modern Physics* **35**(2004) 129-133.

123. So ... what was the question? *J. of Nonlinear Math. Phys.* **11** (2004) *Supplement: Geometrical Methods in Physics*, S.T. Ali et al. eds.; pp. 1-8.

2005

124. (with S.T. Ali, A. Odziejewicz, M. Schlichenmaier and S.L. Woronowicz) Preface (p. vi-x) in *Twenty Years of Bialowieza: A Mathematical Anthology, Aspects of Differential Geometric Methods in Physics*, S.T. Ali, G. G. Emch, A. Odziejewicz, M. Schlichenmaier and S.L. Woronowicz, eds., World Scientific Monograph series in Mathematics, Vol. 8, World Scientific Publishers, Singapore, 2005.

125. Probabilistic issues in statistical mechanics, *Stud. Hist. Phil. Modern Phys.* **36** (2005) 303–322.

126. (with C. Liu) Explaining quantum aneous symmetry braking, *Stud. Hist. Phil. Modern Phys.* **36** (2005) 137–163.

127. Not what models are, but what models do, in *Foundations of Probability and physics 3*, A. Khrennikov, ed. *Amer. Inst. Phys. Proceedings* **750** (2005) 76–86

128. Contributions of Indian Mathematicians to Quantum Statistics, in *Contributions to the History of Indian Mathematics*, G.G. Emch, R. Sridharan aand M.D. Srinivas, eds., Hindustan Book Agency (India), New Delhi, 2005, pp. 261–288.

2006

129. (with A. Emch–Dériaz) On Newton’s French Translator: How faithful was Madame du Châtelet? in *Emilie du Châtelet, rewriting Enlightenment philosophy and science*, J. Zinsser and J.C. Hayes, ed.; *Studies in Voltaire and the Eighteenth Century*, Oxford (2006), pp. 226–251.

130. (with A. Emch–Dériaz) Mathématicienne, et comment, in *Madame Du Châtelet, La femme des Lumières*, E. Badinter & D. Muzerelle, eds. Bibliothèque Nationale de France, Paris (2006); pp. 90–94.

131. (with A. Emch-Dérian) Madame du Châtelet (1706–1749), *Pour la science, Les Génies de la Science.* , *Dossier No. 27*, Mai-Juillet 2006; pp. 10-15.
132. Quantum Statistical/Thermal Physics, in *Handbook of the Philosophy of Science, 2. Philosophy of Physics: Part A* J. Earman and J. Butterfield, eds., Elsevier, Amsterdam, 2006, ISBN:0444-51500-7 (to appear).
133. The dynamics models provide for the evolution of theories in physics, I & II (in preparation).