Curriculum Vitae

January 2023

John Michael Kosterlitz

Harrison E Farnsworth Professor of Physics

Nobel Laureate in Physics 2016,

Department of Physics, Brown University, Providence, RI 02912

Education

1965	B.A., Gonville and Caius College, Cambridge University
1966	M.A., Gonville and Caius College, Cambridge University
1969	D.Phil., Oxford University

Professional Appointments

1969-70	Royal Society Exchange Fellowship, Istituto di Fisica Teorica, Torino, Italy
1970-73	Research Fellow, Dept. Mathematical Physics, Birmingham University, UK
1973-74	Postdoctoral Fellow, LASSP, Cornell University, Ithaca, NY
1974-78	Lecturer, Dept. Mathematical Physics, Birmingham
1978-80	Senior Lecturer, Department of Mathematical Physics, Birmingham
1980-81	Reader in Mathematical Physics, Dept. Mathematical Physics, Birmingham
1982-present	Professor of Physics, Brown University

Visiting Professor:

1978	Department of Physics, Princeton University
1978	Bell Laboratories, NJ
1978	Department of Physics, Harvard University
Jan-May 1985	Laboratoire de Physique des Solides, Univ. d'Orsay, France
June 1985	CEN, Saclay, France
Jan-Mar 1991	Department of Physics, McGill University, Canada
Apr-May 1991	Department of Physics, Neuchatel University, Switzerland
Jan-Feb 1998	INPE, Sao Jose dos Campos, Sao Paulo, Brazil
Mar 1998	Dept. Physics, Birmingham University, UK
Apr-Jun 1998	Dept. Physics, Helsinki University, Finland
July 1998	ICTP, Trieste, Italy
August 1999	Department of Physics, McGill University, Canada
August 2000	Department of Physics, McGill University, Canada
July 2004	Korea Institute for Advanced Study, Seoul, Korea
Aug, Sept 2005	TKK, Helsinki, Finland

Oct - Dec 2005 Korea Institute for Advanced Study, Seoul, Korea
June-July 2008 Korea Institute for Advanced Study, Seoul, Korea
June-July 2009 Korea Institute for Advanced Study, Seoul, Korea
January 2010 Korea Institute for Advanced Study
Aug-Oct 2012 TKK Helsinki, Finland
Oct-Jan 2013 Korea Institute for Advanced Study
August 2015 Dept Applied Physics, Aalto University, Espoo, Finland
June 2016 INPE, Sao Jose dos Campos, Sao Paulo, Brazil Sept,
Oct 2016 TKK, Helsinki, Finland
Nov, Dec 2016 Korea Institute for Advanced Study, Seoul, Korea
Jan 2017 Korea Institute for Advanced Study, Seoul, Korea
June 2017 Korea Institute for Advanced Study, Seoul, Korea
June 2018 Suzhou University, Shanghai, China
June 2018 Shanghai University, Shanghai, China
June 2019 Suzhou University, Shanghai, China
June 2019 Shanghai University, China
June 2020 Suzhou University, China – Virtual
June 2021 Suzhou University, China Virtual
June 2022 Suzhou University, China Virtual

Completed Publications

- Book Chapters

1. "Physics in Two Dimensions," (with D. J. Thouless) in *Prog. Low Temp. Phys.*, (D.F. Brewer, ed.), Vol. VII-B, North Holland, 1978.
2. "Ordering in Two Dimensions," in *Phase Transitions in Surface Films*, (J.G. Dash and J. Ruvalds, eds.), Plenum Press, 1980.
3. "Melting in Two Dimensions," in *Proceedings of 1981 Geilo Winter School*, (T. Riste, ed.), Plenum Press, 1982.
4. "Numerical Studies of Phase Transitions" (with Jooyoung Lee and E. Granato), in *Computer Simulations in Condensed Matter Physics IV*, (D.P. Landau, K.K. Mon and H.B. Schuttler, eds.), Springer, Heidelberg, p. 28, 1992.
5. "Early work on defect driven phase transitions," with D. J. Thouless, in *40 Years of Berezinskii-Kosterlitz-Thouless Theory*, ed. Jorg´e Jos´e, World Scientific, 2013.
6. 2023, in press, "Beyond the Ising Spin Glass II" by J.M Kosterlitz, in "Spin Glass Theory and Far Beyond: Replica Symmetry Breaking after 40 Years', eds Patrick Charbonneau et al., Singapore: World Scientific

- **Refereed Journal Articles**

1. "A Double Regge Model of Production Processes," Nucl. Phys. B**9** (1969).
2. "Vector–Pseudoscalar Scattering in the Veneziano Model," Nucl. Phys. B**13**, 129 (1969).
3. "The Algebra of Currents and the Veneziano Model – the A1M System," S. P. De Alwis, P. Brooker, J.M. Kosterlitz and D. Nutbrown, Phys. Lett. B**29**, 362 (1969).

4. “The General N–Point Vertex in a Dual Model,” D. A. Wray and J.M. Kosterlitz, Lett. al Nuovo Cimento **3**, 491 (1970).
5. “Dual N-Reggeon Vertex in the Field Operator Formalism,” J.M. Kosterlitz and S. Saito, Nucl. Phys. B**34**, 557 (1971).
6. “The N-Reggeon Vertex in the Dual Resonance Model,” J.M. Kosterlitz and S. Saito, Nucl. Phys. B**38**, 269 (1972).
7. “Long Range Order and Metastability in Two–Dimensional Solids and Superfluids,” J.M. Kosterlitz and D.J. Thouless, J. Phys. C**5**, 124 (1972).
8. “Ordering Metastability, and Phase Transitions in Two–Dimensional Systems,” J.M. Kosterlitz and D.J. Thouless, J. Phys. C**6**, 1181 (1973).
9. “Critical Exponents of the Two–Dimensional XY Model,” J.M. Kosterlitz, J. Phys. C**7**, 1046 (1974).
10. “Critical Scattering for General Fields and Temperatures,” M. Combescot, M. Droz and J.M. Kosterlitz, Phys. Rev. Lett. **33**, 705 (1974).
11. “Two Point Correlation Function for General Fields and Temperatures,” M. Combescot, M. Droz and J.M. Kosterlitz, Phys. Rev. B**11**, 4661 (1974).
12. “Renormalization Group Analysis of Bicritical and Tetracritical Points,” D.R. Nelson, M.E. Fisher and J.M. Kosterlitz, Phys. Rev. Lett. **33**, 813 (1974).
13. “Bicritical and Tetracritical Points in Anisotropic Antiferromagnetic Systems, D.R. Nelson, J.M. Kosterlitz and M.E. Fisher, Phys. Rev. B**13**, 412 (1976).
14. “Crossover Effects in Anisotropic Spin Systems,” J.M. Kosterlitz, J. Phys. C**9**, 497 (1976).
15. “Crossover Phenomena in Isotropic Dipolar Ferromagnets,” A.D. Bruce, J.M. Kosterlitz and D.R. Nelson, J. Phys. C**9** (1976).
16. “Phase Transitions in Long–Range Ferromagnetic Chains,” J.M. Kosterlitz, Phys. Rev. Lett. **37**, 1577 (1976).
17. “Spherical Model of a Spin Glass,” J.M. Kosterlitz, D.J. Thouless and R. C. Jones, Phys. Rev. Lett. **36**, 1277 (1976).
18. “The d-Dimensional Coulomb Gas and the Roughening Transition,” J.M. Kosterlitz, Phys. C**10**, 3753 (1977).
19. “Two Point Correlations in the Ising Model,” Y. Achiam and J.M. Kosterlitz, J. Phys. C**10**, 4559 (1977).
20. “Universal Jump in the Superfluid Density of Two-Dimensional Superfluids,” D. R. Nelson and J.M. Kosterlitz, Phys. Rev. Lett. **39**, 1201 (1977).
21. “Phase Transitions in Layered Magnetic Systems,” J.M. Kosterlitz and M. Santos, J. Phys. C**11**, 2835 (1978).
22. “Real Space Renormalization Group for Critical Dynamics,” Y. Achiam and J.M. Kosterlitz, Phys. Rev. Lett. **41**, 128 (1978).
23. “Infinite Range Spin Glass with M-Component Spins,” J.R.L. de Almeida, R.C. Jones, J.M. Kosterlitz and D. J. Thouless, J. Phys. C**11**, L871 (1978).

24. "Stability and Susceptibility in Parisi's Solution of a Spin Glass Model," J.R.L. de Almeida, J.M. Kosterlitz and D. J. Thouless, J. Phys. C**13**, 3271 (1980).
25. "Spherical Model of a Spin Glass," J.M. Kosterlitz, D.J. Thouless and R.C. Jones, Physica 86-88B (1977).
26. "Eigenvalue Spectrum of a Large Random Matrix with Finite Mean," R.C. Jones, J.M. Kosterlitz and D.J. Thouless, J. Phys. A**11**, L45 (1978).
27. "Non–Uniform Long–Range Order in Certain Random Systems," R.A. Pelcovits and J.M. Kosterlitz, J. Phys. A**16**, L763 (1983).
28. "Commensurate-Incommensurate Transitions and a Floating Devil's Staircase," B. Horowitz, T. Bohr, J.M. Kosterlitz and H.J. Schulz, Phys. Rev. B**28**, 6596 (1983).
29. "A Random Anisotropy Model: 1/N Expansion for Gaussian Fluctuations in the Spin Glass Phase and the Replica Symmetry Breaking Instability", A. Khurana, A. Jagannathan and J.M. Kosterlitz, Nucl. Phys. B**240**, F512 (1984).
30. "Dynamics of a Random Axis Model," A. Jagannathan, J.M. Kosterlitz and B. Schaub, Nucl. Phys. B**265** FS15 324 (1986).
31. "Scaling of Conductivities in the Fractional Quantum Hall Effect," R. Laughlin, M. Cohen, J.M. Kosterlitz, H. Levine, S. B. Libby and A. Pruisken, Phys. Rev. B**32**, 1311 (1985).
32. "Dynamics of One–Dimensional Potts Models," P. O. Weir and J.M. Kosterlitz, Phys. Rev. B**32**, 391 (1986).
33. "Comment on Critical Relaxation of the 1D Blume–Emery Griffiths Model", P.O. Weir and J.M. Kosterlitz, Phys. Rev. B**33**, 622 (1986).
34. "Critical Behaviour of Coupled XY Models," E. Granato, J.M. Kosterlitz and S. Poulter, Phys. Rev. B**33**, 4767 (1986).
35. "Frustrated XY Model with Unequal Ferromagnetic and Antiferromagnetic Bonds", E. Granato and J.M. Kosterlitz, J. Phys. C**19**, L59 (1986).
36. "Quenched Disorder in Josephson–Junction Arrays in a Transverse Magnetic Field," E. Granato and J.M. Kosterlitz, Phys. Rev. B**33**, 6533 (1986).
37. "Resistance Oscillations in a Josephson–Junction Array in a Magnetic Field," E. Granato and J.M. Kosterlitz, Phys. Rev. B**34**, 2026 (1986).
38. "Non-Universality in the Dynamics of the One–Dimensional Potts Model," S.H. Adachi J.M. Kosterlitz and P.O. Weir, J. Phys. A**19** L757 (1986).
39. "Renormalisation Group Treatment of the Long Range One Dimensional Ising Model with Random Fields," P.O. Weir and J.M. Kosterlitz, Phys. Rev. B**36**, 5760 (1987).
40. "Phase Transformations of the H/W(110) and H/Mo(110) Surfaces," M. Altman, J.W. Chung, P.J. Estrup, J.M. Kosterlitz, J. Prybyla, D. Sahu and S.C. Ying, J. Vac. Sci. Tech. A**5**, 1045 (1987).
41. "Theory of Phase Transitions on H/W(110) and H/Mo(110)," D. Sahu J.M. Kosterlitz and S. C. Ying in *The Structure of Surfaces II*, J.F. van der Veen and M.A. Van Hove, eds. (Springer-Verlag) (1988).

42. ”Equilibrium Study of Strained Epitaxial Layers on a Rigid Substrate”, E. Granato J.M. Kosterlitz and S.C. Ying, Proc.of Latin American Conference on Semiconductor Physics (San Carlos, Brazil, 1987).
43. “Helicity Modulus of a Frustrated XY Model,” E. Granato and J.M. Kosterlitz, J. Appl. Phys. **64**, 5636 (1988).
44. “Disorder in Josephson Junction Arrays,” J.M. Kosterlitz and E. Granato, Physica B**152**, 62 (1988).
45. “Equilibrium Theory of Strained Epitaxial Layers,” E. Granato, J.M. Kosterlitz and S.C. Ying, Phys. Rev. B**39**, 3185 (1989).
46. “Melting of a Free Bilayer,” E. Granato, J.M. Kosterlitz and S.C. Ying) Phys. Rev. B**39**, 4444 (1989).
47. “Disorder in Josephson Junction Arrays in a Magnetic Field,” E. Granato and J.M. Kosterlitz, Phys. Rev. Lett. **62**, 823 (1989).
48. “Growth in a Restricted Solid on Solid Model,” J.M. Kim and J.M. Kosterlitz, Phys. Rev. Lett. **62**, 2289 (1989).
49. ”Reply to “Growth: Noise Reduction and Universality”,” J.M. Kim and J.M. Kosterlitz, Phys. Rev. Lett. **63**, 1192 (1989).
50. ”Comment on “Phase Transitions in a Restricted Solid-on-Solid Surface Growth Model in 2 + 1 Dimensions”,” J.M. Kim, T. Ala-Nissila and J.M. Kosterlitz, Phys. Rev. Lett **64**, 2333 (1990).
51. “New Numerical Method to Study Phase Transitions,” Jooyoung Lee and J.M. Koster- litz, Phys. Rev. Lett **65**, 137 (1990).
52. “Superconductor-Insulator Transition and Universal Resistance in Josephson Junction Arrays in a Magnetic Field,” E. Granato and J.M. Kosterlitz, Phys. Rev. Lett. **65**, 1267 (1990).
53. “Finite Size Scaling and Monte Carlo Simulations of First Order Phase Transitions,” Jooyoung Lee and J.M. Kosterlitz, Phys. Rev. B**43**, 3265 (1991).
54. “Three Dimensional q-state Potts Model - Monte Carlo Study Near q = 3,” Jooyoung Lee and J.M. Kosterlitz, Phys. Rev. B**43**, 1268 (1991).
55. “Phase Transitions in a Coupled XY-Ising Model”, E. Granato, J.M. Kosterlitz, Jooy- oung Lee and P.M. Nightingale, Phys. Rev. Lett. **66**, 1090 (1991).
56. ”Phase Transitions in Fully Frustrated XY Models”, E. Granato, J.M. Kosterlitz and Jooyoung Lee, Phys. Rev. B**43**, 11531 (1991).
57. ”Fully Frustrated Junction Arrays and Coupled XY-Ising Models,” E. Granato, J.M. Kosterlitz and Jooyoung Lee, Phys. Rev. B**44**, 4819 (1991).
58. “Surface Growth and Crossover Behavior in a Restricted Solid-on-Solid Model”, J.M. Kim, T. Ala-Nissila and J.M. Kosterlitz, J. Phys. A **A24**, 5569 (1991).
59. “Driven Growth in RSOS Model in Higher Dimensions” T. Ala-Nissila, T. Hjelt and J.M. Kosterlitz, Europhys. Lett. **19**, 1 (1992).
60. ”Exact Dynamical Exponent at the KPZ Roughening Transition” C.A. Doty and J.M. Kosterlitz, Phys. Rev. Lett. **69**, 1979 (1992).

61. ”Scaling Exponents for KPZ Roughening in Higher Dimensions”, T. Hjelt, T. Ala-Nissila and J.M. Kosterlitz, J. Stat. Phys. **72**, 207 (1993).
62. ”Directional Solidification in Two and Three Dimensions” , B. Grossman, K.R. Elder, J.M. Kosterlitz and M. Grant, Phys. Rev. Lett. **71**, 3323 (1993)
63. ”Stochastic Eutectic Growth”, K.R. Elder, F. Drolet, M. Grant and J.M. Kosterlitz, Phys. Rev. Lett. **72**, 677 (1994).
64. ”Numerical Studies of the Two-Dimensional XY Model with Symmetry Breaking Fields,” T. Ala-Nissila, E. Granato, K. Kankaala, J.M. Kosterlitz and S.C. Ying, Phys. Rev. B**50**, 12692, (1994).
65. ”Conformal Anomaly and Critical Exponents of a Coupled XY- Ising Model”, M.P. Nightingale, E. Granato and J.M. Kosterlitz, Phys. Rev. **B52**, 7402, (1995).
66. ”Critical Behavior of Josephson Junction Arrays at f=1/2”, E. Granato, M.P. Nightingale and J.M. Kosterlitz, Physica **B222**, 266, (1996)
67. ”Finite Size and Current Effects on IV Characteristics of Josephson Junction Arrays”, M.V Simkin and J.M. Kosterlitz, Phys. Rev. B **55**, 11646, (1997)
68. ”Phase Diagram of an RSOS Model Coupled to an Ising Model”, S. Lee, K-C. Lee and J.M. Kosterlitz, Phys. Rev. B**56**, 340, (1997).
69. ”Numerical Study of a Superconducting Glass Model”, J.M. Kosterlitz and M.V. Simkin, Phys. Rev. Lett. **79**, 1098, (1997).
70. ”Edge Effects in a Frustrated Josephson Junction Array with Modulated Couplings”, E. Granato, J.M. Kosterlitz and M.V. Simkin, Phys. Rev. B **57**, 3602 (1998).
71. ”Simple Model for Anisotropic Step Growth”, J. Heinonen, I. Bukharev, T. Ala-Nissila and J.M. Kosterlitz, Phys. Rev. E**57**, 6851 (1998).
72. ”Charge Glass in Two-Dimensional Arrays of Capacitively Coupled Grains with Random Offset Charges”, E. Granato and J.M. Kosterlitz, Phys. Rev. Lett. **81**, 3888 (1998).
73. ”Numerical Study of Order in a Gauge Glass Model”, J.M. Kosterlitz and N. Akino, Phys. Rev. Lett. **81**, 4672 (1998).
74. ”Phase-field Modeling of Eutectic Growth”, F. Dr¨olet, K.R. Elder, M. Grant and J.M. Kosterlitz, Phys. Rev. E**61**, 6705 (2000).
75. ”Numerical Study of Spin and Chiral Order in a Two-Dimensional XY Spin Glass”, J.M. Kosterlitz and N. Akino, Phys. Rev. Lett. **82**, 4094 (1999).
76. ”Sharp Interface Limits of Phase-Field Models”, K.R. Elder, Martin Grant, N. Provotas and J.M. Kosterlitz, Phys. Rev. E **64**, 021604 (2001)
77. ”Domain Wall Renormalization Group Study of XY Model with Quenched Random Phase Shifts”, N. Akino and J.M. Kosterlitz, Phys. Rev. B **66**, 054536 (2002)
78. ”Surface Instability and Dislocation Nucleation in Strained Epitaxial Layers”, O. Trushin, E. Granato, S-C. Ying, J.M. Kosterlitz, T. Ala-Nissila and P. Salo, Brazilian Journal of Physics, **32**, 369 (2002)
79. ”Screened Vortex Lattice Model with Disorder”, C. Giardin`a, N.V. Priezjev and J.M. Kosterlitz, cond-mat/0202487 (2002)

80. ”Numerical study of random superconductors”, N. Akino, C. Giardin`a, J.M. Kosterlitz and N.V. Priezjev, Physica C **408-410**, 484 (2004)
81. ”Pattern Selection in a Phase Field Model for Directional Solidification”, R.N. Costa Filho, J.M. Kosterlitz and Enzo Granato, Physica A - Statistical Mechanics and its Applications **354**, 333 (2005)
82. “State selection in the noisy stabilized Kuramoto Sivashinsky equation”, D. Obeid, J.M. Kosterlitz and B. Sandstede, Phys. Rev. E **81**, 066205 (2010), arXiv: 0912.1850.
83. ”Kosterlitz-Thouless Physics: a review of key issues”, J.M. Kosterlitz, an invited review, Reports on Progress in Physics **79** 026001 (2016).
84. “Consistent Hydrodynamics for Phase Field Crystals”, V. Heinonen, C.V. Achim, J.M. Kosterlitz, S.-C. Ying, J. Lowengrub, and T. Ala-Nissila, Phys. Rev. Lett. **116** 024303 (2016).
85. “Nobel Lecture: Topological defects and phase transitions”, John Michael Kosterlitz, Rev. Mod. Phys. **89** 040501 (2017)
86. “State selection in driven out of equilibrium systems”, Saloni Saxena and J.M. Kosterlitz, Phys Rev E **100** 022223 (2019)
87. “Superfluidity in Thin Films of ^{4}He - a Review”, J.M. Kosterlitz, an invited review, J. Low Temp. Phys. **201**, Special Issue 541-584 (2020)
88. “Global Potential, Topology and Pattern Selection in a Noisy Stabilized Kuramoto-Sivashinsky Equation,” YC Chen, CX Shi, JM Kosterlitz, XM Zhu and P. Ao, Proc. Natl. Acad. Sci. **117**, 23227-234 (2020)
89. “Nature of the Glass Transition in 2D Colloidal Suspensions of Short Rods” XZ Liu, HG Wang, ZX Zhang, J.M. Kosterlitz and X.S. Ling, New Journal of Physics, **22** (10), 103066 (2020)
90. “Dynamics of Noise Induced Wavenumber Selection in the Stabilized Kuramoto-Sivashinsky Equation” S. Saxena and J.M. Kosterlitz, Phys. Rev. E **103**, 012205, (2021)
91. “2D Colloidal Crystals with Anisotropic Impurities”, Y. Chen, X.L. Tan, Z. Wang, J.M. Kosterlitz and X.S. Ling, Phys. Rev. Lett., **127**, 018004 (2021)
92. “Global Potential, Topology and Pattern Selection in a Noisy Stabilized Kuramoto-Sivashinsky Equation”, Y-C Chen, Chunxiao Shi, J. M. Kosterlitz, Xiaomei Zhuand Ping Ao. Proc. Natl. Acad. Sci **117** (38) 23227-234 (2020)
93. “Topology, Vorticity and Limit Cycles in a Stabilized Kuramoto-Sivashinsky Equation”, Y.-C. Chen, C. Shi, J.M. Kosterlitz, X. Zhu and Ping Ao, PNAS **119**(49), e221359119 (2022).

Invited lectures (1998-2022)

Physics Department Colloquium, Helsinki University, 1998
Physics Department Colloquium, Trondheim University, 1998
Physics Department Colloquium, Oakland University, 1998
Physics Department Colloquium. McGill University, 1998
Invited Talk, Statphys 20, Paris France 1998
Physics Dept. Colloquium, Cologne University 1998

Invited Talk, David Thouless Anniversary Conference, Seattle (1999)

Invited talk APS March Meeting, Minneapolis (2000)
Invited talk Dept. Physics, Melbourne University, Australia (2002)
Invited talk M2SRio, Rio de Janeiro, Brazil (2003)
Invited lectures at KIAS, Seoul, Korea (July 2004)
Colloquium at Los Alamos National Laboratory, (Nov. 2004)
Colloquium at Korea Institute for Advanced Study KIAS), (Oct. 2005)
Colloquium at Busan National University, Korea (Nov 2005)
Colloquium at KIAS (Dec. 2005)
Invited talk at PosTech, Pohang, Korea (June 2007)
Seminar at Greifswald University, Greifswald, Germany (July 2007)
Colloquium at Greifswald University, Germany (July 2007)
Invited Talk at Statphys 23, Genoa, Italy (July 2007)
Seminar at University of Texas at San Antonio (November 2007)
Colloquium at KIAS, (June 2008)
Colloquium at KIAS, (July 2009)
Invited talk at TKK, Helsinki, (October 2012)
Invited talk at KIAS, S. Korea (December 2012)
Invited talk at TKK, Helsinki, Finland (October 2016)
Nobel Lecture, Stockholm, Sweden (December 2016)
Invited talk at Uppsala University, Sweden (December 2016)
Several invited talks in S. Korea (2017)
Invited talk Hong Kong Baptist University, Jan 2017
Invited talk Hong Kong University, Jan 2017
Invited Special Kavli Symposium Speaker, APS March 2017
Edmonds Distinguished Lecture and Celebration, Boston University April 2017
Invited talk Suzhou University, China May 2017
Invited talk Nanjing University, China May 2017
Invited talk Shanghai University, China May 2017
Invited talk JiaoTong University, Shanghai May 2017
Invited talk National University of Technology, Singapore June 2017
Invited talk KIAS June 2017
Invited talk Gothenburg Mesoscopic Conference LT 28, Sweden August 2017
Eighteenth Distinguished Lecturer in Physics, Wisconsin University October 2017
Invited talk Northeastern University, November 2017
Invited talk at Robert Gordon's College, Aberdeen, U.K., November 2017
Invited talk at Aberdeen University, U.K., November 2017
Invited talk at "Imagine Get-Together , An Evening with Nobel Laureates", McKinsey Corp Boston, Novembe Invited talk Oxford and Cambridge Club, Boston, December 2017
Invited talk in Seoul Headmasters conference, January 2018
Invited talk Dept. Physics, Torino University in connection with conferral of honorary degree, February 2018
Invited talk, Resnick Lecture at Rensellaer Polytechnic, NY, March 2018
Nobel Lecture at Royal Academy of Sciences, Copenhagen, Denmark, April 2018
Invited talk, Varden Miles Memorial Lecture at Wayne State University, April 2018
Invited talk at Vassar College, NY, April 2018
Invited talk, Sir Neville Mott Lecture, Loughborough University, UK, May 2018
Forum speaker at Brown University in connection with conferral of honorary doctorate, May 2018

Invited talk at Shanghai University, Shanghai, China, June 2018
Invited talk at Suzhou University, China, June 2018
Invited talk at high school in South Korea, June 2018
Invited talk at Institute for Basic Science, Daejon, South Korea, June 2018
Invited talk at "33rd Summer Conference on Topology and its Applications", Western Kentucky University,
Invited talk at QFS2018 Conference in Tokyo, Japan, July 2018
Invited talk at Fisica 2018 Conference, Covilha, Portugal 2018
Invited talk 2018 Robert Oppenheimer Lecture by invitation of Oppenheimer Society at Los Alamos, October
Invited talk at LANL, Los Alamos, October 2018
Invited talks at Nobel Dialogue, "Congresso Futura", Valparaiso and Santiago, Chile, January 2019
Invited talk at Livermore, California, March 2019
Invited talk at Nobel Series, Dresden, Germany May 12-17 2019
Invited talk after getting Honorary DSc from McGill University, Canada, May 29-June 2 2019
Invited talk at Suzhou University, Suzhou, China June 2019
Invited talk at Shanghai University, China, June 2019
Invited talk and Q&A session at Lindau Institute, Germany, June 29- July 5, 2019
StatPhys 27, Q&A session with students, Buenos Aires, Argentina July 8-12, 2019
Invited talk, World Laureates Association, Shanghai, China October 29-Nov 1, 2019
Malmstrom Lecture at Hamline University, St Paul, MN, November 2019
Invited talk after Honorary DSc, Oakland University, Rochester, MN, December
2019 Thouless Institute Inauguration, University of Washington, Seattle, WA,
January 2020 Invited talk at Futures Conference 2020, Lisbon. Portugal, February
2020

APS March Meeting, Denver March 2020 - Cancelled due to Covid-19
Amazon Conference hosted Jeff Bezos, March 15-18 2020 - Cancelled due to Covid-19
NAS April meeting, Washington DC, April 20 May 1 2020 - Cancelled due to Covid-19
Global Frontiers, Cambridge UK July 20-26 2020 - Cancelled due to Covid-19
Erice Summer School, Erice, Italy July and August 2020 - Cancelled due to Coid-19
Sabbatical Leave July - December 2020 -Cancelled due to Covid-19

REMOTE CONFERENCES, INVITED TALKS and INTERVIEWS by WEB (2020):

Invited Lecture Series (3) at Suzhou University, China June 2020 by WEB
Invited Talk and Q&A session at Lindau Institute, Germany June 27 - July 3 by WEB
SISSA, Trieste, Italy WEBINAR October 24 2020
Invited Talk, World Laureate Association, Shanghai China 28 October 2020 by WEB:
Talk at Winchester College School UK December 12 2020 Webinar
Graduate Program in Physics Webinar, Para University, Belem, Brazil December 9 2020
Invited Talk to Brazilian Physical Society, December 21 2020, Webinar

REMOTE CONFERENCES, INVITED TALKS AND INTERVIEWS by WEB and in person 2021-22:

The CK Majumdar Memorial Lecture 15, Bose National Centerfor Basic Sciences, Kolkata and
Golden Jubilee Celebration of Department of Science and Technology, Govt. of India Web Lecture 02/15,2021
National Academy of Sciences, India, Delhi Chapter special public lecture, 02/24/2021 Web lecture

Max Planck Institute DS Colloquium, G¨ottingen, Germany, 05/12/2021 Web Colloquium

Suzhou University Invited lecture Series (3 lectures), China June 2021 Web
Lindau Institute, Germany, June 27-July 2, 2021, Nobel Conference (Web)
Valerie Pokrovsky 90th Anniversary, Moscow 17-20 August 2021 (Web)
Keynote Speaker 39th SPP Conference, Philippines, October 20-22, (2021) (Web)
World Laureates Association Conference (WLA4), Shanghai, Oct 30-Nov 3, 2021 (Web)
Invited talk UAM Mexico City, 11/30/2021 (Web)

Imperial College, London, Undergraduate Lecture, 02/02/2022 Web
UAM, Mexico, 02/22/2022 Web
MARS 2022, 03/27-30, 2022 (in person)
Max Planck Institute (MPI-DSI) Board Meeting, 04/26-29/2022 Virtual
NAS Annual Meeting Washington DC, 04/29-05/01/2022 (in person)
School of Physics, Southeast University, Nanjing, China, 05/10/2022
Virtual
Edison Award Lecture, Naval Academy, Washington DC, 05/10/2022
Virtual
IBS Seoul, Korea, Board Meeting, 05/19/2022 Virtual
European Physical Society Forum, Plenary Lecture, Paris, France 06/02-4/2022 (in person)
Saclay University, Paris, France 06/05-8/2022 (in person) 2 talks
Suzhou University, Suzhou, China 06/23,27,29/2022 (3 lectures)Virtual
A Conversation on Excellence (the convergence of rock climbing and physics), Brown University, 09/30/2022
Max Planck Institute (MPI-DSI) Board Meeting, 10/10/2022 Virtual
IBS, Seoul Korea Board Meeting, Seoul, Korea,Virtual 10/17/2022
Fourth World Science and Technology Forum, Chengdu, China, 11/11/2022 (Zoom Lecture)
Annual Nobel Dinner, Swedish Consulate, NY, 12/10/2022 (in person)

Interviews, 2020:
Il Piccolo, Trieste, Italy 10/01/2020
Elkiem Video - Research project of Andrew Meikle 11/02/2020
Voice of America 11/13/2020
Science for all, CGTN Thinktank, Beijing, China 12/01/2020
Scientistt 12/03/2020
Eton College, UK 12/17/2020

Interviews, 2021
American Institute of Physics - Oral History 01/07/2021
Stempod Tutoring 01/08/2021
Hebrew University of Israel, Noa Segev, 02/05/2021
Carlos Fernandez children, 02/10/2021
Mattia Salvi - podcast about my mountain experience, 03/16/2021
MPI-DS Advisory board, Interview, 03/17/2021
Museum of Science and Technology in Bogota, Colombia - Tatania Villate,
04/20/2021 Oral History Science Project, Duke University/ENS Paris, 05/14/2021
Brasenose College (Oxford) Principal's Conversation, 05/19/2021

Research in progress:

Wavelength Selection in Driven Out of Equilibrium Systems (with Saloni Saxena).
This research is remarkably successful because we have verified numerically that the selection mechanism is additive random stochastic noise. This is a most remarkable result because it is very counter intuitive but our work cannot be explained any other way. So far two publications have resulted: Phys Rev E **100** 022223 (2019) and Phys Rev E **103** 012205 (2021).
I have also collaborated with some colleagues from Shanghai, China on an analytic study of a driven out of equilibrium system which resulted in a paper in PNAS **117**, 23227-234 (2020). This work seems to explain our numerical results. My proposed work for the next year or two is to continue the investigations into driven out of equilibrium systems, also to study what happens in the simple SKS model phenomena in the control parameter range where more complicated patterns than simple periodic structures are present. This research resulted in a second paper in PNAS: "Topology, Vorticity and Limit Cycles in a Stabilized Kuramoto-Sivashinsky Equation" by Y-C Chen, C Shi, JM Kosterlitz, Xiaomei Zhu and Ping Ao, PNAS **119**(49), e221359119, (2022). This work shows that the dynamics of evolution to the very late time behavior is more complex than suspected, even for the very simple stabilized Kuramoto-Sivashinsky system in one spatial dimension. This work also does seem to give some insight into the essential effects of stochastic noise on evolution.

There are several other driven out of equilibrium systems which I intend to try to investigate by the methods of our PNAS papers. Among these are Directional Solidification, and Driven Eutectic Growth, both of which involve the study of a moving interface. The SKS model used in our PNAS paper and the extension described above are quite similar because they all study driven out of equilibrium systems. However, the description of these processes are different. Our new method of the PNAS paper uses the SKS model which seems to have a structure which lens itself to our methods and does describe driven interfaces. However, the structure of the models for the other moving interface systems (eutectic growth and directional solidification) is rather different from the SKS system and, at least at the present time, seem to be too different to use our methods although the underlying physics of all these models is very similar. Perhaps the difference in the models is just some technical difference which further research will overcome. An even more speculative application is to the evolution of biological species regarding them as driven out of equilibrium systems.

This is my intended research for the next two or three years when I intend to apply the methods of our PNAS paper to investigate processes such as directed solidification and eutectic growth. Another set of driven out of equilibrium systems I intend to investigate is the growth of typical biological systems which are known to be very good pattern formers even in the presence of very strong external noise! Note that the physics community generally believes that strong stochastic noise will destroy a pattern while research along the lines described seems to say that the stochastic noise is essential for the selection of a unique stationary pattern in certain driven out of equilibrium systems **Research**

Research Grants:

a) Current Grants: NSF DMR 2203380, 08/01/2022-07/31/2025, X.S. Ling and J.M Kosterlitz, Thermally Activated Dynamics of 2D Colloidal Glasses and Crystals,

7. Service

(i) Department

1983-84	Graduate Curriculum Committee, Physics Department
1983-84	QPEC, Physics Department
1984-85	Chair, Colloquium/Seminar Committee, Physics Dept.
1985-86	Colloquium/Seminar Committee, Physics Dept.
1985-86	Chair, Graduate Curriculum Committee, Physics Dept.
1986-89	Member, CAFA
1989-90	Member, CCC
1990-92	Chair, Qualifying/Prelim. Committee, Physics Dept.
1993-01	Member, QPEC, Physics Dept.
1993-94	Chair, Graduate Curriculum Committee, Physics Dept.
1995-97	Member, Graduate Curriculum Committee, Physics Dept.
2001-03	Member, Undergraduate Curriculum Committee, Physics Dept.
2006-2018	Member Graduate Admissions Committee, Physics Department
2019-22	Qualifying/Prelim Committee
2019-2023	Graduate admissions committee

(ii) University

2007-08	Member Committee on Diversity in Hiring
2008-09	Member Committee on Faculty Equity and Diversity (CFED)
2009-10	Vice Chair of CFED
2010-11	Chair of CFED
2011-12	Past Chair CFED

(ii) Profession

2000	Member of 2001 Lars Onsager Prize selection committee of APS.
2002-03	International Support Committee and referee for M2S-RIO International Conference, Rio de Janeiro, May 2003.
2019 -	Institute of Basic Science, Daejeon, Korea, Advisory Board
2021 -	Member Max Planck Institute, Goettingen, Germany, Advisory Board Member

Academic Honors:

- 1980 Maxwell Medal, awarded by Institute of Physics

- 1993 Elected Fellow of American Physical Society
- 2000 Lars Onsager Prize awarded by American Physical Society
- 2006 Harrison E Farnsworth Professor of Physics, Brown University
- 2007 Elected Fellow of American Academy of Arts and Science
- 2008 Appointed Korea Institute for Advanced Study Scholar
- 2012 Reappointed KIAS Scholar
- 2016 Appointed Distinguished Professor, KIAS
- 2016 Nobel Prize in Physics (with D. J. Thouless and D. Haldane)
- 2017 Elected Member of National Academy of Sciences
- 2017 Honorary degree from Birmingham University
- 2017 Honorary degree from Aberdeen University
- 2017 Elected honorary fellow of Brasenose College, Oxford University
- 2017 Elected honorary fellow of Gonville & Caius College, Cambridge University
- 2018 Honorary doctorate from Brown University
- 2018 Honorary doctorate from Torino University
- 2018 Inducted as member of National Academy of Sciences
- 2019 Honorary DSc from McGill University, Montreal, Canada
- 2019 Honorary DSc from Oakland University, Rochester,

9. **Teaching**

1995-96, Sem I	Physics 243
1995-96, Sem II	Physics 214
1996-97, Sem I	Physics 247
1996-97, Sem II	Physics 204
1997-98, Sem I	Physics 203
1997-98, Sem II	Sabbatical
1998-99, Sem I	Physics 247 (9 students)
1998-99, Sem II	Physics 204 (17 students)
1999-00, Sem I	Physics 202 (20 students)
1999-00, Sem II	Physics 204 (20 students)
2000-01, Sem I	Physics 202 (19 students)
2000-01, Sem II	Physics 204 (16 students)
2001-02, Sem I	Physics 243 (6 students)

2001-02, Sem II Physics 214 (12 students)
2002-03, Sem I Physics 202 (12 students)
2002-03, Sem II Physics 214 (13 students)
2003-04, Sem I Physics 243 (4 students)
2003-04, Sem II Physics 214 (12 students)
2004-05, Sem I Physics 247 (11 students)
2004-05, Sem II Physics 214 (19 students)
2005-06, Sem I Sabbatical leave at Korea Institute for Advanced Study and Finland.
2005-06, Sem II Physics 214 (17 students)
2006-07, Sem I Physics 247 (8 students)
2006-07, Sem II Physics 204 (17 students)
2007-08, Sem I Physics 243 (0 students)
2007-08, Sem II PHYS 0060 (26 students)
2008-09, Sem I PHYS 2470 (9 students)
2008-09, Sem II PHYS 2040 (20 students)
2009-10, Sem I PHYS 2430 (10 students)
2009-10, Sem II PHYS 2140 (15 students)
2010-11, Sem I PHYS 2470 (10 students)
2010-11, Sem II PHYS 2140 (12 students)
2011-12, Sem I PHYS 1510 (10 students)
2011-12, Sem II PHYS 2140 (15 students)
2012-13, Sem I Sabbatical leave Finland and Korea
2012-13, Sem II PHYS 2040 (12 students)
2013-14, Sem I Phys 2410 (8 students)
2013-14, Sem II Phys 2040 (15 students)
2014-15, Sem I Phys 2410 (20 students)
2014-15, Sem II Phys 2040 (12 students)
2015-16, Sem I Phys 2410 (8 students)
2015-16, Sem II Phys 2040 (15 students)
2016-17 Sem I On sabbatical leave Brazil, Finland and Korea
2016-17, Sem II Phys 2140 (55 students!!)
2017-18, Sem I Phys 2430 (15 students)
2017-18 Sem II Phys 2140 (30 students)
2018-19 Sem I Phys 2470 (15 students)
2018-19 Sem II Phys 1790G (10 students)
2019-20 Sem I Phys 2430 (5 students)
2019-20 Sem II Phys 1790G (11 students)
2020-21 Sem I Phys 2470 (10 students)
2020-21 Sem II Phys 2040 (26 students)
2021-22Sem i Phys 2020 (19 students)
2021-22 Sem II Sabbatical Leave
(at Brown due to the Pandemic)
2022-23 Sem I Phys 2020 (9 students)
2022-23 Sem II Phys 2140 (15 students)

PhD. Theses Directed:

1. A. Jagannathan, Oct. 1985: 1/N Expansion for Random Anisotropy Models
2. E. Granato, May 1986: Phase Transitions in 2-D Superconducting Arrays in a Transverse Magnetic Field
3. P.O. Weir, May 1987: Low Dimensional Spin Models
4. J. M. Kim, May 1989: Surface Fluctuation in a Non-Linear Growth Model
5. Jooyoung Lee 1990: New Numerical Method to Study Phase Transitions and Applications
6. I. Bukharev 1995: Statistical Mechanics of Nonequilibrium Systems
7. M.V. Simkin 1997: Numerical Studies of Josephson Arrays, Spin Glasses and Gauge Glasses
8. N.Akino 1999: Numerical Study of Ordering in XY Spin and Gauge Glasses
9. D. Obeid 2010: Wavelength Selection in the Stabilized Kuramoto-Sivashinsky Equation
10. S. Saxena, May 2021: Selection in Driven Out of Equilibrium Systems

Invited Lectures 1977-1997:

- Gordon Research Conference on Quantum Solids and Fluids, Brewster Academy, New Hampshire (July 1977)
- E.S.T. Conference on Theoretical Physics, San Francisco, California (January 1979)
- International Conference on Two–Dimensional Systems, Riso Copenhagen, Denmark (March 1979)
- 6th MECO Conference, Trieste, Italy (March 1979)
- University of Delft, Holland (April 1979)
- Summer School on Low Temperature Physics, Erice, Sicily (June 1979)
- ETH, Zurich, Switzerland (June 1979)
- Gordon Research Conference on Condensed Matter Physics, Brewster Academy, New Hampshire (July 1979)
- 4th Oregon Conference on Liquid He (August 1979)
- Invited to speak at European Physical Society, Antwerp meeting, (June 1980)

- Lectures at NATO Winter School, Geilo, Norway (April 1981)
- Invited to ICM, Kyoto (September 1982)
- Invited to speak at APS Meeting, Detroit, Michigan (March 1984)
- Invited Lecture at NATO Workshop, “Coherence in Superconducting Networks,” Delft (1987).
- Invited Talk at Stat. Phys. 17, Rio de Janeiro, (1989).
- Invited Talk at Gordon Conference on Fractals, (1990).
- Invited Talk at Koerber Symposium, Helsinki, Finland (1991).
- Invited Talk at Workshop on Complex Systems, Trieste Italy (1991).
- Invited Talk at Summer School on Computations in Condensed Matter Physics, Helsinki Finland (1991).
- Course on “Growth of Surfaces” – Troisieme Siecle – Lausanne, Switzerland, April (1991).
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- Invited talk at 2nd CTP Workshop on “The Kosterlitz-Thouless Transition and Superconducting Arrays” Seoul, Korea (Jan. 1993)
- Invited Talk at Workshop on Josephson Junction Arrays, Wyoming, (July 1995)
- Invited Talk at Brazilian Physical Society Conference, Brazil (July, 1995)
- Invited Talk at Bilateral US-Japan Seminar on Computer Simulations in Physics, Hawaii, (August 1995)
- Invited Talk at NEC Laboratories, Princeton NJ, (Nov. 1995
- CV prepared 01/30/2023

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