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EDUCATION

- ❖ B.A. in Physics: 1973, Tel-Aviv University, Ramat Aviv, Israel.
 - ❖ M.Sc. in Physics: 1977, Tel-Aviv University, Ramat Aviv, Israel.
- Thesis: *Topics in the Theory of Superconductivity*; Advisors: G. Deutscher and O. Entin-Wohlman.
- ❖ Ph.D. in Physics: 1981, Carnegie-Mellon University.
- Thesis: *Tricritical Points and Ising Models on a Hierarchical Lattice*; Advisor: R. B. Griffiths.

POSITIONS HELD

- 1983-1985: Postdoctoral Fellow, MIT; Advisor: A. Nihat Berker
- 1985-1989: Assistant Professor, Cleveland State University.
- 1989- 1995: Associate Professor, Cleveland State University.
- 1995-Present Professor of Physics and Urban Studies, Cleveland State University.
- 2000-2012 Chair Physics Department, Cleveland State University.
- 2000-present director MS Medical Physics
- 2009-present co-director CSUTeach institute

AWARDS

- Bantrell Fellowship at MIT, 1983-5
- CSU Distinguished Faculty Award for Research 2007.

VISITING POSITIONS

- ✓ MIT Condensed Matter Theory Group summer research, 1988.
- ✓ NASA-ASEE summer faculty fellowship 1994, 1995, 1996.
- ✓ Tel Aviv University, Israel: November-December 2007.
- ✓ Universite de Cergy-Pontoise, France: September-October 2007; December 2008 – January 2009; December 2009 – January 2010; May 2011; May 2012; May 2013.

TEACHING

- University Physics PHY241/243, 242/244;
- Electricity and Magnetism PHY350;
- Environmental Physics PHY470/570;
- Thermal Physics PHY474;
- Statistical Physics PHY475;
- Monte Carlo Simulations of Complex Systems PHY493/593;
- Computational Physics PHY420/520.

GRANTS

- **Light Scattering Study of Liquid Mixtures** (with T. Taylor); funded by the Ohio Board of Regents through a Research Challenge Grant, 1987.
- **High Temperature Superconductivity** (with P. D. Hambourger, S. N. Tewari); funded by the Ohio Board of Regents through a Research Challenge Grant, 1988-9.
- **Thermal Properties of Pressurized Materials**; funded by NASA, 1988-89.
- **Computational Technology for the Quantitative Methods** (with W. Bowen); funded by CSU's Dean's Grants for Technology Innovation in Instruction program, 1996.
- **Applications of Monte Carlo Techniques in Mathematics, Sciences and Economics** (with C. Adler, J. Oprea, J. Walsh); funded by CSU's Dean's Grants for Technology Innovation in Instruction program, 1996.
- **Development of Teaching Materials Using Computer Technology**; funded by CSU's Center for Teaching Excellence through a Teaching Enhancement Award, 1997.
- **Age Differences in Episodic and Semantic Memory**; (with Phil Allen) funded by NIH 1997-1999.
- **Faculty Development Award**; funded by CSU 1998.
- **Alzheimer Disease and Entropy Levels of Information Processes**; (with Phil Allen) funded by NIH through Alzheimer Center CWRU 2000-2001.
- **Complexity Mixing Index Based on Entropy for Polymer Processing Control and Optimization**, funded by NSF through CWRU, 2002-2005.
- **CSUTeach: Preparing a New Generation of Noyce Scholars**, (with J. Goodell) funded by NSF \$900,000, 2009-2014.
- **MRI: Acquisition of a field emission scanning electron microscope for multidisciplinary nanotechnology research**, (with P. S. Fodor) funded by NSF 2011-2013, \$472,115.
- **MRI: Acquisition of a 4G/LTE Wireless Communications Test Set**, (with Ye Zhu) funded by NSF 2013-2016, \$252,700.

DEPARTMENTAL, COLLEGE, UNIVERSITY, PROFESSIONAL SERVICE

Physics Department

- Web Master, 1997-present
- Chair PRC for visiting Physics faculty 1997-8
- Chair Curriculum Committee, 1994-2000
- Graduate Committee, 1985-present
- Library - Physics Liason, 1989-present
- PAC for visiting Physics faculty, 1993
- PAC for tenure track Physics faculty, 1994
- PRC for tenure track Physics faculty, 2000
- chair steering committee Medical Physics program, 2000-2014
- Co-Director MS Medical Physics, joint CSU-CCF program, 2000- present
- Chair Department of Physics 2000-2012

College of Arts and Sciences

- Budget and Planning Committee, 1987-88
- Promotion and Tenure Committee, 1990
- PAC promotion Mathematics Dept, 1995-98
- Academic Planning Committee, 1997
- Curriculum Committee, 1998-2000
- Academic Standards Committee, 2000-2003
- A&S representative to the Faculty Senate, 2001-2003

College of Science

- Transition committee for organization of new COS 2003-2004
- Curriculum Committee, 2004-2006
- Chair Search for COS Associate Dean for Faculty and Programs Committee, 2006
- COS representative to Faculty Senate, 2004-2006; 2009-2011; 2011-2013

College of Graduate Studies

- RCAC Committee, 1988-1992
- Graduate Faculty Review Committee, 1997-1999
- Graduate College representative to the Faculty Senate, 1997-1999
- Graduate Council 1888-2000, 2001-2003, 2014-2016

University

- Library Committee, 1994-1995
- Library Committee Chair, 1995-1998
- Environmental Science Steering Committee, 1996
- Advisory Committee for the Great Lakes Science Center, 1996-1997
- Computation Services Committee, 1998-1999, 2001-2003
- Chair Computation Services Committee, 1999-2001
- Member of the Steering Committee of the Biomedical and Health Institute, 2001-2003
- Search for Dean of COS Committee, 2004.
- Co-Director CSUTeach, NSF supported, 2009-current
- Teacher Education Advisory Council (TEAC)
- Honors Program Review 2011-2012
- Program Review Department of Electrical and Computer Engineering 2013-2014

Professional

- Referee Physics of Fluids, Physica A, Physical Review, Physical Review Letters
- Editorial Board International Journal of Global Environmental Issues
- Session chair national meeting American Physical Society, St Louis, March 1996
- Organizer of Fall 2005 Ohio Section of American Physical Society Meeting, Cleveland, September 2005
- Session chair at MIT Symposium, October 2009
- Session chair national meeting American Physical Society, Portland, March 2010
- Member International Advisory Committee of The International Conference of Frustrated Spin Systems, Cold Atoms, Nanomaterials, Hanoi, Vietnam, July 2010
- Session chair at 3rd International Conference on Nanotechnology: Fundamentals and Applications, Montreal, Quebec, Canada, August 2012.

STUDENT RESEARCH DIRECTED

- ✓ Scott Chase, MIT, 1985, BS. Thesis: *Heat Capacity Critical Amplitudes*
- ✓ Philip Klunzinger, CSU, BS, 1985-86: *Phase Diagram for Random Field Systems*
- ✓ Michael Kahana, CSU, BS, 1986-87: *Competition of Antiferromagnetic Short-Range and Ferromagnetic Infinite-Range Interactions on the Cayley Tree*
- ✓ Carlos DeGroot, CSU, BEng, 1986-87: *Model for Aggregation and Phase Separation: Mean-Field Approximation*
- ✓ Michael Peterson, CSU, BS, 1986-87: *Model for Aggregation and Phase Separation in One Spatial Dimension*
- ✓ Todd Berger, U. Akron, 1988-89, MS Thesis: *Renormalization-Group Study of Polymerization*
- ✓ Michael Kanner, CSU, BS, 1989-90: *Blume-Capel Model in a Random Magnetic Field*
- ✓ Sue Fen Chen, CSU, 1990, MS: *Thermodynamics of Polymerization Processes*
- ✓ Michael Kanner, CSU, 1990-91: *Chaotic Dynamics of Conduction Electrons in a Cubic Crystal in a Magnetic Field*
- ✓ Jiangfeng Li, CSU, 1991-92, MS: *Renormalization-Group Study of Tree-like Polymers*
- ✓ Brad McGovern, CSU, 1992: *Electrical Percolation on Fractal Networks*
- ✓ Jimmy Touma, CSU, 1992-93, MS: *Phase Diagram of an Amorphous Magnet*
- ✓ Ann Friederich, CSU, 1993-94: MS Thesis, *Urban Property Values, Percolation Theory and Fractal Geometry*
- ✓ Timothy McCollum, CSU, 1994, MS: *Adsorption of a Gas of Bosons on a Surface*
- ✓ Patricia Walters, CSU, 1996: *Electrical Percolation on Hierarchical Lattices*
- ✓ Patricia Walters, CSU, 1996-1997, MS: *Statistical Mechanics of Solids with Defects*
- ✓ Anthony Adorjan, CSU, BS, 1996: *Dynamics of an Electron in a Magnetic Field in a Periodic Lattice*
- ✓ Juliet Cooper, CSU, BS, 1997: *Population Study*
- ✓ George Yurkon, CSU, 1998-2000, MS: *Chaos in a Nonlinear Model of Solids*
- ✓ Kunwar Singh, CSU, 1999-2000, MS: *Bose-Einstein Condensation*
- ✓ Russell Messer, CSU, 2001, MS: *Renyi Entropy of Monte Carlo Simulations of Ising Model*
- ✓ Winston Wang*, CWRU, 2001-2002, PhD Thesis: *Development of Mixing Indices for Optimization and Scale-up of Polymer Processing Equipment*
- ✓ Aditya Joshi, CSU, 2003, BS: *Advection and Mixing in a Rectangular Channel Flow*
- ✓ M. O'Malley*, (Carnegie Mellon Univ.) CWRU, summer 2003, REU, *Influence of Surface Geometry on the Flow Field in a Rectangular Duct*
- ✓ Mukesh Kumar** 2001- 2004, CSU College of Urban Affairs, Ph.D, *Employment Centers as Self-Organizing Complex Systems: an Empirical Evaluation*
- ✓ Jessica Dequach*, CWRU, summer 2004, REU, *Diffusion and Mixing in a Rectangular Micro Channel*
- ✓ Julian Salguero* (U Wisc Madison), CWRU, summer 2005, REU, *Analysis of Thermography Pictures Using the Statistical Entropy*
- ✓ Kirill Alemaskin*, CWRU, 2003-2005 Ph.D. Thesis: *Entropic Measures of Mixing in Application to Polymer Processing*
- ✓ Marco Camesasca*, CWRU, 2004-2006, Ph.D. Thesis: *Multiscaling Analysis of Fluidic Systems: Mixing and Microstructure Characterization, the 2006 Bayer Fellowship Award for Excellence in Macromolecular Studies.*

- ✓ Matthew Itomlenskis***, CSU, undergrad, Summer 2008, Design of Passive Micromixers using COMSOL
 - ✓ Brian Vyhnalek, CSU, 2009, honors project, Spring 2009, Macromolecules in Microchannels
 - ✓ Prasenjit Bose***, CSU, 2012, honors project, Summer 2010, 2011, DNA Dynamics in Micromixers
 - ✓ Brian Vyhnalek***, CSU, 2011-2013, MS exit project, Dean Flows and Mixing
 - ✓ Nehad Amin, CSU, 2013, MS exit project, Entropy Applied to Electron Microscope Images
- *co-advised with I.Manas-Zloczower, CWRU, supported by NSF grant; **co-advised with W. Bowen, College of Urban Affairs; ***co-advised with P.Fodor

PUBLICATIONS (refereed) (referenced 1500 times; Hirsch index 21)

1. **Electronic Spin Susceptibility of a Superconducting Alloy Containing Magnetic Impurities.** M. Kaufman, O. Entin-Wohlman, *Physica B* 84, 77-89 (1976).
2. **Landau-Ginzburg Equation for a Superconductor Containing Magnetically Ordered Impurities.** M. Kaufman, O. Entin-Wohlman, *Physica B* 84, 90-101 (1976).
3. **Thermodynamic Model and Sum Rules for Three-Phase Coexistence near a Tricritical Point in a Liquid Mixture.** M. Kaufman, K. K. Bardhan, R. B. Griffiths, *Phys. Rev. Lett.* 44, 77-80 (1980).
4. **Three-Component Model for Tricritical Points: A Renormalization-Group Study. Two Dimensions.** M. Kaufman, R. B. Griffiths, J. M. Yeomans, M. E. Fisher, *Phys. Rev. B* 23, 3448-3459 (1981).
5. **Exactly Soluble Ising Models on Hierarchical Lattices.** M. Kaufman, R. B. Griffiths, *Phys. Rev. B* 24, 496-498 (1981), Rapid Communication.
6. **Thermodynamic Model for Tricritical Mixtures with Application to Ammonium Sulfate + Water + Ethanol + Benzene.** M. Kaufman, R. B. Griffiths, *J. Chem. Phys.* 76, 1508-1524 (1982).
7. **Infinite Susceptibility at High Temperatures in the Migdal-Kadanoff Scheme.** M. Kaufman, R. B. Griffiths, *J. Phys. A* 15, L 239-242 (1982).
8. **Spin Systems on Hierarchical Lattices: Introduction and Thermodynamic Limit.** R. B. Griffiths, M. Kaufman, *Phys. Rev. B* 26, 5022-5032 (1982).
9. **First-Order Transitions in Defect Structures at a Second-Order Critical Point for the Potts Model on Hierarchical Lattices.** M. Kaufman, R. B. Griffiths, *Phys. Rev. B* 26, 5282-5284 (1982), Rapid Communication.
10. **Convexity of the Free Energy in Some Real Space Renormalization-Group Approximations.** M. Kaufman, R. B. Griffiths, *Phys. Rev. B* 28, 3864-3865 (1983).
11. **Competing Criticality of Short- and Infinite-Range Interactions on the Cayley Tree.** M. Kardar, M. Kaufman, *Phys. Rev. Lett.* 51, 1210-1213 (1983).
12. **Realizable Renormalization Group and Finite Size Scaling.** M. Kaufman, K. K. Mon, *Phys. Rev. B* 29, 1451-1453 (1984).
13. **Short-Range and Infinite-Range Bond Percolation.** M. Kaufman, M. Kardar, *Phys. Rev. B* 29, 5053-5059 (1984).
14. **Comment on Criticality of the Anisotropic Quantum Heisenberg Model on a Self-Dual Hierarchical Lattice.** M. Kaufman, M. Kardar, *Phys. Rev. Lett.* 52, 483 (1984).
15. **Critical Amplitude of the Potts Model: Zeroes and Divergences.** M. Kaufman, D. Andelman, *Phys. Rev. B* 29, 4010-4016 (1984).
16. **Pseudo-Dimensional Variation and Tricriticality of Potts Models by Hierarchical Breaking of Translational Values.** M. Kaufman, M. Kardar, *Phys. Rev. B* 30, 1609-1611 (1984), Rapid Communication.
17. **Spin Systems on Hierarchical Lattices. II. Some Examples of Soluble Models.** M. Kaufman, R. B. Griffiths, *Phys. Rev. B* 30, 244-249 (1984).
18. **Duality and Potts Critical Amplitudes on a Class of Hierarchical Lattices.** M. Kaufman, *Phys. Rev. B* 30, 413-414 (1984).

19. **Comment on Approaches to the Tricritical Point in Quasibinary Fluid Mixtures.** M. Kaufman, R. B. Griffiths, Phys. Rev. Lett. 53, 741 (1984).
20. **Random-Field Critical Behavior and the Ginzburg Criterion.** M. Kaufman, M. Kardar, Phys. Rev. B 31, 2913-2919 (1985).
21. **N-Color Spin Models in the Large N Limit.** M. Kardar, M. Kaufman, Phys. Rev. B 31, 7282-7284 (1985).
22. **Renormalization-Group Analysis of Heat Capacity Critical Amplitudes.** S. I. Chase, M. Kaufman, Phys. Rev. B 33, 239-244 (1986).
23. **Random-Field Critical Behavior.** M. Kaufman, Superlattices and Microstructures, 1, 511-515 (1985).
24. **Comment on the Origin of Nonuniversality in Micellar Solutions.** R. G. Caflisch, M. Kaufman, J. R. Banavar, Phys. Rev. Lett. 56, 2545 (1986).
25. **Multicritical Points in an Ising Random-Field Model.** M. Kaufman, P. E. Klunzinger, A. Khurana, Phys. Rev. B 34, 4766-4770 (1986).
26. **Multicritical Susceptibility Sum Rules.** M. Kaufman, M. Ma, Phys. Rev. A 35, 2369-2372 (1987), Rapid Communication.
27. **Square-Lattice Ising Model in a Weak Uniform Magnetic Field: Renormalization-Group Analysis.** M. Kaufman, Phys. Rev. B 36, 3697-3700 (1987).
28. **Cayley Tree Ising Model with Antiferromagnetic Nearest-Neighbor and Ferromagnetic Equivalent-Neighbor Interactions.** M. Kaufman, M. Kahana, Phys. Rev. B 37, 7638-7642 (1988).
29. **Equilibrium Polymerization on the Equivalent-Neighbor Lattice.** M. Kaufman, Phys. Rev. B 39, 6898-6906 (1989).
30. **Polymerization on the Diamond Hierarchical Lattice: the Migdal-Kadanoff Renormalization-Group Scheme.** M. Kaufman, T. Berger, P. D. Gujrati, and D. Bowman, Phys. Rev. A 41, 4371-4378, (1990).
31. **Blume-Capel Model in a Random Magnetic Field: Mean-Field Theory.** M. Kaufman, M. Kanner, Phys. Rev. B 42, 2378-2382 (1990).
32. **Scaling Thermodynamic Model of Type I Superconductors.** M. Kaufman, Physica A 177, 523-529 (1991).
33. **Phase Diagram of the Ising Model on Percolation Clusters.** M. Kaufman and J. E. Touma, Phys. Rev. B 49, 9583-9585 (1994).
34. **Urban Property Values, Percolation Theory and Fractal Geometry.** A. Friederich, S. Kaufman, M. Kaufman, Fractals 2, 469-471 (1994).
35. **Thermodynamic Model for Pressurized Solids.** M. Kaufman and H. Schlosser, J. Phys. Condensed-Matter 7, 2259-2264 (1995).
36. **Monte Carlo Study of the Square-Lattice Annealed Ising Model on Percolating Clusters.** P. D. Scholten, M. Kaufman, Phys. Rev. B 56, 59-62 (1997).
37. **A Molar Entropy Model of Age Differences in Spatial Memory.** P. A. Allen, M. Kaufman, F. Smith, R. E. Propper, Psychology and Aging, 13, 501-518 (1998).
38. **Age Differences in Entropy: Primary versus Secondary Memory.** P. A. Allen, M. Kaufman, F. Smith, R. E. Propper, Experimental Age Research, 24, 307-336, (1998).
39. **Characterization of Distributive Mixing in Polymer Processing Equipment using Renyi Entropies.** W. Wang, I. Manas - Zloczower, M. Kaufman, International Polymer Processing, XVI, 315 - 322 (2001).
40. **Entropic Characterization of Distributive Mixing in Polymer Processing Equipment.** W. Wang, I. Manas-Zloczower, M. Kaufman, American Institute of Chemical Engineers (AIChE) Journal 49, 1637 (2003).
41. **Immigrant Location Decisions and Outcomes.** S. Kaufman, W. Olson, M. Kaufman, International Journal of Economic Development, 5, part 3 (2003).

42. **Age Differences in Central (Semantic) and Peripheral Processing: The Importance of Considering Both Response Times and Errors**, P. A. Allen, M. D. Murphy, M. Kaufman, K. E. Groth, and A. Begovic, *J Gerontol B Psychol Sci. Soc. Sci.* 59, 210-219 (2004).
43. **Index for Simultaneous Dispersive and Distributive Mixing Characterization in Processing Equipment**. K. Alemaskin, I. Manas-Zloczower, M. Kaufman, *International Polymer Processing*, 19 (4), 327-334 (2004).
44. **Entropy Time Evolution in a Twin Flight Single Screw Extruder and its Relationship to Chaos**. W. Wang, I. Manas-Zloczower, M. Kaufman, *Chemical Engineering Communications*, 192 (4), 405-423 (2005).
45. **Influence of Initial Conditions on Distributive Mixing in a Twin Flight Single Screw Extruder**. W. Wang, I. Manas-Zloczower, M. Kaufman, *Chemical Engineering Communications* 192 (6), 749-757 (2005).
46. **Nonlinear Analysis of Electromyography Time Series as a Diagnostic Tool for Low Back Pain**. P. Sung, U. Zurcher, M. Kaufman, *Medical Science Monitor* 11 (1) 1-5 (2005).
47. **Influence of Extruder Geometry on Laminar Mixing: Entropic Analysis**. M. Camesasca, I. Manas-Zloczower, M. Kaufman, *Plastics, Rubber and Composites: Macromolecular Engineering*, 33 (9/10) 372-376 (2005).
48. **Entropic Analysis of Color Homogeneity**. K. Alemaskin, I. Manas-Zloczower, M. Kaufman, *Polymer Engineering and Science*, 45 (7) 1031-1038 (2005).
49. **Color Mixing in the Metering Zone of a Single Screw Extruder: Numerical Simulations and Experimental Validation**. K. Alemaskin, I. Manas-Zloczower, M. Kaufman, *Polymer Engineering and Science*, 45 (7), 1011-1020 (2005).
50. **Entropic Characterization of Mixing in Microchannels**. M. Camesasca, I. Manas-Zloczower, M. Kaufman, *Journal of Micromechanics and Microengineering*, 15, 2038-2044 (2005).
51. **Quantifying Fluid Mixing with the Shannon Entropy**. M. Camesasca, M. Kaufman, I. Manas-Zloczower, *Macromolecular Theory and Simulations*, 15, 595-607 (2006), featured article
52. **Staggered Passive Micromixers with Fractal Surface Patterning**. M. Camesasca, M. Kaufman, I. Manas-Zloczower, *Journal of Micromechanics and Microengineering*, 16, 2298-2311 (2006).
53. **Urban Spatial Structure as Self-Organizing Systems: An Empirical Evaluation of Firm Location Decisions In Cleveland-Akron PMSA, Ohio**. Mukesh Kumar, W. Bowen, M. Kaufman, *Annals of Regional Science* 41(2), 297-314 (2007).
54. **Analytical Model of Fragmentation in Creeping Flow Based on Bateman Equations**. M. Kaufman, *Nanoscale and Microscale Thermophysical Engineering* 11, 129-136 (2007).
55. **Comparison of Spectral and Entropic Measures for Surface EMG Time Series: A Pilot Study**. P. S. Sung, U. Zurcher, M. Kaufman, *Journal of Rehabilitation Research and Development*, 44 (4) 599-609 (2007).
56. **Entropy of Electromyography Time Series**. M. Kaufman, U. Zurcher, P. S. Sung, *Physica A* 386, 698-707 (2007).
57. **Potts-percolation-Gauss Model of a Solid**. M. Kaufman and H. T. Diep, *Journal of Physics: Condensed Matter* 20, 075222 (2008).
58. **Gender differences in spectral and entropic measures of erector spinae muscle fatigue**. P. S. Sung, U. Zurcher, M. Kaufman, *Journal of Rehabilitation Research and Development*, 45, 1431-1439 (2008).
59. **Assessment of mixing in passive microchannels with fractal surface patterning**. P. S. Fodor, M. Itomlenskis, M. Kaufman, *The European Physical Journal Applied Physics*, 47(3), 31301, (2009).
60. **Extended defects in the Potts-percolation model of a solid: Renormalization group and Monte-Carlo analysis**. H.T. Diep, M. Kaufman, *Phys. Rev. E*, 80, 031116 (2009).

61. **Reliability difference between spectral and entropic measures of erector spinae muscle fatigability.** P. S. Sung, U. Zurcher, M. Kaufman, *Journal of Electromyography and Kinesiology* 20, 25–30 (2010).
62. **Preface.** J. O. Indekeu, M. Kaufman, *Physica A* 389 (15) 2865 (2010).
63. **Fluid mechanics in rectangular cavities — analytical model and numerics.** M. Kaufman, P. S. Fodor, *Physica A* 389 (15) 2951-2955 (2010).
64. **Modeling of Agglomerate Dispersion in Single Screw Extruders.** N. Dominguez, M. Camesasca, M. Kaufman, I. Manas-Zloczower, A. Gaspar-Cuhna, J. A. Covas, *Intern. Polymer Processing XXV* (3), 251-257 (2010).
65. **Dynamics of Filler Size and Spatial Distribution in a Plasticating Single Screw Extruder-Modeling and Experimental Observations.** N. Dominguez, A. Gaspar-Cuhna, J. A. Covas, M. Camesasca, M. Kaufman, I. Manas-Zloczower, *Intern. Polymer Processing XXV* (3), 188-198 (2010).
66. **Time Evolution of Mixing in the Staggered Herringbone Microchannel.** P. S. Fodor and M. Kaufman, *Modern Physics Letters B* 25 (12, 13) 1111-1125 (2011).
67. **Radial Motion in a Central Potential for Singular Mass Distributions.** U. Zurcher and M. Kaufman, *American Journal of Physics* 79(5), 521-526 (2011).
68. **Equation of State from the Potts-Percolation Model of a Solid.** M. Kaufman, H. T. Diep, *Phys. Rev. E* 84, 051106 (2011).

CONFERENCE PROCEEDINGS AND BOOK CHAPTERS:

1. **Statistical Model for Mechanical Failure.** M. Kaufman, J. Ferrante, NASA Tech. Memo. 107112 (1996).
2. **A Polymer Model of the Spatial Patterns of Change in Urban Property Values.** M. Kaufman, S. Kaufman, A. Friederich, pg. 32-37 in "Social and Economic Problems of Urban Transportation Systems", ed. S. A. Vaksman, Ekaterinburg, Russia (2000).
3. **Chaotic Features of Flow in Single Screw Extruders - Relevance to Distributive Mixing,** W. Wang, I. Manas-Zloczower, M. Kaufman, *Proceedings of the Eighteenth Annual Meeting of the Polymer Processing Society, PPS-18, Guimaraes, Portugal, (2002).*
4. **Characterization of Dynamics of Mixing in Polymer Processing and Its Relationship to Chaos,** W. Wang, I. Manas-Zloczower, M. Kaufman, *Proceedings of the NSF Design, Service and Manufacturing Grantees and Research Conference, Birmingham, Al. (2003).*
5. **Simultaneous Characterization of Dispersive and Distributive Mixing in a Single Screw Extruder,** K. Alemaskin, I. Manas-Zloczower, M. Kaufman, *Proceedings ANTEC2003, the Annual Technical Conference of the Society of Plastics Engineers, Nashville (2003).*
6. **Advection and Mixing in a Single-Screw Extruder-An Analytical Model,** M. Kaufman, *American Institute of Chemical Engineers Annual Meeting Conference Proceedings, San Francisco (2003).*
7. **Applications of Entropy to Polymer Processing,** K. Alemaskin, M. Camesasca, I. Manas-Zloczower, M. Kaufman, *Proceedings of the NSF Design, Service and Manufacturing Grantees and Research Conference, Dallas (2004).*

8. **Entropic Mixing Characterization in a Single Screw Extruder**, K. Alemaskin, M. Camesasca, I. Manas-Zloczower, M. Kaufman, E.K. Kim, M. A. Spalding, W. A. Trumbull, R. D. Swain, Proceedings ANTEC2004, the Annual Technical Conference of the Society of Plastics Engineers, Chicago (2004).
9. **Entropic Measures of Mixing Tailored for Various Applications**, K. Alemaskin, M. Camesasca, I. Manas-Zloczower, M. Kaufman, AIP Conference Proceedings Vol 712 (1) 169-173 (2004); Proceedings of NUMIFORM 2004, 8th International Conference on Numerical Methods in Industrial Forming Processes, Columbus.
10. **Color Mixing in Extrusion: Simulations and Experimental Validation**, I. Manas-Zloczower, M. Kaufman, K. Alemaskin, M. Camesasca, Proceedings of the NSF Design, Service and Manufacturing Grantees and Research Conference, Scottsdale (2005).
11. **Color Mixing in Single Screw Extruder: Simulation and Experimental Validation**, K. Alemaskin, I. Manas-Zloczower, M. Kaufman, Proceedings ANTEC2005, the Annual Technical Conference of the Society of Plastics Engineers, Boston (2005).
12. **Entropic Analysis of Laminar Mixing in Single Screw Extruders**, M. Camesasca, M. Kaufman, I. Manas-Zloczower, Proceedings of the Twentyfirst Annual Meeting of the Polymer Processing Society, PPS-21, Leipzig, Germany (2005).
13. **Microsystems: Measuring Mixing Efficiency Using Statistical Entropy**, M. Camesasca, M. Kaufman, I. Manas-Zloczower, American Institute of Chemical Engineers Annual Meeting Conference Proceedings, Cincinnati (2005).
14. **Comparison of Power Spectrum Measures To Entropic Measures Of Electromyography Time Series: Diagnostic Tools For Low Back Pain**, P. Sung, U. Zurcher, M. Kaufman, International Society of Biomechanics XXth Congress – American Society of Biomechanics 29th Annual Meeting, Cleveland (2005).
15. **Modeling Agglomerate Dispersion in Single Screw Extruders**, N. Domingues, M. Camesasca, M. Kaufman, I. Manas-Zloczower, A. Gaspar-Cunha, J. A. Covas, Proceedings ANTEC 2006, Proceedings ANTEC2006, the Annual Technical Conference of the Society of Plastics Engineers, Charlotte, (2006).
16. **Microchannel Mixing, Entropy and Multifractals**, M. Kaufman, M. Camesasca, I. Manas-Zloczower, Nanotech 2006, NSTI, Nanotechnology Conference and Trade Show Technical Proceedings, vol.2, 578-580, Boston (2006).
17. **Analytical Model of Dispersion in Microchannel Creeping Flow**, M. Kaufman, Proceedings of the Second International Conference on Transport Phenomena in Micro and NanoDevices, Barga, Italy, June (2006).
18. **A Statistical Physics Approach to Data Assimilation of Time Series**, M. Kaufman, U. Zurcher, P. Sung, Proceedings of the 3rd International Conference on Cybernetics and Information Technologies, Systems and Applications, Orlando, July (2006).
19. **Applications of Statistical Physics to Mixing in Microchannels: Entropy and Multifractals**, M. Kaufman*, M. Camesasca, I. Manas-Zloczower, L. A. Dudik and C. Liu, Proceedings of NATO Advanced Study Institute: Functionalized Nanoscale Materials, Devices and Systems for Chem.-Bio. Sensors, Photonics, and Energy Generation and Storage, Sinaia, Romania, June (2007), Editors: A. Vaseashta, I. Mihailescu. Springer NATO Science for Peace and Security Series Physics and Biophysics.

20. **Entropy and Fractals: A Route to Mixing and Microstructure Analysis in Polymer Processing**, M. Camesasca, I. Manas-Zloczower, M. Kaufman, Proceedings ICIPC (The Rubber and Plastic Institute for Training and Research) Colloquium, Medellin, Columbia, February (2008).
21. **Design of Passive Micromixers using the COMSOL Multiphysics software package**, M. Itomlenskis, P. Fodor, M. Kaufman, Proceedings of COMSOL Conference, Boston (2008).
22. **Numerical and Experimental Study of Agglomerate Dispersion in Polymer Extrusion**, N. Domingues, A. Gaspar-Cunha, J.A. Covas, M. Camesasca, M. Kaufman, I. Manas-Zloczower, *refereed*, Proceedings of the Twentyfourth Annual Meeting of the Polymer Processing Society, PPS-24, Salerno, Italy (2008).
23. **Mixing Measures**, I. Manas-Zloczower, M. Kaufman, *invited* chapter in *Mixing and Compounding of Polymers: Theory and Practice*, ed. I. Manas-Zloczower, Hanser Verlag, (2009).
24. **Modeling Political Conflict Dynamics In a Two-Party System**, S. Kaufman, M. Kaufman, *refereed*, SSRN-id1864151, IACM 24'th Annual Conference, Istanbul, Turkey (2011).
25. **Tipping Points in the Dynamics of Peace and War**, S. Kaufman and M. Kaufman, *invited* chapter in *Entrer en négociation*, ed. A. Colson, Larcier, (2011).
26. **Dynamics of a linear polymer in a creeping flow**, P. Bose, P. S. Fodor, M. Kaufman*, *refereed*, Proceedings of 3'rd International Conference on Nanotechnology: Fundamentals and Applications, Montreal, Quebec, Canada (2012).
27. **Tipping Points in the Dynamics of Peace and War**, S. Kaufman and M. Kaufman, *invited* chapter in *International Negotiation: Foundations, Models, and Philosophies*, editors: A. Colson , D. Druckman, W. Donohue, Republic of Letters Publishing (2013).
28. **Entropic Evaluation of Dean Flow Micromixers**, P. S. Fodor, B. Vyhnalek, and M. Kaufman, Proceedings of COMSOL Conference, Boston (2013).
29. **Moffatt Eddies in the Single Screw Extruder: Numerical and Analytical Study**, P. S. Fodor, M. Kaufman, *refereed*, Proceedings of the 30'th Meeting of the Polymer Processing Society, Cleveland (2014).

BOOK

STATISTICAL, FLUID AND BIOLOGICAL PHYSICS PROBLEMS, Editors J. O. Indekeu, M. Kaufman, Elsevier, 2010.

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- Science.Gov, Gateway to US Federal Science:
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1

PAPERS PRESENTED AT CONFERENCES (* PRESENTER)

1. **A Renormalization Group Study of Tricriticality, Including All Relevant Fields,**
J. M. Yeomans*, M. E. Fisher, M. Kaufman, R. B. Griffiths, presented at the International Conference on Statistical Mechanics, Edmonton, Canada, (1980).
2. **Ising Models on Hierarchical Lattices,**
M. Kaufman*, R. B. Griffiths, presented at the 45th Statistical Mechanics Meeting, Rutgers University, (1983).
3. **Competing Criticality of Short- and Infinite-Range Interactions on the Cayley Tree,**
M. Kaufman*, M. Kardar, presented at the 49th Statistical Mechanics Meeting, Rutgers University, 1983.
4. **Competing Criticality of Short- and Infinite-Range Interactions on the Cayley Tree: Effective Dimensional Variation,**
M. Kaufman*, M. Kardar, presented at the Fractal Conference, NBS, Washington D. C., 1983.
5. **Competing Criticality of Short- and Infinite-Range Interactions on the Cayley Tree: Effective Dimensional Variation,**
M. Kaufman*, M. Kardar, presented at the March Meeting of the American Physical Society, Detroit; Bull.Amer.Phys.Soc.29 (1984).
6. **First-Order Transitions in Defect Structures at a Second-Order Critical Point,**
M. Kaufman*, R. B. Griffiths, presented at the March Meeting of the American Physical Society, Detroit, Bull.Amer.Phys.Soc.29 (1984).
7. **Pseudo-Dimensional Variation and Tricriticality of Potts Models by Hierarchical Breaking of Translational Values,**
M. Kaufman*, M. Kardar, presented at the 51st Statistical Mechanics Meeting, Rutgers University, 1984.
8. **Random-Fields and the Ginzburg Criterion,**
M. Kaufman*, M. Kardar, presented at the 52nd Statistical Mechanics Meeting, Rutgers University, 1984.
9. **The Ginzburg Criterion in Random Fields,**
M. Kaufman*, M. Kardar, presented at the March Meeting of the American Physical Society, Baltimore, Bull.Amer.Phys.Soc.30 (1985).
10. **Zeros and Divergences of Critical Amplitudes,**
M. Kaufman*, M. Kardar, D. Andelman, presented at the March Meeting of the American Physical Society, Baltimore, Bull.Amer.Phys.Soc.30 (1985).
11. **Random-Fields Criticality and the Ginzburg Criterion.**
M. Kaufman*, M. Kardar, presented at the Spring Meeting of the New England Section of the American Physical Society, Worcester, 1985.
12. **Random-Field Critical Behavior,**
M. Kaufman, *invited talk* at the 13th Midwest Solid State Theory Symposium, University of Notre-Dame, 1985.
13. **Heat Capacity Critical Amplitudes,**
M. Kaufman*, S. I. Chase, presented at the Fall Meeting of the Ohio Section of the American Physical Society, Case Western Reserve University, 1985.
14. **Susceptibility Sum Rules at a Multicritical Point,**
M. Kaufman*, M. Ma, presented at the 54th Statistical Mechanics Meeting, Rutgers University, (1985).
15. **Susceptibility Sum Rules close to a Multicritical Point,**
M. Kaufman*, M. Ma, presented at the March Meeting of the American Physical Society, Las Vegas, Bull.Amer.Phys.Soc.31, 292 (1986).
16. **Tricritical Sum Rules: Theory versus Experiment,**
M. Kaufman, presented at the 16th International Conference on Thermodynamics and Statistical Mechanics, Boston, 1986.

17. **Multicritical Points in a Random-Field Ising Model**,
M. Kaufman*, P. E. Klunzinger, presented at the 16th International Conference on Thermodynamics and Statistical Mechanics, Boston, 1986.
18. **Diluted Antiferromagnets in a Uniform Magnetic Field: Phase Diagram**,
M. Kaufman*, P. E. Klunzinger, presented at the Fall Meeting of the Ohio Section of the American Physical Society, John Carroll University, 1986.
19. **Phase Diagrams for Random-Field Ising Models with Various Field Distributions**,
P. E. Klunzinger, M. Kaufman*, presented at the March Meeting of the American Physical Society, New York, Bull.Amer.Phys.Soc. 32, 391 (1987).
20. **Competition of Antiferromagnetic Short-Range and Ferromagnetic Infinite-Range Interactions on the Cayley Tree**,
M. Kaufman*, M. Kahana, M. Kardar, presented at the March Meeting of the American Physical Society, New York, Bull.Amer.Phys.Soc. 32, 391 (1987).
21. **Multicriticality in Liquid Mixtures: Theory versus Experiment**,
M. Kaufman, *invited* at the 15th Midwest Solid State Theory Symposium, Kent State University, 1987.
22. **Ising Critical Behavior in a Weak Magnetic Field**,
M. Kaufman, presented at the 58th Statistical Mechanics Meeting, Rutgers University, 1987.
23. **Consolute Point Effects on the Aggregation of Solute Molecules**,
M. Kaufman, presented at the March Meeting of the American Physical Society, New Orleans, Bull.Amer.Phys.Soc.33, 749 (1988).
24. **Planar Ising Ferromagnet and Antiferromagnet in a Weak Magnetic Field**,
M. Kaufman, presented at the March Meeting of the American Physical Society, New Orleans, Bull.Amer.Phys.Soc.33, 757 (1988).
25. **Position-Space Renormalization Group Study of Equilibrium Polymerization**,
M. Kaufman*, T. Berger, P. Gujrati, presented at the 16th Midwest Solid State Theory Symposium, Cincinnati, 1988.
26. **The Migdal-Kadanoff Renormalization-Group Scheme Applied to Linear Polymers**,
M. Kaufman*, T. Berger, P. Gujrati, presented at the Fall Meeting of the Ohio Section of the American Physical Society, Toledo, 1988.
27. **Equilibrium Polymerization on the Equivalent-Neighbor Lattice**,
M. Kaufman, presented at the 60th Statistical Mechanics Meeting, Rutgers University, 1989.
28. **Position-Space Renormalization-Group Study of Equilibrium Polymerization**,
M. Kaufman*, T. Berger, P. Gujrati, presented at the March Meeting of the American Physical Society, Saint Louis, Bull.Amer.Phys.Soc. 34, 951 (1989).
29. **Linear Polymers on the Equivalent-Neighbor Lattice**,
refereed M. Kaufman, presented at the 17th International Conference on Thermodynamics and Statistical Mechanics, Rio de Janeiro, Brazil, (1989).
30. **The Migdal-Kadanoff Renormalization-Group Study of Equilibrium Polymerization**,
refereed M. Kaufman*, T. Berger, P. Gujrati, presented at the 17th International Conference on Thermodynamics and Statistical Mechanics, Rio de Janeiro, Brazil, (1989).
31. **Influence of Polymer Distribution on the Polymerization Critical Behavior in an Exactly Solved Model**,
M. Kaufman, presented at the March Meeting of the American Physical Society, Anaheim, Bull.Amer.Phys.Soc. 35, 686 (1990).
32. **Flory Polymerization: a Statistical Mechanics Treatment**,
M. Kaufman *invited* talk at the Midwest Thermodynamics Symposium, Sawmill Creek, 1990.
33. **Polymerization on the Diamond Hierarchical Lattice**,
M. Kaufman, presented at the Gordon Research Conference on Fractals, Plymouth NH, 1990.
34. **Tricritical Phase Diagrams in Random Magnetic Fields**,
M. Kaufman*, M. Kanner, presented at the 18th Midwest Solid State Theory Symposium, Northwestern Univ., Chicago, 1990.

35. **Phase Diagram of the Random-Field Blume-Capel Model**,
M. Kaufman*, M. Kanner, presented at the March Meeting of the American Physical Society, Cincinnati, Bull.Amer.Phys.Soc. 36, 508 (1991).
36. **Temperature Effects on the Polymerization Process**,
M. Kaufman, presented at the March Meeting of the American Physical Society, Indianapolis, Bull.Amer.Phys.Soc. 37, 418 (1992).
37. **Electrical Percolation Effects in Uniaxial Graphite Fiber/Epoxy Composites**,
P. D. Hambourger*, M. C. Wright, M. R. Thiel, M. Kaufman, presented at the March Meeting of the American Physical Society, Indianapolis, Bull.Amer.Phys.Soc. 37, 553 (1992).
38. **Critical Equilibrium Polymerization at Finite Temperatures, *refereed***
M. Kaufman, presented at the 18th IUPAP International Conference on Statistical Physics, Berlin, Germany, August 1992.
39. **Renormalization-Group Study of Tree-like and Linear Polymers, *refereed***
M. Kaufman*, J. Li, P. D. Gujrati, presented at the 18th IUPAP International Conference on Statistical Physics, Berlin, Germany, August 1992.
40. **Phase Diagram of an Amorphous Magnet**,
J. E. Touma*, M. Kaufman, presented at the Fall Meeting of the Ohio Section of the American Physical Society, John Carroll University, October 1993.
41. **Ising Model on Percolation Clusters**,
M. Kaufman*, J. E. Touma, presented at the Statistical Mechanics Meeting, Rutgers University, December 1993.
42. **Thermodynamic Model for Pressurized Solids with Application to Nanocrystalline Metals**,
M. Kaufman*, H. Schlosser, J. Ferrante, presented at the March Meeting of the American Physical Society, Pittsburgh, Bull.Amer.Phys.Soc. 39, 620 (1994).
43. **The Annealed Ising Model on Percolation Clusters**,
J. E. Touma and M. Kaufman*, presented at the March Meeting of the American Physical Society, Pittsburgh, Bull.Amer.Phys.Soc. 39, 662 (1994).
44. **Adsorption of a Bose Gas on a Surface**,
T. McCollum and M. Kaufman*, presented at the May 1994 Meeting of the Ohio Section of the American Physical Society, Cleveland.
45. **Urban Property Values, Percolation Theory and Fractal Geometry, *refereed***
A. Friederich*, S.Kaufman, M. Kaufman, presented at the Fractals in Engineering Conference, Montreal, Canada, June 1994.
46. **Statistical Model for Mechanical Failure**,
M. Kaufman*, H. Schlosser, J. Ferrante, presented at the March Meeting of the American Physical Society, San Jose, Bull.Amer.Phys.Soc. 40, 367 (1995).
47. **Changes in Urban Property Values: Polymer Model, Pilot Study &Policy Implications**,
S. Kaufman*, A. Friederich, M. Kaufman, presented at the Urban Affairs Association Conference, Portland, May 1995.
48. **Monte Carlo Study of the Two-Dimensional Ising Model on Percolating Clusters**,
P. D. Scholten*, M. Kaufman, presented at the Ohio Section Meeting of the American Physical Society, Fall 1995.
49. **Entropy Driven Phase Transition in Polymer Gels**,
M.Kaufman, presented at the March Meeting of the American Physical Society, St Louis, Bull.Amer.Phys.Soc. 41, 451 (1996).
50. **Monte Carlo Study of Multicritical Points of the Two-Dimensional Ising Model on Percolation Clusters**,
P.D. Scholten*, M.Kaufman, presented at the March Meeting of the American Physical Society, St Louis, Bull.Amer.Phys.Soc. 41, 378 (1996).
51. **Thermodynamics of a Model Solid Close to Mechanical Failure**,
M.Kaufman*, J.Ferrante, presented at the March Meeting of the American Physical Society, St Louis, 1996.

52. **Entropy Driven Phase Transition in Polymer Gels, *refereed***
M.Kaufman, 11'th International Symposium on Surfactants in Solution, Jerusalem, Israel, June (1996).
53. **Dynamics of an Electron in a Magnetic Field in a Periodic Lattice,**
A.J.Adorjan*, M.Kaufman, presented at the Ohio Section Meeting of the American Physical Society, Fall 1996, Athens.
54. **Statistical Mechanics of Solids with Defects,**
M.Kaufman*, P.A.Walters, J.Ferrante, presented at the March Meeting of the American Physical Society, Kansas City, 1997, Bull.Amer.Phys.Soc. 42, 172 (1997).
55. **Statistical Model for Mechanical Failure,**
M. Kaufman*, J. Ferrante, *invited* talk at the Nonlinear Effects in Materials Science Session at the Materials Week '97, Fall Meeting of The Materials Society (TMS), Indianapolis, September 1997.
56. **Thermodynamic Model of Spatial Memory,**
M. Kaufman*, P. Allen, presented at the March Meeting of the American Physical Society, 1998, Los Angeles.
57. **Mathcad in the Physics Curriculum,**
M. Kaufman, presented at the APS-AAAPT Joint April Meeting, Columbus, 1998.
58. **Statistical Mechanics Model of Mechanical Failure,**
M. Kaufman*, P. A. Walters, J. Ferrante, *refereed*, presented at the 20'th International Conference of Statistical Physics, International Union of Pure and Applied Physics, UNESCO, Sorbonne, Paris, 1998.
59. **Statistical Thermodynamics Model of Spatial Memory,**
M. Kaufman*, P. Allen, *refereed*, presented at the 20'th International Conference of Statistical Physics, International Union of Pure and Applied Physics, UNESCO, Sorbonne, Paris, 1998.
60. **MathCAD in Physics Education,**
M. Kaufman, invited presentation, NASA Lewis Center Conference on Math Tools, 1998.
61. **Molar Model of Spatial Memory: Accuracy Data and Reaction Times,**
M. Kaufman*, P. Allen, presented at the March Meeting of the American Physical Society, Atlanta, 1999.
62. **Statistical Mechanics Model of the Speed-Accuracy Tradeoff in Spatial and Lexical Memory,**
M. Kaufman*, P. Allen, presented at the March Meeting of the American Physical Society, Minneapolis, 2000.
63. **Physics at Cleveland State University,**
M. Kaufman, Career and Professional Development Liasons Workshop, Minneapolis, 2000.
64. **Environmental Physics: a Pedagogical Contribution towards an Interdisciplinary Approach to Environmental Problems**
M. Kaufman, *refereed*, the 11'th Global Warming International Conference, Boston, 2000.
65. **An Entropy- Speed Model of Age Differences in Lexical Decisions,**
P. Allen*, M. Kaufman, K. E. Groth, A. Begovic-Lapic, The Cognitive Aging Conference, Atlanta, 2000.
66. **Statistical Mechanics with Mathcad,**
M. Kaufman, Gordon Conference, Plymouth NH, 2000.
67. **Characterization of Distributive Mixing in Polymer Processing Equipment,**
W. Wang, I. Manas-Zloczower, M. Kaufman*, presented at the March Meeting of the American Physical Society, Seattle, 2001.
68. **Employment Centers as Organized Complex Systems: A Case Study of Cuyahoga County,**
W. Bowen*, M. Salling, M. Kaufman, M. Kumar, 48'th North American Meeting of the Regional Science Association International, Charleston, South Carolina, November 2001.

69. **A Study of Non-Linear Dynamics in Polymer Processing Equipment,**
W. Wang, I. Manas-Zloczower*, M. Kaufman, American Institute of Chemical Engineers National Meeting, Reno, Nevada, 2001.
70. **Chaotic Mixing in Polymer Processing Equipment,**
W. Wang, I. Manas-Zloczower, M. Kaufman*, presented at the Focus Session: Nonlinear Dynamics of Mixing, March Meeting of the American Physical Society, Indianapolis, 2002. Bull.Amer.Phys.Soc. 47, 1107 (2002).
71. **Chaotic Features of Flow in Single Screw Extruders - Relevance to Distributive Mixing,**
W. Wang*, I. Manas-Zloczower, M. Kaufman, presented at ANTEC2002, the Annual Technical Conference of the Society of Plastics Engineers, San Francisco 2002.
72. **Chaotic Features of Flow in Single Screw Extruders - Relevance to Distributive Mixing,**
W. Wang, I. Manas-Zloczower*, M. Kaufman, invited, presented at the Eighteenth Annual Meeting of the Polymer Processing Society, Guimaraes, Portugal, 2002.
73. **New Complex Entropic Index for Dispersive and Distributive Mixing Characterization in Continuous Polymer Processing Equipment,**
K. Alemaskin*, I. Manas-Zloczower, M. Kaufman, American Institute of Chemical Engineers, Indianapolis, 2002.
74. **Renyi Entropies Applied to Mixing,**
M. Kaufman, International Workshop on Anomalous Distributions, Nonlinear Dynamics and Nonextensivity, Santa Fe, Los Alamos National Laboratory (2002).
75. **Employment Centers as Organized Complex Systems: An Empirical Evaluation,**
Mukesh Kumar, William M. Bowen*, Miron Kaufman, presented at the 49'th North America Meeting of the Regional Science Association International; San Juan, Porto Rico (2002).
76. **Simultaneous Characterization of Dispersive and Distributive Mixing in Continuous Polymer Processing Equipment,**
K. Alemaskin, I. Manas-Zloczower*, M. Kaufman, invited presentation Polymer Processing Society Meeting, Taipei, Taiwan (2002).
77. **Characterization of Dynamics of Mixing in Polymer Processing and Its Relationship to Chaos,**
W. Wang, I. Manas-Zloczower, M. Kaufman*, presented at NSF, Directorate of Engineering, Design, Service and Manufacturing Grantees and Research Conference, Birmingham, (2003).
78. **Dynamics of Mixing in Polymer Processing,**
M. Kaufman*, W. Wang, I. Manas-Zloczower, Bull.Amer.Phys.Soc. (2003) presented at the March Meeting of the American Physical Society, Austin (2003).
79. **Location Patterns of Employment Centers as Self-Organizing Complex System: An Empirical Evaluation,**
W. Bowen*, M. Kaufman, M. Kumar, presented at the Association of American Geographers Annual Meeting, New Orleans (2003).
80. **Advection and Mixing in a Rectangular Channel Flow,**
A. Joshi*, M. Kaufman, I. Manas-Zloczower, presented at the Spring Meeting of the American Physical Society, Ohio Section, East Lansing, (2003).
81. **Employment Centers as Organized Complex Systems: An Empirical Evaluation,**
M. Kumar*, W. Bowen, M. Kaufman, presented at the 33rd Annual Meeting of Urban Affairs Association, Cleveland (2003).

82. **Simultaneous Characterization of Dispersive and Distributive Mixing in a Single Screw Extruder,**
K. Alemaskin*, I. Manas-Zloczower, M. Kaufman, presented at ANTEC2003, the Annual Technical Conference of the Society of Plastics Engineers, Nashville (2003).
83. **Simultaneous Characterization of Dispersive and Distributive Mixing in Polymer Processing,**
K. Alemaskin*, I. Manas-Zloczower, M. Kaufman, presented at the Research Showcase, Case Western Reserve University, Cleveland (2003).
84. **A New Mixing Index for Overall Mixing Efficiency Evaluation in Polymer Processing Equipment,**
K. Alemaskin*, I. Manas-Zloczower, M. Kaufman, Gordon Research Conference on Elastomers, Gels and Networks, Plymouth, NH. (2003).
85. **Influence of Surface Geometry on the Flow Field in a Rectangular Duct,**
M. Camesasca*, M. O'Malley, I. Manas-Zloczower, M. Kaufman, Gordon Research Conference on Elastomers, Gels and Networks, Plymouth NH, (2003).
86. **Object Moving Along a Circle with Friction,**
U. Zurcher*, M. Kaufman, presented at the American Physical Society, Fall Meeting of the Ohio Section, Case Western Reserve University, (2003).
87. **Advection and Mixing in a Single-Screw Extruder: An Analytical Model,**
M. Kaufman, presented at the AIChE Annual Meeting, San Francisco (2003).
88. **Entropic Measures of Mixing Tailored for Various Applications,**
K. Alemaskin, M. Camesasca, I. Manas-Zloczower, M. Kaufman*, presented at NSF, Directorate of Engineering, Design, Service and Manufacturing Grantees and Research Conference, Dallas (2004).
89. **Analytical Model of Creeping Flow in a Rectangular Channel: Advection and Mixing,**
M. Kaufman, presented at the March Meeting of the American Physical Society, Montreal (2004).
90. **Entropic Mixing Characterization in a Single Screw Extruder,**
K. Alemaskin*, M. Camesasca, I. Manas-Zloczower, M. Kaufman, E. K. Kim, M. A. Spalding, W. A. Trumbull, R. D. Swain, presented at ANTEC, Chicago (2004).
91. **Entropic Measures of Mixing Tailored for Various Applications,**
K. Alemaskin, M. Camesasca, I. Manas-Zloczower*, M. Kaufman, *invited* presentation at NUMIFORM, Columbus (2004).
92. **A New Complex Mixing Index Based on Entropy applied to Polymer Processing,**
K. Alemaskin*, M. Camesasca, I. Manas-Zloczower, M. Kaufman, presented at the Research Showcase, Case Western Reserve University, Cleveland (2004).
93. **Entropic Mixing Characterization in a Single Screw Extruder,**
K. Alemaskin*, I. Manas-Zloczower, M. Kaufman, presented at the Polymer Processing Society Meeting, Akron (2004).
94. **Statistical Entropy in Mixing Analysis Applied to Polymer Processing,**
M. Camesasca*, I. Manas-Zloczower, M. Kaufman, presented at the Polymer Processing Society Meeting, Akron (2004).
95. **Monte Carlo Simulations of Particle Motion in Microchannels Due to Diffusion and Convection,**
J. Dequach*, I. Manas-Zloczower, M. Kaufman, presented at the REU in Polymer Science and Engineering Meeting, U. Akron, August (2004).

96. **Mixing in Polymer Processing, an Example of a Complex Engineering System,**
M. Kaufman*, I. Manas-Zloczower, M. Camesasca, presented at CSU, COS Research Day, October (2004).
97. **College Physics with Biomedical Applications,**
U. Zurcher*, M. Kaufman, Z. Bergen, R. Ferguson, presented at the American Physical Society, Ohio Section Fall Meeting, Rochester, MI (2004).
98. **Nonlinear Analysis of Surface EMG Time Series of Back Muscles,**
D. Dolton*, U. Zurcher, M. Kaufman, P. Sung, presented at the American Physical Society, Ohio Section Fall Meeting, Rochester, MI (2004).
99. **Entropy Applications to Engineering and Health Sciences,**
M. Kaufman, *invited* CWRU Condensed Matter Seminar, November 8 (2004).
100. **Color Mixing in Extrusion: Simulations and Experimental Validation,**
I. Manas-Zloczower, M. Kaufman*, K. Alemaskin, M. Camesasca, presented at the NSF Design, Service and Manufacturing Grantees and Research Conference, Scottsdale (2005).
101. **Entropy Applications to Engineering and Health Sciences,**
M. Kaufman, *invited* Yeshiva University Physics Colloquium, February 16 (2005).
102. **Entropic Analysis of Electromyography Time Series,**
M. Kaufman*, U. Zurcher, P. Sung, presented at the March Meeting of the American Physical Society, Los Angeles (2005).
103. **Entropic Analysis of Laminar Mixing in Single Screw Extruders,**
M. Kaufman*, M. Camesasca, I. Manas-Zloczower, *refereed*, 21st Annual Meeting of the Polymer Processing Society, Leipzig, Germany, June (2005).
104. **Color Mixing in Single Screw Extruder: Simulation and Experimental Validation,**
K. Alemaskin*, I. Manas-Zloczower, M. Kaufman, ANTEC2005, the Annual Technical Conference of the Society of Plastics Engineers, Boston (2005).
105. **Infrared Thermography as a means of Characterizing Material Anisotropies,**
J. Salguero*, M. Camesasca, M. Kaufman, I. Manas-Zloczower, presented at the REU in Polymer Science and Engineering Meeting, CWRU, August (2005).
106. **Microsystems: Measuring Mixing Efficiency Using Statistical Entropy,**
M. Camesasca*, M. Kaufman, I. Manas-Zloczower, American Institute of Chemical Engineers Annual Meeting Conference Proceedings, Cincinnati (2005).
107. **Comparison of Power Spectrum Measures To Entropic Measures Of Electromyography Time Series: Diagnostic Tools for Low Back Pain,**
P. Sung*, U. Zurcher, M. Kaufman, International Society of Biomechanics XXth Congress – American Society of Biomechanics 29th Annual Meeting, Cleveland (2005).
108. **Multifractal Analysis of Mixing in Microchannels,**
M. Camesasca*, M. Kaufman, I. Manas-Zloczower, presented at Fall Meeting of Ohio Section of American Physical Society, Cleveland, (2005).
109. **Microchannel Mixing: Entropy and Multifractal Dimensions,**
M. Kaufman*, M. Camesasca, I. Manas-Zloczower, presented at CSU, COS Research Day, October (2005).
110. **Spreading of Advected Tracers in a Creeping Flow in a Rectangular Channel**
M. Kaufman, presented at the March Meeting of the American Physical Society, Baltimore (2006).

111. **Modeling Agglomerate Dispersion in Single Screw Extruders**
N. Domingues*, M. Camesasca, M. Kaufman, I. Manas-Zloczower, A. Gaspar-Cunha, J. A. Covas, refereed, ANTEC2006, the Annual Technical Conference of the Society of Plastics Engineers, Charlotte (2006).
112. **Microchannel Mixing, Entropy and Multifractals**
M. Kaufman*, M. Camesasca, I. Manas-Zloczower, refereed, Nanotech 2006, Nanotechnology Conference and Trade Show, Boston (2006).
113. **Analytical Model of Dispersion in Microchannel Creeping Flow**
M. Kaufman, refereed, Second International Conference on Transport Phenomena in Micro and NanoDevices, Barga, Italy, June (2006).
114. **Analytical Model of Advection in a Creeping Flow in a Rectangular Channel**
M. Kaufman, presented at CSU, COS Research Day, October (2006).
115. **Biomedical Applications of Entropy: From Electromyography Time Series to Micromixing**
M. Kaufman, invited lecture at the PanAmerican Advanced Study Institute "From disordered systems to complex systems", Mar del Plata, Argentina, December (2006).
116. **Analytical Model of Advection and Erosion in a Rectangular Channel**
M. Kaufman, presented at the March Meeting of the American Physical Society, Denver, March (2007).
117. **Applications of Statistical Physics to Mixing in Microchannels: Entropy and Multifractals**
M. Kaufman, invited, NATO Advanced Study Institute: Functionalized Nanoscale Materials, Devices and Systems for Chem.-Bio. Sensors, Photonics, and Energy Generation and Storage, Sinaia, Romania, June (2007).
118. **Random Walks, Renyi Entropy, and Electromyography Time Series**
M. Kaufman*, U. Zurcher, P. S. Sung, presented at STATPHYS 23 - International Conference on Statistical Physics, Genova, Italy, July (2007).
119. **Integration of Laboratories and Computation within the Lecture Physics Courses**
U. Zurcher*, P. Fodor, M. Kaufman, K. Streletzky, G. T. Wood, presented at the AAPT Summer Meeting, Greensboro (2007).
120. **Physics of Electromyography Time Series and of Mixing in Industrial Processes**
M. Kaufman, invited, Universite de Cergy-Pontoise, Laboratoire de Physique Theorique et Modelisation, Paris, France, October (2007).
121. **Potts-Percolation Model of Solids and Entropy of Electromyography Time Series**
M. Kaufman, invited, Koc University, Math-Sci Seminar, Istanbul, Turkey, November (2007).
122. **Mixing in Microchannels: Entropy and Multifractals**
M. Kaufman, invited, Istanbul Technical University, School of Mechanical Engineering, Istanbul, Turkey, November (2007).
123. **Mixing in Industrial Processes and in Microchannels**
M. Kaufman, invited, Tel Aviv University, School of Physics and Astronomy, Condensed Matter Seminar, Ramat Aviv, Israel, December (2007).
124. **Entropy and Fractals: A Route to Mixing and Microstructure Analysis in Polymer Processing**
M. Camesasca, I. Manas-Zloczower*, M. Kaufman, invited ICIPC (The Rubber and Plastic Institute for Training and Research) Colloquium, Medellin, Columbia, February (2008).

125. **Potts-Percolation Model of Solids**,
M. Kaufman*, H.T. Diep, presented at the March Meeting of the American Physical Society, New Orleans, March (2008).
126. **Statistical Analysis of Electromyography Time Series**,
B.Vyhnalek*, U. Zurcher, M. Kaufman, P. Sung, CSU, COS Research Day, May (2008).
127. **Numerical and Experimental Study of Agglomerates Dispersion in Polymer Extrusion Process**,
N. Domingues*, A. Gaspar-Cuhna, A. Covas Jose, M. Camesasca, I. Manas-Zloczower, M. Kaufman, refereed, 24'th Annual Meeting of the Polymer Processing Society, Salerno, Italy, June (2008).
128. **Nonlinear Conflict Dynamics and Turning Points**,
S. Kaufman*, M. Kaufman, refereed, presented at IACM Annual Conference, Chicago, July (2008).
129. **Design optimization of passive micromixers with fractal surface patterning**,
P. Fodor*, M. Itomlenskis, M. Kaufman, Joint Meeting of the APS Ohio-Region Section, the AAPT Southern Ohio Section, and the ACS Dayton-Section, Dayton, (2008).
130. **Design of Passive Micromixers using the COMSOL Multiphysics software package**
M. Itomlenskis*, P. Fodor, M. Kaufman, COMSOL Conference, Boston (2008).
131. **Time evolution of distributive entropy in rectangular microchannel mixers**
M. Kaufman, P. Fodor*, Bull. Amer. Phys. Soc. pg. 419 (2009) presented at the March Meeting of the American Physical Society, Pittsburgh, March (2009).
132. **Time evolution of entropy in rectangular channels**
P. Fodor*, M. Kaufman, presented at CSU, COS Research Day, April (2009).
133. **Medical Physics at Cleveland State University**
M. Kaufman, invited, presented at Bahcesehir University, Istanbul, Turkey, April (2009).
134. **Tipping Points and Tipping Lines in Conflict Dynamics**
S. Kaufman*, M. Kaufman, refereed, presented at IACM 22'th Annual Conference, Kyoto, Japan, June (2009).
135. **Potts-Percolation Model of a Solid with Defects**
M. Kaufman, invited, Tokyo Institute of Technology, Physics Department Seminar, Tokyo, Japan, June (2009).
136. **Hybrid Defect Phase Transition**
M. Kaufman*, H.T. Diep, presented at MIT Symposium, October (2009).
137. **Using Entropy and Fractals to Enhance Mixing in Microchannels**
M. Kaufman, invited Colloquium University of Northern Florida, Physics Department, February (2010).
138. **Hybrid Defect Phase Transition: Renormalization Group and Monte Carlo Analysis**
M. Kaufman*, H.T. Diep, presented at the March Meeting of the American Physical Society, Portland, March (2010).
139. **Using Entropy and Fractals to Enhance Mixing in Microchannels**
M. Kaufman*, invited lecture, The International Conference on Frustrated Spin Systems, Cold Atoms and Nanomaterials, Hanoi, Vietnam (2010).
140. **Dynamics of a linear polymer in a microchannel creeping flow**
P. Bose*, M. Kaufman, P. Fodor, presented at the March Meeting of the American Physical Society, Dallas (2011).

141. **Dynamics of a linear polymer in a microchannel creeping flow**
P. Bose*; P. S. Fodor, M. Kaufman, presented at CSU, COS Research Day, October (2011).
142. **Modeling Political Conflict Dynamics In a Two-Party System**
S. Kaufman*, M. Kaufman, *refereed*, presented at IACM 24'th Annual Conference, Istanbul, Turkey, June (2011).
143. **Equation of State of a Solid: Potts-Percolation Model**
M. Kaufman*, H. T. Diep, presented at the March Meeting of the American Physical Society, Boston, March (2012).
144. **Integration of the Environment in the Physics Curriculum**
M. Kaufman*, *invited first lecture* in invited session *Teaching Environmental Physics in the Undergraduate Curriculum*; presented at the 2012 American Association of Physics Teachers (AAPT) Summer Meeting, July (2012).
145. **Dynamics of a linear polymer in a creeping flow**
P. Bose, P. Fodor, M. Kaufman*, *refereed*, presented at the 3'rd International; Conference on Nanotechnology: Fundamentals and Applications, Montreal, Quebec, Canada, August (2012).
146. **Mixing evaluation using an entropic measure in Dean flow micromixers**
P.Fodor*, B. Vyhnalek, M. Kaufman, presented at the Ohio Region Section of the American Physical Society Meeting, Wayne State University, Detroit, October (2012).
147. **Mixing entropy in Dean flows**
P. Fodor, B. Vyhnalek, M. Kaufman*, presented at the March Meeting of the American Physical Society, Baltimore (2013).
148. **Entropic Evaluation of Dean Flow Micromixers**
B.Vyhnalek, P.S. Fodor, M. Kaufman*, presented at the COMSOL Conference, Boston (2013).
149. **Integration of a Societal Issue, the Environment, in the Physics Curriculum**
M. Kaufman*, presented at Physics of Sustainable Energy III, University of California at Berkeley, (2014).