

Curriculum Vitae

1. James M. Valles, Jr.

Professor
Department of Physics

2. Physics Department, Brown University, 182 Hope Street, Providence, RI 02912

3. Education

1981 – B.A., Dartmouth College, Physics

1988 – Ph.D., University of Massachusetts, Physics

Ph.D. dissertation topic *NMR and Third Sound Studies of ^3He - ^4He Mixture Films*

4. Professional Appointments

1981-1982 – Teaching Assistant, University of Massachusetts

1982-1987 – Research Assistant, University of Massachusetts

1987-1989 – Postdoctoral Associate, AT&T Bell Laboratories

1989-1992 – Assistant Professor, University Oregon

1992-1996 – Assistant Professor, Brown University

1996-2002 – Associate Professor, Brown University

1999-2002 – Executive Officer, Department of Physics, Brown University

2002-present – Professor, Brown University

2007-2010 – Associate Dean of the College for Curriculum, Brown University

2010-present – Chair of the Department of Physics, Brown University

5. Completed Research, Scholarship and/or Creative Work

c. refereed journal articles

1. “Third Sound in ^4He Absorbed on Nuclepore” (J.M. Valles, Jr., D.T. Smith and R.B. Hallock) *Phys. Rev. Lett.* **54**, 1528 (1985).
2. “Comment on Fractal Aggregates in Sputter Deposited Films” (J.M. Valles, Jr., D.T. Smith and R.B. Hallock) *Phys. Rev. Lett.* (comment) **54**, 2646 (1985).
3. “ ^3He - ^4He Mixture Films: The ^4He Coverage Dependence of the ^3He Binding Energy” (J.M. Valles, Jr., R.M. Heinrichs and R.B. Hallock) *Phys. Rev. Lett.* **56**, 1704 (1986).
4. “Measurements of the NMR T_2 for ^3He - ^4He Mixture Films as a Function of ^3He Coverage and ^4He Film Thickness” (J.M. Valles, Jr., R.H. Higley, B.R. Johnson, and R.B. Hallock) *Canadian Journal of Physics* **65**, 1564 (1987).
5. “Sensitivity of Third Sound to the ^3He Effective Mass in ^3He - ^4He Superfluid Mixture Films” (J.M. Valles, Jr. and R.B. Hallock) *Phys. Rev. B* **36**, 8772 (1987).

6. "Spin Echo Measurements of the ^3He Magnetization in a 2-D Fermi System of Mixture Films" (J.M. Valles, Jr., B.R. Johnson, R.H. Higley and R.B. Hallock) *Jpn. J.A.P.* **1** 26 (s26), 259 (1987).
7. "Third Sound in Dilute ^3He - ^4He Mixture Films" (J.M. Valles, Jr., B.R. Johnson, R.H. Higley and R.B. Hallock) *Jpn. J.A.P.* **1** 26 (s26), 287 (1987).
8. "Nuclear Magnetic Susceptibility Measurements of ^3He - ^4He Mixture Films" (J.M. Valles, Jr., R.H. Higley, B.R. Johnson and R.B. Hallock) *Phys. Rev. Lett.* **60**, 427 (1988).
9. "Implantation, Damage and Regrowth of High T_c Superconductors" (Alice E. White, K.T. Short, J.P. Garno, J.M. Valles, Jr., R.C. Dynes, L.F. Scheemeyer, J. Waszczak, A.F.J. Levi, M. Anzlowar and K. Baldwin) *Nuc. Instr. and Meth. in Phys. Rev. B* **37**, 923 (1989).
10. "Ion-Beam-Induced Metal-Insulator Transition in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$: A Mobility Edge?" (J.M. Valles, Jr., A.E. White, K.T. Short, R.C. Dynes, J.P. Garno, A.F.J. Levi, M. Anzlowar and K. Baldwin) *Phys. Rev. B* **39**, 11599 (1989).
11. "Superconductivity and the Electronic Density of States in Disordered Two-Dimensional Metals" (J.M. Valles, Jr., R.C. Dynes and J.P. Garno) *Phys. Rev. B* **40**, 6680 (1989).
12. "STM Observation of the Abrikosov Flux Lattice and the Density of States Near and Inside a Fluxoid" (H.F. Hess, R.B. Robinson, R.C. Dynes, J.M. Valles, Jr., and J.V. Waszczak) *Phys. Rev. Lett.* **62**, 214 (1989).
13. "Temperature Dependence of the Two-Dimensional Electronic Density of States in Disordered Metal Films" (J.M. Valles, Jr., R.C. Dynes and J.P. Garno) *Phys. Rev. B.* **40**, 7590 (1989).
14. "Reproducible Tunneling Data on Chemically Etched Single Crystals of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ " (M. Gurvitch, J.M. Valles, Jr., A.M. Cucolo, R.C. Dynes, J.P. Garno, L.F. Schneemeyer, J.V. Waszczak) *Phys. Rev. Lett.* **63**, 1008 (1989).
15. "Low Leakage Tunnel Junctions on Liquid Etched Thin Films of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ " (A.M. Cucolo, J.M. Valles, Jr., R.C. Dynes, M. Gurvitch, J.M. Phillips and J.P. Garno) *Physica C* **161**, 351 (1989).
16. "Reproducibility in Tunneling Achieved Through Liquid Etching $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ " (M. Gurvitch, J.M. Valles, Jr., R.C. Dynes, A.M. Cucolo and L.F. Schneemeyer) *Physica C* **162-164**, 1067 (1989).
17. "Superconductivity and Tunneling Spectroscopy in Granular and Homogeneous Quench Condensed Thin Films" (J.M. Valles, Jr. and R.C. Dynes) *Mat. Res. Soc. Symp. Proc. Vol. 195*, p. 375 (1990).
18. "Electron Tunneling into Single Crystals of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ " (J.M. Valles, Jr., M. Gurvitch, A.M. Cucolo, R.C. Dynes, J.P. Garno, L.F. Schneemeyer and J.V. Waszczak) *Mat. Res. Soc. Symp. Proc. Vol. 169*, p. 983 (1990).

19. "Tunnel Junctions on Chemically Etched $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films" (J.M. Phillips, J.M. Valles, Jr., A.M. Cucolo, R.C. Dynes, M. Gurvitch, J.P. Garno and J.H. Marshall) *Mat. Res. Soc. Symp. Proc.* Vol. 169, p. 987 (1990).
20. "Electron Tunneling into Single Crystals of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ " (J.M. Valles, Jr., M. Gurvitch, A.M. Cucolo, R.C. Dynes, J.P. Garno, L.F. Schneemeyer and J.V. Waszczak) *Phys. Rev. B* **44**, 11986 (1991).
21. "Planar Tunnel Junctions on 90K and 60K YBCO Single Crystals: Superconducting and Normal State Properties" (A.M. Cucolo, R.C. Dynes, J.M. Valles, Jr., and L.F. Schneemeyer), *Physica C* **179**, 69 (1991).
22. "STM Observation of the Abrikosov Flux Lattice and the Density of States Near and Inside a Fluxoid" (H.F. Hess, R.B. Robinson, R.C. Dynes, J.M. Valles, Jr., and J.V. Waszczak) *J. Vac. Sci. Technol. A* **8**, 450 (1991).
23. "Electron Tunneling Determination of the Order Parameter Amplitude at the Superconductor-Insulator Transition in 2D" (J.M. Valles, Jr., R.C. Dynes and J.P. Garno) *Phys. Rev. Lett.* **69**, 3567 (1992).
24. "Perpendicular Upper Critical Field of Granular Pb Films Near the Superconductor to Insulator Transition" (S.-Y. Hsu and J.M. Valles, Jr.) *Phys. Rev. B* **47**, 14334 (1993).
25. "Magnetic Field Induced Pairbreaking Effects in Granular Pb Films Near the SI Transition" (S.-Y. Hsu and J.M. Valles, Jr.) *Phys. Rev. B* **48**, 4164 (1993).
26. "Dimensional Crossover in the Low Temperature Transport Properties of Annealed Amorphous Fe/Si Multilayers" (Y.K. Lin, T.R. Novet, D.C. Johnson, and J.M. Valles, Jr.) *Phys. Rev. B* **48**, 14608 (1993).
27. "The Coulomb Anomaly in Strongly Disordered Films" (S.-Y. Hsu and J.M. Valles, Jr.) *Physica B* **194-196**, 1117-1118 (1994).
28. "The Proximity Effect in Ultrathin Granular Pb Films" (S.-Y. Hsu, J.M. Valles, Jr., P.W. Adams and R.C. Dynes) *Physica B* **194-196**, 2337 (1994).
29. "Electron Tunneling into Strongly Disordered Films: The Influence of Structure on Electron-electron Interactions" (S.-Y. Hsu and J.M. Valles, Jr.) *Phys. Rev. B* **49**, 16600 (1994).
30. "Electron Tunneling Studies of Ultrathin Films Near the Superconductor-to-Insulator Transition" (J.M. Valles, Jr., S.-Y. Hsu, R.C. Dynes, and J.P. Garno) *Physica B* **197**, 522-529 (1994).
31. "Tunneling Studies of Vortices in High-Sheet-Resistance Superconducting Films" (S.-Y. Hsu and J.M. Valles, Jr.) *Phys. Rev. B* **49**, 6416 (1994).
32. "Planar Tunnel Junction Studies of Quasiparticle Bound States in Vortices in Ultrathin Films" (S.-Y. Hsu, J.A. Chervenak and J.M. Valles, Jr.) *Applied Superconductivity* **2**, 715 (1994).
33. "Observation of a Well Defined Transition from Weak to Strong Localization in Two Dimensions" (S.-Y. Hsu and J.M. Valles, Jr.) *Phys. Rev. Lett.* **74**, 2331 (1995).

34. "Magnetic Field Enhanced Order Parameter Amplitude Fluctuations in Ultrathin Films Near the Superconductor-Insulator Transition" (S.-Y. Hsu, J.A. Chervenak and J.M. Valles, Jr.) Phys. Rev. Lett. **75**, 132 (1995).
35. "Pairbreaking by Magnetic Impurities in Ultrathin Superconducting Films: T_c Degradation Mechanisms in Disordered Superconductors" (J.A. Chervenak and J.M. Valles, Jr.) Phys. Rev. B **51**, 11977 (1995).
36. "Magnetotransport Studies of Strongly Disordered Annealed Amorphous Fe/Si Multilayers" (Y.K. Lin, T.R. Novet, D.C. Johnson and J.M. Valles, Jr.) Phys. Rev. B **53**, 4796 (1996).
37. "Electron Tunneling Spectroscopy Near the Magnetic Field Tuned Superconductor to Insulator Transition" (J.M. Valles, Jr., S.-Y. Hsu and J.A. Chervenak) J. Phys. Chem. Solids **56**, 1809 (1995).
38. "The Transition from Weak to Strong Localization in Ultrathin Films" (S.-Y. Hsu and J.M. Valles, Jr.) Proceedings of the 6th International Conference on Hopping and Related Phenomena (Jerusalem, Israel, 1995).
39. "Evidence for Quantum-Vortex-Liquid Regime in Ultrathin Superconducting Films" (J.M. Valles, Jr. and J.A. Chervenak) Phys. Rev. B **54**, R15 649 (1996).
40. "Magnetic field gradient levitation of *Xenopus laevis*: towards low gravity simulation" (J. M. Valles, Jr., K. Lin, J. M. Denegre, and K. L. Mowry) *Biophys. J.* **73**, 1130 (1997).
41. "Cryostat for *in situ* scanning tunneling microscopy studies of film growth at low temperatures" (K.L. Ekinci and J.M. Valles, Jr.) Rev. Sci. Instr. **68**, 4152 (1997).
42. "Tunneling measurements of fluctuation effects near the superconductor to insulator transition", (Shih-ying Hsu, J.A. Chervenak, and J. M. Valles, Jr.), J. Phys. Chem. Solids **59**, 2065 (1998).
43. "Formation of polycrystalline structure in metallic films in the early stages of zone I growth" (K.L. Ekinci and J.M. Valles, Jr.) Acta mater. **46**, 4549 (1998).
44. "Thickness Dependence of the Morphology of Ultrathin Quench Condensed Gold Films" (K. L. Ekinci and J. M. Valles, Jr.) Phys. Rev. B **58**, 7347 (1998).
45. "Cleavage Planes in Frog Eggs Altered by Strong Magnetic Fields" (J. M. Denegre, J.M., Valles, Jr., K. Lin, W. B. Jordan, and K. L. Mowry) Proc. Natl. Acad. Sci. USA **95**, 14729 (1998).
46. "Tales of bitter magnetism: Frog eggs, blood cells, pigeon feet, metal shreds and a sore head" (J. M. Valles, Jr., J. M. Denegre, and K. L. Mowry) Phys. Today **51**, 11 (11-Dec-1998).
47. "Morphology of Quench Condensed Pb Films near the Insulator to Metal Transition" (K. L. Ekinci and J. M. Valles, Jr.) Phys. Rev. Lett. **82**, 1518 (1999).
48. "Critical Amplitude Fluctuations in Low Superfluid Density Two Dimensional Superconductors" (J. A. Chervenak and J. M. Valles, Jr.) Phys. Rev. B **59**, 11209 (1999).
49. "Absence of a Vortex Solid Phase in Strongly Disordered Superconducting Bi Films" (J. A. Chervenak and J. M. Valles, Jr.) Phys. Rev. B **61**, R9245 (2000).

50. "Microscope System for use in High Magnetic Fields" (J. M. Valles, Jr., S. Wasserman, J. M. Denegre, and K. L. Mowry) *Rev. Sci. Inst.* **71**, 3108 (2000).
51. "Fluctuation Effects in High Sheet Resistance Superconducting Films," (J. M. Valles, Jr., J. A. Chervenak, S. -Y. Hsu, and T. J. Kouh) *Uspekhi Fizicheskikh Nauk* **171**, 104 (2001).
52. "Model of Magnetic Field Induced Mitotic Apparatus Reorientation in Frog Eggs" (J. M. Valles, Jr.) *Biophys. J.* **82**, 1260-1265 (2002).
53. "Processes that Occur Before 2nd Cleavage Determine 3rd Cleavage Orientation in *Xenopus*" (J. M. Valles, Jr., S.R.R.M. Wasserman, C. Schweidenback, J. Edwardson, J. M. Denegre, and K. L. Mowry) *Expt. Cell Res.* **274**, 112-118 (2002).
54. "Low Gravity on Earth by Magnetic Levitation of Biological Material" (Karine Guevorkian and James M. Valles, Jr.) *Journal of Gravitational Physiology* **9**, 11-14 (2002).
55. "Deviations from mean-field behavior in disordered nanoscale superconductor-normal-metal-superconductor arrays" (Taejoon Kouh and J. M. Valles, Jr.) *Phys. Rev. B* **6**, 140506(R) (2003).
56. "Varying the Effective Buoyancy of Cells using Magnetic Force" (Karine Guevorkian and James M. Valles, Jr.) *Applied Physics Letters* **84**, 4863-4865 (2004).
57. "Subgap Density of States in Superconductor-Normal Metal Bilayers in the Cooper Limit" (Zhenyi Long, M. D. Stewart, Jr., Taejoon Kouh and James M. Valles, Jr.) *Phys. Rev. Lett.* **93**, 257001 (2004).
58. "Manipulating Cells with Static Magnetic Fields" (J. M. Valles, Jr. and K. Guevorkian) in *Materials Processing in Magnetic Fields*, Proceedings of the International Workshop on Materials Analysis and Processing in Magnetic Fields, edited by H. J. Schneider-Muntau and H. Wada (World Scientific, New Jersey, 2005) pp. 257-265.
59. "Early Stage Morphology of Quench Condensed Pb, Ag and Pb/Ag Hybrid Films" (Zhenyi Long and James M. Valles, Jr.) *Journal of Low Temperature Physics* **139**, 429-438 (2005).
60. "Magnetic Levitation Based Martian and Lunar Gravity Simulator" (J.M. Valles, Jr., H.J. Maris, G.M. Seidel, J. Tang, and W. Yao) *Advances in Space Research* **36**, 114-118 (2005).
61. "Ordered Nano-Crystal Arrays Spontaneously Form in Films Evaporated onto Nanopore Array Substrates" (Niravun Pavenayotin, M. D. Stewart, Jr., James M. Valles, Jr., Aijun Yin, and J. M. Xu) *Applied Physics Letters* **87**, 193111 (2005).
62. "In situ imaging of microorganisms in intense magnetic fields" (Karine Guevorkian and James M. Valles, Jr.) *Review of Scientific Instruments* **76**, 103706 (2005).
63. "Magnetic Flux Periodic Response of Nano-perforated Films Near the Superconductor to Insulator Transition" (M. D. Stewart, Jr., Zhenyi Long, James M. Valles, Jr., Aijun Yin, and J. M. Xu) *Physical Review B* **73**, 092509 (2006).
64. "Aligning Paramecium Caudatum with Static Magnetic Fields" (Karine Guevorkian and James M. Valles, Jr.) *Biophysical Journal* **90**, 3004-3011 (2006).

65. "Negative magnetoresistance, negative electroresistance, and metallic behavior on the insulating side of the two-dimensional superconductor-insulator transition" (R. P. Barber, Jr., Shih-Ying Hsu, James M. Valles, Jr., R. C. Dynes and R. E. Glover III) *Physical Review B* **73**, 134516 (2006).
66. "Super Weakly Coupled Superconductivity in Ultrathin Superconductor-Normal Metal Bilayers" (Zhenyi Long, M. D. Stewart, Jr., and James M. Valles, Jr.) *Physical Review B* **73**, 140507 (2006).
67. "Microtubule bundling and nested buckling drive stripe formation in polymerizing tubulin solutions" (Yifeng Liu, Yongxing Guo, J. X. Tang, and James M. Valles, Jr.) *Proc. Natl. Acad. Sci.* **103**, 10654-10659 (2006).
68. "Swimming Paramecium in magnetically simulated enhanced, reduced and inverted gravity environments" (Karine Guevorkian and James M. Valles, Jr.) *Proc. Natl. Acad. Sci.* **103** (35): 13051-13056 (2006).
69. "Diamagnetic levitation changes growth, cell cycle, and gene expression of *Saccharomyces cerevisiae*" (Chasity B. Coleman, Romer A. Gonzalez-Villalobos, Patricia L. Allen, Kelly Johanson, Karine Guevorkian, and James M Valles, Timothy G. Hammond) *Biotechnology and Bioengineering* **98**, 854-863 (2007).
70. "Polymerization Force Driven Buckling of Microtubule Bundles Determines the Wavelength of Patterns Formed in Tubulin Solutions" (Yongxing Guo, Yifeng Liu, JX Tang, and James M. Valles, Jr.) *Physical Review Letters* **98**, 198103 (2007).
71. "Superconducting Pair Correlations in an Amorphous Insulating Nano-Honeycomb Film" (M. D. Stewart, Jr., Aijun Yin, J. M. Xu, and James M. Valles, Jr.) *Science* **318**, 1273-1275 (2007).
72. "Effects of osmotic force and torque on microtubule bundling and pattern formation" (Yongxing Guo, Yifeng Liu, Rudolf Oldenbourg, JX Tang, and James M. Valles, Jr.) *Physical Review E* **78**, 041910 (2008).
73. "Magnetic-field-tuned superconductor-to-insulator transitions in amorphous Bi films with nanoscale hexagonal arrays of holes" (M. D. Stewart, Jr., Aijun Yin, J. M. Xu, and James M. Valles, Jr.) *Physical Review B* **77**, 140501 (2008).
74. "Transcriptional regulation of changes in growth, cell cycle, and gene expression of *Saccharomyces cerevisiae* due to changes in buoyancy" (Chasity B. Coleman, Patricia L. Allen, James M. Valles, Jr., and Timothy G. Hammond) *Biotechnology and Bioengineering* **100**, 334-343 (2008).
75. "Enhanced Suppression of Superconductivity in Amorphous Films with Nanoscale Patterning" (M. D. Stewart, Jr., Hung Nguyen, Shawna Hollen, A. Yin, J. M. Xu, and James M. Valles, Jr.), *Physica C* **469**, 774 (2009).
76. "Observation of Giant Positive Magnetoresistance in a Cooper Pair Insulator" (Hung Nguyen, Shawna Hollen, M. D. Stewart, Jr., J. Shainline, A. Yin, J. M. Xu, and James M. Valles, Jr.) *Physical Review Letters* **103**, 157001 (2009).

77. "Cooper-pair insulator phase in superconducting amorphous Bi films induced by nanometer-scale thickness variations" (S.M. Hollen, H.Q. Nguyen, E. Rudisaille, et al.) *Physical Review B* 84, 04528 (2011).
78. "Cooper pair islanding model of insulating nanohoneycomb films" (S.M. Hollen and J.M. Valles, Jr.) *Journal of Physics: Conference Series* 376 (1), 012002.
79. "Cooper pair insulator phase induced in amorphous $Pb_{0.9}Bi_{0.1}$ thin films" S.M. Hollen, J. Shainline, J.M. Xu, and J.M. Valles, Jr., *Physica C: Superconductivity*, North-Holland (2012).
80. "Collapse of the superconducting phase coherence length at a superconductor to insulator transition" S.M. Hollen, G.E. Fernandes, J.M. Xu, and J.M. Valles, Jr., *Physical Review B* 87, 054512 (2013).
81. "Evidence of Two Extremes of Ciliary Motor Response in a Single Swimming Micro-organism", Ilyong Jung, Thomas Powers, and James M. Valles, Jr., *Biophysical Journal* 7, 106-113 (2014).
82. "Fate of the Bose insulator in the limit of strong localization and low Cooper-pair density in ultrathin films." Hollen, S. M., G. E. Fernandes, J. M. Xu, and J. M. Valles Jr. *Physical Review B* 90, no. 14 (2014): 140506.
83. "Trapping of Swimming Microorganisms at Lower Surfaces by Increasing Buoyancy." Jung, Ilyong, Karine Guevorkian, and James M. Valles, *Physical review letters* 113, no. 21 (2014): 218101.
84. "Disorder influences the quantum critical transport at a superconductor-to-insulator transition", HQ Nguyen, SM Hollen, JM Valles Jr, J Shainline, JM Xu, *Physical Review B* 92 (14), 140501 (2015).
85. "Driving a Superconductor to Insulator Transition with Random Gauge Fields", HQ Nguyen, SM Hollen, JM Valles Jr, J Shainline, JM Xu, *Scientific Reports* 6, Article number: 38166 (2016) doi:10.1038/srep38166
86. "Evaporating Metal Nanocrystal Arrays" Xue Zhang, James Joy, Chenwei Zhao, Jin-Ho Kim, Gustavo Fernandes, Jimmy Xu and James Valles, *Nanotechnology* 28, 105302 (2017).

d. non-refereed journal articles

1. "Electron Tunneling in High T_c Superconductors" (J.M. Valles, Jr. and R.C. Dynes), *MRS Bulletin*, June 1990.
2. "Superconducting tunneling and strong coupling effects" (R. C. Dynes, F. Sharifi and J. M. Valles, Jr.) Editor(s): Bar-Yam, Yaneer. *Lattice Effects in High-Tc Superconductivity.*, Proc. Conf. (1992), 299-308. Publisher: World Sci., Singapore, Singapore.
3. Probing the force sensitivity of swimming micro-organisms with intense magnetic fields" (James M. Valles, Jr., and Ilyong Jung) *Mag Lab Reports*, Vol. 18, No. 1, p. 5 (2011).

4. Book Chapter, “Evidence of Cooper Pairs on the Insulating Side of the SIT” (M.D. Stewart, Jr. and James M. Valles, Jr.) for publication in *Conductor Insulator Transitions*, edited by Vladimir Dobrosavljevic, Nandini Trivedi, and James M. Valles, Jr., Oxford University Press.
5. Book co-editor, *Conductor Insulator Transitions*, edited by Vladimir Dobrosavljevic, Nandini Trivedi, and James M. Valles, Jr., Oxford University Press (2012).

e. non-refereed Conference articles

1. “Closing the Achievement Gap in STEM: A Two-Year Reform Effort at Brown University”, Kyle F. Trenshaw, David M. Targan, and James M. Valles, Proceedings of the ASEE NE 2016 Conference (<http://egr.uri.edu/asee2016/proceedings-of-the-asee-ne-2016-conference/>)

f. abstracts

1. “Third Sound in ^4He in Nuclepore” (with D.T. Smith and R.B. Hallock) Bull. Am. Phys. Soc. 30, **536** (1985).
2. “NMR and Third Sound in ^3He - ^4He Mixture Films on Nuclepore” (with B.R. Johnson and R.B. Hallock) Bull. Am. Phys. Soc. **30**, 711 (1985).
3. “Measurements of the ^3He Binding Energy as a Function of ^4He Coverage in ^3He - ^4He Mixture Films” (with R.M. Heinrichs and R.B. Hallock) Bull. Am. Phys. Soc. **30**, 712 (1985).
4. “NMR Susceptibility Measurements on a Fermi System” (with R.H. Higley, B.R. Johnson, and R.B. Hallock) Bull. Am. Phys. Soc. **32**, 552 (1987).
5. “Transport Measurements in a Two-Dimensional Fermi System” (with R.H. Higley, B.R. Johnson, and R.B. Hallock) Bull. Am. Phys. Soc. **32**, 515 (1987).
6. “Superconductivity in Ultra Thin Films Near the Metal-Insulator Transition” (with R.C. Dynes and J.P. Garno) Bull. Am. Phys. Soc. **33**, 348 (1988).
7. “Implantation and Damage of High T_c Superconductors” (with Alice E. White, K.T. Short, R.C. Dynes, A.F.J. Levi, M. Anzlowar, K.W. Baldwin, and J.P. Garno) 7th International Conf. on Ion Implantation Technology, June (1988).
8. “Tunneling Studies of Ultra Thin Films Near the Metal-Insulator Transition” (with R.C. Dynes and J.P. Garno) American Physical Society, St. Louis, Missouri, March 20-24, 1989.
9. “Ion-Beam Induced Metal-Insulator Transition in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$: A Mobility Edge?” (with R.C. Dynes, A.E. White, K.T. Short, A.F.J. Levi, M. Anzlowar, and K. Baldwin) American Physical Society, St. Louis, Missouri, March 20-24, 1989.
10. “Reproducible Tunneling Data on Etched Single Crystals of a $\text{YBa}_2\text{Cu}_3\text{O}_7$ ” (with M. Gurvitch, R.C. Dynes, A.M. Cucolo, L.F. Schneemeyer) International Conference on Materials and Mechanisms of Superconductivity, High Temperature Superconductors, Stanford University, Stanford, California, July 23-28, 1989.
11. “STM Study of the Abrikosov Flux Lattice and Core States” (with H.F. Hess, R.B. Robinson, R.C. Dynes, J.V. Waszczak) American Physical Society, St. Louis, Missouri, March 20-24, 1989.

12. "STM Study of the Charge Density Wave Gap in $2H-NbSe_2$ " (with H.F. Hess, R.B. Robinson, R.C. Dynes, J.V. Waszczak) American Physical Society, St. Louis, Missouri, March 20-24, 1989.
13. "Electron Tunneling into Single Crystals of $YBa_2Cu_3O_{7-x}$ " (with M. Gurvitch, A.M. Cucolo, R.C. Dynes, J.P. Garno, L.F. Schneemeyer and J.V. Waszczak) MRS Meeting, Fall 1989.
14. "Tunnel Junctions on Chemically Etched $YBa_2Cu_3O_7$ Thin Films" (with J.M. Phillips, A.M. Cucolo, R.C. Dynes, M. Gurvitch, J.P. Garno and J.H. Marshall) MRS Meeting, Fall 1989.
15. "Tunneling Studies of Ultra Thin Disordered Pb Films Containing Magnetic Impurities" (with R.C. Dynes, F. Sharifi, J.P. Garno) American Physical Society, Anaheim, California, March 12-16, 1990.
16. "Superconductivity and Tunneling Spectroscopy in Granular and Homogeneous Quench Condensed Thin Films" (with R.C. Dynes) MRS Meeting, Spring 1990.
17. "Electron Tunneling into Ultra Thin Superconducting Bi Films Near the Metal-Insulator Transition" (with R.C. Dynes and J.P. Garno) American Physical Society, Cincinnati, Ohio, March 18-22, 1991.
18. "S-I-S Tunneling Studies of Granular Films Near the 2D Superconductor to Insulator Transition" (with S.-Y. Hsu) American Physical Society, Indianapolis, Indiana, March 16-20, 1992.
19. "The Perpendicular Upper Critical Fields of Ultrathin Pb Films" (with S.-Y. Hsu) American Physical Society, Seattle, Washington, March 22-26, 1993.
20. "Low Temperature Electron Transport Properties of Annealed Amorphous Fe-Si Multilayers" (with Yeong-Kuo Lin) American Physical Society, Seattle, Washington, March 22-26, 1993.
21. "Electron Tunneling Measurements on Ultrathin High Sheet Resistance Films of Different Morphologies" (with S.-Y. Hsu) American Physical Society, Seattle, Washington, March 22-26, 1993.
22. "Planar Tunnel Junction Studies of Quasiparticle Bound States in Vortices in Ultrathin Films" (with S.-Y. Hsu and J.A. Chervenak) 7th Conference on Superconductivity and Applications, September 1994.
23. "The Hall Effect and Magnetoresistance of Amorphous Fe/Si Multilayered Films" (with Y.K. Lin, T. Novet and D. Johnson) American Physical Society, Pittsburgh, Pennsylvania, March 21-25, 1994.
24. "The Evolution of the Magnetoresistance From the Strongly to Weakly Localized Regime in Films with Spin-Orbit Scattering" (with S.-Y. Hsu) American Physical Society, Pittsburgh, Pennsylvania, March 21-25, 1994.
25. "Ultrathin Strongly Disordered Superconducting Films Doped with Magnetic Impurities" (with J. Chervenak) American Physical Society, Pittsburgh, Pennsylvania, March 21-25, 1994.
26. "Anomalous Quantum Corrections to the Anomalous Hall Effect in Amorphous Fe/Si Multilayers" (with Y.K. Lin, T. Novet, and D.C. Johnson) American Physical Society, San Jose, California, March 20-24, 1995.

27. "Evidence of Number Fluctuation Effects in the Magnetic Field Tuned Superconductor to Insulator Transition in Ultrathin Films" (with S.-Y. Hsu, and J.A. Chervenak) American Physical Society, San Jose, California, March 20-24, 1995.
28. "Tunneling Studies of Amplitude Fluctuations of the Order Parameter in Quench Condensed Ultrathin Films Near the S-I Transition" (with S.-Y. Hsu, and J.A. Chervenak) American Physical Society, San Jose, California, March 20-24, 1995.
29. "STM Studies of Quench Condensed Films" (with K.L. Ekinci) American Physical Society, San Jose, California, March 20-24, 1995.
30. "STM Studies of Ultrathin Metal Films Deposited on 77K Graphite Surfaces" (with K.L. Ekinci) Fall Meeting of the Materials Research Society (1995).
31. "Thermal Activation in the Mixed State of Strongly Disordered Ultrathin Films" (with J.A. Chervenak and S.-Y. Hsu) American Physical Society, St. Louis, Missouri, March 18-22, 1996.
32. "Stable Magnetic Field Gradient Levitation of *Xenopus laevis*: Towards Low Gravity Simulation" (with K. Lin, J.M. Denegre, and K.L. Mowry) American Physical Society, St. Louis, Missouri, March 18-22, 1996.
33. "Studies of the Quantum Vortex Liquid Regime in 2D Disordered Superconductors" (with J.A. Chervenak) March Meeting of the American Physical Society, Kansas City, Missouri, March, 1997.
34. "*In situ* STM Studies of Ultrathin Au Films Deposited onto Graphite Surfaces held at Cryogenic Temperatures" (with K.L. Ekinci) March Meeting of the American Physical Society, Kansas City, Missouri, March, 1997.
35. "Disorder Enhanced Magnetic Susceptibility in High Sheet Resistance Amorphous Fe/Si Multilayers" (with Y.K. Lin, T.R. Novet, and D.C. Johnson) March Meeting of the American Physical Society, Kansas City, Missouri, March, 1997.
36. "Magnetotransport in Ultrathin Films Near the Superconductor to Insulator Transition" (with Taejoon Kouh, J. A. Chervenak and A. F. Hebard) March Meeting of the American Physical Society, Los Angeles, California, March 16-20, 1998.
37. "Amplitude Fluctuation Induced Behavior near the 2D Superconductor-Insulator Transition" (with J. A. Chervenak) March Meeting of the American Physical Society, Los Angeles, California, March 16-20, 1998.
38. "Thickness Dependence of the Morphology and Electronic Properties of Ultrathin Quench Condensed Pb and Au Films" (with K. L. Ekinci) March Meeting of the American Physical Society, Los Angeles, California, March 16-20, 1998.
39. "Investigations of Amplitude Fluctuation Effects near the Superconductor-Insulator Transition" (with Taejoon Kouh) Centennial Meeting of the American Physical Society, Atlanta, Georgia, March 1999.
40. "Gastrulation Failure in *Xenopus* Induced By Static Magnetic Fields" (with J.M. Denegre, K. Lin, E.A. Galburt, W.B. Jordan, K.L. Mowry) Centennial Meeting of the American Physical Society, Atlanta, Georgia, March 1999.

41. "Magnetic Field Gradient Levitation System for Physics and Biophysics" 2nd Pan-Pacific Basin Workshop on Microgravity Sciences, Pasadena, CA, May 1-4, 2001.
42. "Transport and Tunneling Studies of Superconducting Grains Embedded in a Normal Metal" (with Taejoon Kouh) March Meeting of the American Physical Society, March 2001.
43. "Model of Magnetic Field Induced Mitotic Apparatus Reorientation in Frog Eggs" March Meeting of the American Physical Society, March 2002.
44. *Deviations from Cooper Limit Theory in Disordered Arrays of Proximity Coupled Nanoscale Superconducting Islands* (with Taejoon Kouh) March Meeting of the American Physical Society, March 2002.
45. *Magnetic Field Effects in Magnetic Field Gradient Levitation of Biological Systems* (with Karine Guevorkian), NASA Workshop, Laguna Beach, May 2002.
46. *Low Gravity on Earth by Magnetic Levitation of Biological Material* (with Karine Guevorkian) 2002: Life in Space for Life on Earth the Joint 23rd annual ISGP Meeting and the 8th ESA Life Sciences, Sweden June 2002.
47. *Experiments on Nanoscale Disordered Superconductor-Normal-Superconductor Arrays* (with Zhenyi Long, Taejoon Kouh, and Michael Stewart) March Meeting of the American Physical Society, Austin, March 2003.
48. *Experiments on Nanoscale Disordered Superconductor-Normal-Superconductor Arrays* (with Zhenyi Long, Taejoon Kouh, and Michael Stewart) American Physical Society March Meeting, Austin, March 2003.
49. *Probing Gravitational Sensitivity in Biological Systems Using Magnetic Body Forces*, (with Karine Guevorkian, Samuel Wurzel, Mariana Mihalusova) American Physical Society March Meeting, Austin, March 2003.
50. *Orienting Paramecium with intense static magnetic fields*, (with Karine Guevorkian, Carl Quindel) American Physical Society March Meeting, Montreal, March 2004.
51. *Using Magnetic Forces to Probe the Gravi-response of Swimming Paramecium*, (with Karine Guevorkian) American Physical Society March Meeting, Montreal, March 2004.
52. *Measurements on Perforated Superconducting Films with Nano-size Periodicity*, (with M. D. Stewart Jr., Aijun Yin, J. M. Xu) American Physical Society March Meeting, Montreal, March 2004.
53. *Soft gap in the density of states of superconducting ultrathin granular superconductor-metal bilayers*, (with Zhenyi Long, M. D. Stewart Jr., Taejoon Kouh) American Physical Society March Meeting, Montreal, March 2004.
54. *Iso-Dissipative Measurements of Little-Parks Oscillations on Ultrathin, Superconducting Films Perforated with Nano-pores*, (with M. D. Stewart, Jr., Zhenyi Long, Niravun Pavenayotin, Aijun Yin, J. M. Xu) American Physical Society March Meeting, Los Angeles, March 2005.

55. *Observation of a subgap density of states in superconductor-normal-metal bilayers in the Cooper limit*, (with Zhenyi Long, M. D. Stewart, Jr.) American Physical Society March Meeting, Los Angeles, March 2005.
56. *How do protozoa respond to intense magnetic fields?*, (with Karine Guevorkian) American Physical Society March Meeting, Los Angeles, March 2005.
57. *Diamagnetic levitation changes growth and gene expression of Saccharomyces cerevisiae*, (with Gonzalez-Villalobos RA, Allen PL, Johanson K, Baker CB, Guevorkian K, Hammond TG) FASEB JOURNAL 20 (5): A1250-A1250 Part 2, MAR 7, 2006.
58. *Bundle Buckling and Nesting Model of Striated Pattern Formation in Microtubule Solutions*, (with Yongxing Guo, Yifeng Liu, and Jay Tang) American Physical Society March Meeting, Baltimore, March 2006.
59. *Comparison of the Superconductor to Insulator Transition in Nano-Perforated and Conventional Homogeneous Films*, (with M. D. Stewart, Jr., Aijun Yin, and J.M. Xu) American Physical Society March Meeting, Baltimore, March 2006.
60. *Detecting the gravitational sensitivity of Paramecium caudatum using magnetic forces* (with Karine Guevorkian) American Physical Society March Meeting, Baltimore, March 2006.
61. *Coordinated Buckling of Microtubule Bundles Produces the Long Wavelength of Microtubule Birefringent Pattern*, (with Yongxing Guo, Yifeng Liu, Allan Bower, and JX Tang) American Physical Society March Meeting, Denver, March 2007.
62. *Observation of Pairing Correlations in Strongly Localized Amorphous Films*, (with M. D. Stewart, Jr., Aijun Yin, and J. M. Xu) American Physical Society March Meeting, Denver, March 2007.
63. *Bosonic Magnetic Field Driven Superconductor-Insulator Transitions in Amorphous Nanohoneycomb Films*, (with M.D. Stewart, Jr., Aijun Yin, and J.M. Xu) American Physical Society March Meeting, New Orleans, March 2008.
64. *Effects of Osmotic Force and Torque on Microtubule Bundling and Pattern Formation*, (with Xongxing Guo, Yifeng Liu, Rudolph Oldenbourg, and Jay Tang) American Physical Society March Meeting, New Orleans, March 2008.
65. *High field magnetoresistance peak near the superconductor insulator transition in amorphous Bifilms patterned with a nanohoneycomb array of holes*, (with S.M. Hollen, H.Q. Nguyen, M.D. Stewart, Jr., J.M. Shainline, Aijun Yin, and J.M. Xu) American Physical Society March Meeting, Pittsburgh, March 2009.
66. *Superconductor-insulator transitions in films patterned with a disordered nanohoneycomb hole array*, (with H.Q. Nguyen, S.M. Hollen, M.D. Stewart, Jr., Aijun Yin, J.M. Shainline, and J.M. Xu) American Physical Society March Meeting, Pittsburgh, March 2009.
67. *Enhanced Suppression of Superconductivity in Amorphous Films with Nanoscale Patterning*, (with M.D. Stewart, Jr., H.Q. Nguyen, S.M. Hollen, Aijun Yin, and J.M. Xu) American Physical Society March Meeting, Pittsburgh, March 2009.

68. *Further Analysis of a Cooper Pair Insulator*, American Physical Society March Meeting, Portland, OR, March 2010.
69. *Cooper pair localization in a-Bi thin films near the superconductor-insulator transition*, (with S.M. Hollen, N.Q. Nguyen, E. Rudisaile, J. Shainline, G. Fernandes, J.M. Xu, and J.M. Valles, Jr.) March Meeting of the APS, Dallas, March 21-25, 2011.
70. *Swimming Response of Individual Paramecia to Variable Forces*, (with Ilyong Jung, Michael Wagman, and James M. Valles, Jr.) March Meeting of the APS, Dallas, March 21-25, 2011.
71. *Investigations of the Response of Swimming Paramecia to Variations in their Apparent Weight*, (with James Valles, Ilyong Jung, Karine Guevorkian, Harry Michalide, and Michael Wagman) APS Division of Fluid Dynamics Meeting, Baltimore, November 20-22, 2011.
72. *Paramecia Swim with a constant propulsion in Solutions of Varying Viscosity*, (with J.M. Valles, Jr., I. Jung, H. Mickalide, H. Park, and T. Powers) March Meeting of the APS, Boston, February 27–March 2, 2012.
73. *Response of Swimming Paramecia to in situ changes in their apparent weight*, (with I. Jung, H. Mickalide, and J.M. Valles, Jr.) March Meeting of the APS, Boston, February 27–March 2, 2012.
74. *The extent of the Cooper pair insulator phase in amorphous $Pb_{0.9}Bi_{0.1}$ nanohoneycomb films*, (with S.M. Hollen, J.C. Joy, A.H. Berg, G.E. Fernandes, J. Shainline, J.M. Xu, and J.M. Valles, Jr.) March Meeting of the APS, Boston, February 27–March 2, 2012.
75. *Cooper pair islanding model of insulating nanohoneycomb films*, (with S.M. Hollen, E. Rudisaile, J. Shainline, J.M. Xu, and J.M. Valles, Jr.) March Meeting of the APS, Boston, February 27–March 2, 2012.
76. *Studies of Ciliated Microorganism Swimming with and against a Magnetic Field Tuned Apparent Weight Force*, (with I. Jung, H. Mickalide, and J.M. Valles, Jr.) APS Division of Fluid Dynamics Meeting, San Diego, November 18-20, 2012.
77. *Transport Behavior of Ultrathin Films with NanoThickness Undulations in the Strongly Localized Regime* JC Joy, SM Hollen, C Zhao, G Fernandes, JM Xu, JM Valles Jr, March Meeting of the APS Baltimore 2013.
78. *Effects of Viscosity on the Gravi-kinesis Responses of Swimming Paramecia Studied Using Magnetic Force Buoyancy Variation*, I Jung, JM Valles, March Meeting of the APS Baltimore 2013.
79. *Observation of the Collapse of the Cooper Pair Phase Coherence Length at a Superconductor to Insulator Transition* J Valles, S Hollen, G Fernandes, J Xu, March Meeting of the APS Baltimore 2013.
80. *Investigation of ciliary propulsion of *Tetrahymena Pyriformis* in viscous solution* Ilyong Jung, Eva Lyubich and J. Valles, March Meeting of the APS Denver 2014.
81. *Evolution of the Cooper Pair Insulator Phase in a-Bi Films Grown on Nanohoneycomb Substrates with Varying Surface Topography*, J. Joy, X. Zhang, C. Zhao, S. M. Hollen, J. M. Valles, Jr., G. Fernandes, and J. M. Xu, March Meeting of the APS Denver 2014.

82. *Transport in thin insulating films close to the Boson-Fermion Crossover* JC Joy, X Zhang, SM Hollen, C Zhao, G Fernandes, JM Xu, JM Valles Jr, March Meeting of the APS San Antonio 2015.
83. *"Film Growth on Nanoporous Substrates*, XUE ZHANG, JAMES JOY, CHENWEI ZHAO , JM Xu, and JM Valles", 2016 March Meeting of the American Physical Society, 03/16/2017
84. *"Shrinking of the Cooper Pair Insulator Phase in Thin Films with Ultrasmall Superconducting Islands* J.C. JOY, X. ZHANG, C. ZHAO , J.M. VALLES, JR., G. FERNANDES, J.M. XU", 2016 March Meeting of the American Physical Society, 03/17/2017
85. *"Effects of magnetic impurities on the Cooper Pair Insulator state"*, Xue Zhang, James Joy, J.M. Xu and James Valles, March Meeting of the American Physical Society, 03/13/2017

g. invited lectures

1. *Superconductivity in Disordered Metals Near the Metal-Insulator Transition*, Boston University, February 1989.
2. *Superconductivity in Disordered Metals Near the Metal-Insulator Transition*, University of California-Davis, February 1989.
3. *Superconductivity in Disordered Metals Near the Metal-Insulator Transition*, University of Oregon, February 1989.
4. *Superconductivity in Disordered Metals Near the Metal-Insulator Transition*, University of Maryland, February 1989.
5. *Superconductivity in Disordered Metals Near the Metal-Insulator Transition*, University of Southern California, February 1989.
6. *Superconductivity in Disordered Metals Near the Metal-Insulator Transition*, Brown University, February 1989.
7. *Electron Tunneling Studies of $YBa_2Cu_3O_{7-x}$* , IBM T.J. Watson Research Center, March 1989.
8. *Electron Tunneling Studies of $YBa_2Cu_3O_{7-x}$* , American Physical Society, Anaheim, California, March 12-16, 1990.
9. *Electron Tunneling Studies into Thin Films of $YBa_2Cu_3O_{7-x}$* , Conference on the Science and Technology of Thin Film Superconductors, Denver, Colorado, May 1990.
10. *Electron Tunneling Studies of High T_c Superconductors*, Materials Science Symposium, Oregon State University, Corvallis, Oregon, 1990.
11. *Electron Tunneling Studies of High T_c Superconductors*, Tektronix Inc., Beaverton, Oregon, November 1990.
12. *Electron Tunneling into Superconductors*, Lewis and Clark College, Portland, Oregon, May 1992.

13. *Electron Tunneling Studies of Ultrathin Films Near the Superconductor to Insulator Transition*, XX International Conference on Low Temperature Physics, Eugene, Oregon, August 1993.
14. *Superconductor to Insulator Transition in Disordered Films*, Conference on Metal-Insulator Transitions, Localization, and Mesoscopic Systems, Eugene, Oregon, August 1993.
15. *Electron Tunneling into Ultrathin Superconducting Films*, University of Massachusetts, Amherst, Massachusetts, October 1993.
16. *Superconductor to Insulator Transitions in Two Dimensions*, Physics Colloquium, Kent State University, November 1993.
17. *Beyond the Weakly Localized Regime in Two-Dimensional Electronic Systems*, Condensed Matter Seminar, University of Florida, November 1993.
18. *Seeing Vortices with Tunnel Vision*, Physics Colloquium, Wesleyan University, February 1994.
19. *Evidence for a Minimum Metallic Conductance in Two Dimensions*, Northeastern University, May 1994.
20. *Seeing Vortices with Tunnel Vision*, Williams College, May 1994.
21. *When is a metal film metallic?* Brown University, February 1995.
22. *When is a metal film metallic?* University of Oregon, April 1995.
23. *The Transition from Weak to Strong Localization in Ultrathin Films*, 6th International Conference on Hopping and Related Phenomena, Jerusalem, Israel, August 1995.
24. *Localization Transitions in 2D Normal Metal Films*, March APS meeting, St. Louis, March 1996.
25. *Superconductor-to-Insulator Transitions in Ultrathin Films*, Princeton University, April 1996.
26. *Ballistic Electron Emission Microscopy of High T_c Superconductor Normal Interfaces*, 1996 ONR Interfaces to Superconductors Midterm Review/Workshop, Buffalo, New York, June 1996.
27. *New Perspectives on the Superconductor-to-Insulator Transition*, University of California, San Diego, October 1996.
28. *When is a Metal Film Metallic?* Wesleyan University, October 1996.
29. *New Perspectives on the Superconductor-to-Insulator Transition*, Boston University, November 1996.
30. *High Magnetic Field Effects on Frog Embryos*, Materials Research Seminar, Brown University, February 1997.
31. *High Magnetic Field Effects on Frog Embryos*, Biophysics Seminar, Florida State University, May 1997.
32. *Learning About Life in High Magnetic Fields*, Dartmouth College Colloquium, October 17, 1997.

33. *Learning About Life in High Magnetic Fields*, University of Wisconsin Colloquium, October 24, 1997.
34. *Learning About Life in High Magnetic Fields*, Brown University Colloquium, October 17, 1997.
35. *Is there a superconductor to metal transition in 2D?*, Condensed Matter Seminar, University of Massachusetts, November 20, 1997.
36. *Learning About Life in High Magnetic Fields*, University of Rhode Island Physics Colloquium, December 5, 1997.
37. *Structural and Electronic Properties of Quench Condensed Films*, Brookhaven National Laboratory, December 11, 1997.
38. *Static Magnetic Field Effects on Amphibian Early Development*, March 1998 Meeting of the American Physical Society, March 20, 1998.
39. *Structure and Electronic Properties of Quench Condensed Films*, Condensed Matter Seminar, Northeastern University, April 14, 1998.
40. *When Life and Magnetic Fields Meet*, After Dinner Talk to Sigma Xi initiates at Brown University, April 28, 1998.
41. *When Life and Magnetic Fields Meet*, University of Florida Physics Colloquium, October 8, 1998.
42. *Amplitude Fluctuation Effects near the Superconductor Insulator Transition*, Condensed Matter Seminar, Argonne National Laboratory, October 20, 1998.
43. *When Life and Magnetic Fields Meet*, James Franck Institute Seminar, University of Chicago, October 21, 1998.
44. *When Life and Magnetic Fields Meet*, CIRCS Seminar, Northeastern University, November 17, 1998.
45. *Evidence of a Quantum Vortex Liquid Regime in Ultrathin Films*, Condensed Matter Seminar, University of Washington, December 2, 1998
46. *Insulators, Superconductors and maybe even Metals in Two Dimensions*, Colloquium, Brandeis University, September 14, 1999.
47. *Fluctuation Effects near the Superconductor-Insulator Transition*, at the Workshop on Quantum Transport and Mesoscopic Physics, National Chiao Tung University (Hsinchu), January 6-8, 2000.
48. *STM Studies of the Ultrathin Films near the Metal Insulator Transition*, Condensed Matter Seminar, Dartmouth College, January, 27, 2000.
49. *Fluctuation Effects in High Sheet Resistance Superconducting Films*, at Chernogolovka 2000: Mesoscopic and Strongly Correlated Electron Systems, Chernogolovka, Russia, July 9-16, 2000.

50. *Learning About Life in High Magnetic Fields*, after dinner talk at the Wisconsin Association of Physics Teachers meeting, University of Wisconsin, River Falls, Wisconsin, October 27, 2000.
51. *Mesoscopic and Quantum Critical Fluctuations in Barely Superconducting Films*, SUNY Buffalo Department of Physics Colloquium, November 16, 2000.
52. *Magnetic Field Manipulation of Frog Embryos*, Materials Research Society Fall Meeting, Symposium S, Boston, November 27, 2000.
53. *Manipulation of Cell Division using Static Magnetic Fields*, Dartmouth Molecular Materials Symposium, Dartmouth College, Hanover, NH, January 20, 2001.
54. *Manipulation of Cell Division using Static Magnetic Fields*, March Meeting of the American Physical Society, March 14, 2001.
55. *Anomalous Proximity Effect in Nanostructured Films*, Condensed Matter Physics Seminar, Brookhaven National Laboratory, December 20, 2001.
56. *Manipulation of Cell Division using Static Magnetic Fields*, Squishy Physics Talk, Harvard, October 17, 2001.
57. *Low Gravity on Earth by Magnetic Levitation of Biological Material* IGSP Annual Meeting, , the 23rd Annual International Gravitational Physiology Meeting will be held in Stockholm, Sweden on June 2-7, 2002
58. *Magnetic Manipulation of Cell Division*, Physics Colloquium, Northeastern University, November (2002).
59. *Probing Cleavage Geometry in Xenopus Eggs using Magnetic Fields*, Cell Biology Seminar, Marine Biological Laboratory, Woods Hole, May 7, 2003.
60. *Probing Gravitational Sensitivity in Biological Systems using Magnetic Body Forces*, NASA Fundamental Physics Workshop, Oxnard, California, April 14-16, 2003.
61. *Manipulating Cells with Static Magnetic Fields*, Condensed Matter Physics Seminar, University of Massachusetts, September 18, 2003.
62. *Manipulating Cells with Static Magnetic Fields*, MARTECH Seminar, Florida State University, September 29, 2003.
63. *Manipulating Cells with Static Magnetic Fields*, Physics Colloquium, Emory University, October 10, 2003.
64. *On Behalf of the Goo Scientists*, User's Committee Meeting, Los Alamos National Laboratory, November 14, 2003.
65. *Manipulating Cells with Static Magnetic Fields*, Symposium on Behavior of Substances and Organisms under High Magnetic Fields, Tokyo, Japan, 15 – 16 February 2004

66. *Manipulating Cells with Static Magnetic Fields*, International Workshop on Materials Analysis and Processing in Magnetic Fields, March 17 - 19, 2004, National High Magnetic Field Laboratory, Tallahassee, FL, USA
67. *Magnetic Levitation Based Martian and Lunar Gravity Simulator*, NASA Fundamental Physics Workshop, Solvang, California, April 20-22, 2004.
68. *Magnetic Levitation Based Martian and Lunar Gravity Simulator*, 35th COSPAR Scientific Assembly, Paris, France, July 18-25, 2004.
69. *Subgap Density of States in Ultrathin Superconductor-Normal Metal Bilayers* at a workshop, "The Physics of Ultra Thin Films Near the Metal Insulator Transition II", at Brookhaven National Laboratory, January 6-7, 2005.
70. *Manipulating Cells with Static Magnetic Fields*, Colloquium, Kent State University March 2005.
71. *Cell Biology in 20 Tesla* at the Symposium on Behavior of Substances and Organisms under High Magnetic Fields, Physical Phenomena at High Magnetic Fields–V, Tallahassee, Florida, August 5-9, 2005.
72. *Exploring a new route to a two dimensional metal*, Condensed Matter Seminar, University of Virginia, October 20, 2005.
73. *Swimming microorganisms in magnetic fields*, 2nd International Workshop on Materials Analysis and Processing in Magnetic Fields, March 19-22, 2006, CNRS, Grenoble, France.
74. *Subgap Density of States in Ultrathin Superconductor-Normal Metal Bilayers*, Advanced Research Workshop "Meso-06", Mesoscopic and strongly correlated electron systems – 4 Nanoscale superconductivity and magnetism 14–19 June 2006, Chernogolovka, RUSSIA
75. *Cell Biology in Many Tesla*, Physics Colloquium at the Ohio State University, October 17, 2006.
76. *Entering Mentoring: Goals and Expectations*, kickoff talk for the Effective Research Mentoring Series, Brown University, SFH, January 16, 2007.
77. *Cell Biology in Many Tesla*, Physics Colloquium at the Tufts University, February 23, 2007.
78. *Boson-Dominated Superconductor to Insulator Transitions in Amorphous Nano-honeycomb Films* for a Research Workshop on Fluctuations and Phase Transitions in Superconductors, June 10-14, 2007, Nazareth-Ilits, Israel.
79. *Cell Biology in Many Tesla*, University at Buffalo Physics Colloquium, October 25th, 2007.
80. *Observation of Localized Cooper Pair Phases in Amorphous Multiply Connected Films*, The Ohio State University, International Workshop on Conductor-Insulator Quantum Phase Transitions, January 9-11, 2008.
81. *Exploring a New Route to a Two Dimensional Metal*, Condensed Matter Seminar, California Institute of Technology, January 18th, 2008.
82. *Levitation and Magnets*, Wayland Collegium luncheon talk, March 18, 2008.

83. *MagnetoArchimedes Simulation of Variable Gravity for Paramecia*, 3rd International Workshop on Materials Analysis and Processing in Magnetic Fields (MAP3), Tokyo, JAPAN, May 16, 2008.
84. *Cooper Pairs in an Insulator!?*, Colloquium, Fermi Lab, July 23, 2008.
85. *Cooper Pairs in an Insulator!?*, Condensed Matter Seminar, University of Massachusetts, Amherst, September 25, 2008.
86. *Investigations of Amorphous Films Patterned with Nanohole Arrays near the Superconductor to Insulator Transition (SIT)*, Superconductor-insulator Workshop, Weizmann Institute, Rehovot, ISRAEL, October 29th to November 5th 2008.
87. *Cooper Pairs in an Insulator!?*, Condensed Matter Seminar, University of Utah, February 17, 2009.
88. *Localized Cooper Pairs in Nano-honeycomb Films*, Conference on New Directions in Low Dimensional Electron Systems, KITP Santa Barbara, February 27, 2009.
89. *Experiments on a Cooper Pair Insulator*, Superconductivity: from collective modes to quantum phase transitions, a conference to honor Allen Goldman, University of Minnesota, May 1, 2009.
90. *Manipulating Life with Magnets*, Physical Chemistry Tea Session, Brown University, September 17, 2009.
91. *Experiments on a Cooper Pair Insulator*, I.F. Schegolev Memorial Conference “Low-Dimensional Metallic and Superconducting Systems”, Chernogolovka, Russia, October 11, 2009.
92. *Seeding Microtubule Pattern Formation with Magnetic Alignment*, International Conference on Magneto Science, Radboud University, Nijmegen, The Netherlands, October 29, 2009.
93. *Experiments on a Cooper Pair Insulator*, Exotic Insulating States of Matter Workshop, Johns Hopkins University, January 14-16, 2010.
94. *Manipulating Life with Intense Magnetic Fields*, PSI Summer School on Condensed Matter Research – Magnetic Phenomena, Zuo, Switzerland, August 8-13, 2010.
95. *Learning about Life in High Magnetic Fields*, University of Rhode Island Physics Colloquium, October 1, 2010.
96. *Cooper Pair Localization in Patterned Amorphous bi Thin Films*, MTI superconductor-Insulator Transition Workshop, Argonne National Laboratory, November 16-19, 2010.
97. *Insulator to superconductor transitions come in multiple flavors in quench condensed films*, Workshop on Strongly Disordered Superconductors and Electronic Segregation from August 22, 2011 through August 26, 2011 in Leiden, The Netherlands.
98. *Localized Cooper pairs in nano-honeycomb amorphous Bi films*, Transport in Disordered Systems 14, Acre Israel, September 5-8, 2011.

99. *What is a Cooper Pair Insulator?*, Brown University Faculty Seminar Series, November 4, 2011.
100. *Manipulating Life with Intense Magnetic Fields*, Physics Colloquium, Bates College, December 2, 2011.
101. *Soft Matter Research in Static Magnetic Fields*, Talk for the National Academy of Sciences Committee to Assess the Current Status and Future Direction of High Magnetic Field Science in the United States, Washington D.C., May 18, 2012.
102. *Experimental investigations of the cooper pair insulator phase in nanohoneycomb films*, Fundamentals of Electronic Nanosystems, Nano-Piter 2012 Research Workshop, St. Petersburg Russia, June 27, 2012.
103. *Experimental Insights into the Insulators that Form at the Superconductor to Insulator Transition*, MTI NonConventional Insulators Workshop, Argonne National Laboratory, November 12, 2012.
104. *Magnetic Manipulation of Biological Systems and Nanogranular Superconductors*, Institute for Molecular and Nanoscale Innovation Seminar, Brown University, November 7, 2012.
105. *Magnetic Force Buoyancy Variation Studies of Paramecium Swimming*, International Conference on Magneto-Science, Bordeaux, France, October 13-17, 2013.
106. *Manipulation of Living Systems with Static Magnetic Fields*, Mechanical Engineering Seminar, Boston University January 24th, 2014.
107. *Amorphous nano-honeycomb film investigations of disorder effects on the SIT and transport deep in the Cooper Pair Insulator Phase*, International Workshop on Strongly Disordered Superconductors and the Superconductor-Insulator Transition, Villard de Lans, Vercors, France, February 9-14, 2014.
108. *“Studies of Paramecium Swimming Biophysics using Intense Magnetic Fields”* 6th International Workshop on Materials Analysis and Processing in Magnetic Fields July 8-11, 2014, Okinawa, Japan.
109. *“Superconductivity on the Verge Workshop Summary Talk”* Superconductivity on the Verge Lorentz Center Workshop, 27-31 July 2015, Leiden, The Netherlands.
110. *Cooper Pair Insulators*, March 2016 Meeting of the American Physical Society (March 16, 2016).
111. *Crafting a Bose Insulator Out of a Superconductor*, Colloquium, The Ohio State University Department of Physics (October 11, 2016).
112. *Tuning Gauge Disorder at the Superconductor to Insulator Transition*, Condensed Matter Physics Seminar, The Ohio State University Department of Physics (October 13, 2016).
113. *Static Magnetic Field Manipulation of Biological Matter*, Meeting for the 10th anniversary of Magneto Science Society of Japan, Tsukuba, Japan (November 15-17, 2016).

114. Invited NEASC panelist: 131st NEASC Annual Meeting and Conference's Innovations in STEM Teaching Higher Ed Panel - Joined with higher education professionals from Yale, Springfield Technical Community College and MIT. Presented an overview and insights from our AAU funded STEM innovations at Brown. (December 7, 2016)

h. poster

1. Biomaterials Workshop, Brandeis University 10/14/97
2. *Magnetic Field Gradient Levitation System for Physics and Biophysics*, 2nd Pan-Pacific Basin Workshop on Microgravity Sciences, Pasadena, CA, May 1-4, 2001.
3. *Magnetic Field Effects in Magnetic Field Gradient Levitation of Biological Systems*, NASA Fundamental Physics Workshop, Laguna Beach, CA, May 8-9, 2002.
4. *Probing Gravitational Sensitivity in Biological Systems Using Magnetic Body Forces*, Gordon Conference on Gravitational Effects in Physico-Chemical Systems, July 28-31, 2004.

i. papers read

Please see 5g., invited lectures.

j. Represented Brown University at Project Kaleidoscope Conference PKAL Faculty for the 21st Century, Houston Texas November, 1997.

6. Research in progress

Please see Statement of Accomplishments, 2017.

7. Service

(i) University

1992-1993	Graduate Curriculum Committee
1993-1994	Chairman, Condensed Matter Seminar Series
1993-1994	Served as CAP Advisor for eight first-year students
1993-present	Sat on approximately 3 preliminary exams per year for Physics and Engin.
1993-present	Served on approximately 3 PhD Defense Committees per year
1994-1998S	Concentration Advisor
1994-1997	Sophomore Advisor
1995-1997	Ad hoc Curriculum Committee
1995-1997	Graduate Curriculum Committee
1995-1997	Member, Faculty Search Committee
1996-1998S	Chairman Colloquium and Seminars Committee
1995-1996	Member, JEPIS Committee
1997-2000	Men's Lacrosse Faculty Liaison
1997	DUG talk
1998	DUG talk, <i>What is the magnetic field equivalent of a cubit?</i>
1997-1998	Sheridan Center Faculty Teaching Liaison
1999-2002	Executive Officer, Department of Physics

1999-2000 Exit Interviewer for the NCAA
 2000 Member, Dean of the College Search Committee
 2000 Member, Faculty Search Committee for CME
 2000-present Men's Soccer Faculty Liaison I met regularly with coaches, team members and recruits and their family members.
 2001 Member, Condensed Matter Experiment Search Committee
 2001-present Chair, Department Safety Committee
 2002 Chair, Affirmative Action Monitoring Committee
 2002-2003 Chair, Qualifying Exam Committee
 2002 Chair, Condensed Matter Experiment Search Committee
 2002-2004 Member, Chair's Advisory Team
 2002 DUG Talk, *Manipulating Life with Magnets*.
 2002-present Co-organizer of the *Frontiers in the Interactions between Physics and Biology* Seminar Series
 2003 Chair, Condensed Matter Experiment Search Committee
 2003 Presenter, Dean of the College Scholar Athlete Awards
 2004-present Member, Faculty Development Advisory Board
 2004 Member, Wriston fellowship committee
 2004 CAP advisor to 6 first year students
 2004-06 Points on the Compass Presenter
 2004 Reviewer for DePSCOR proposals from Brown and URI
 2005-07 CAP advisor to 8 first year students
 2005-07 Member, Subcommittee on Diversity in Hiring
 2005 Chair, Target of Opportunity Committee Physics Department
 2005-2009 Chair, Junior faculty mentoring committee of Professor Mitrovic
 2005-2006 Chair, Junior faculty mentoring committee of Professor Tang
 2005-2007 Chair, Tenure review committee of Professor Tang
 2005 Member, Promotion review committee for Professor Ling
 2005 Member, Publications and Outreach Committee Physics Department
 2005-2006 Member, CNSSM faculty search committee Physics Department
 2006-07 Chair, University Committee on Diversity in Hiring
 2006 Reviewer for Provost, NSF Major Research Instrumentation Proposals
 2004-07 Chair, Graduate Admissions Committee, Department of Physics
 2007 Kickoff talk for the Effective Research Mentoring Series.
 2007 After Dinner Speaker for Admissions STEM Recruiting Event.
 2007 IRB MRI protocol review committee
 2007-2009 Proust Seminar Facilitator
 2007 Chair, Committee on Diversity in Hiring
 2007 Sheridan Center Faculty Teaching Liaison
 2007 *Member, Biomedical Engineering Executive Advisory Council*
 2007 *Member, Brown MBL Steering Committee*
 2008 Biological Physics Theory Position Search Committee, member.
 2008 Publications, Website and Outreach Committee, member.
 2008 Curriculum Committee, member.
 2008 CAP Advisor – advised 6 first year students
 2008 Sophomore Advisor – advised 5 students
 2008-2013 Science Center Advisory Board Member
 2008-2011 Wayland Collegium, Senior Fellow.
 2008-2012 The Swearer Center for Public Service, board member.
 2008 Instructional Advisory Group for the Dean of the Graduate School, member

2008-2010 *UTRA Proposal Review Committee Member*
 2008-2009 Excellence at Brown Seminar Instructor
 2008-2010 IRB MRI protocol review committee
 2008-2010 University Disciplinary Committee, member
 2009 Physics Department External Review Steering Committee, member.
 2009 Publications, Website and Outreach Committee, member.
 2009 Curriculum Committee, member.
 2009 First Year Advisor – advised 7 first year students interested in the physical sciences
 2009 Sophomore Advisor – advised 7 students
 2009 Junior faculty mentoring committee of Professor Stein, chair
 2009-2011 *ADVANCE* Steering Committee Member
 2009-2010 *TEAM member*, discussion group addressing diversity issues in advising.
 2010 Physics Department External Review Steering Committee, member.
 2010 Publications, Website and Outreach Committee, member.
 2010 Curriculum Committee, member.
 2010 First Year Advisor – advised 7 first year students interested in the physical sciences.
 2010 Sophomore Advisor – advised 13 students.
 2010 Junior faculty mentoring committee of Professor Mitrovic, chair
 2010 Junior faculty mentoring committee of Professor Stein, chair
 2010-2011 Health Careers Advisory Committee Member – conducted 4 interviews of students applying to medical school and provided my input on them to the recommendation letter writers.
 2010 Associate Dean of the College for Curriculum, until 6/30/2010.
 2010 Assistant/Associate Deans of the College search Committee Member.
 2010-2011 Science Center Advisory Board Member – this board advised the Dean of the College Office on matters related to the development of a campus science center.
 2010 Field Hockey Recruiting Speaker
 2010 Admissions Office Support.
 2011 Chair of Physics – Obtained a consensus plan that charts the future for hiring in physics.
 2011 Chair of Physics - Worked on promotion cases for 4 faculty including two successful tenure cases.
 2011 Sophomore Advisor – advised 4 students.
 2011 Provost's Committee for the Agenda of Chair and Director's Meetings
 2011-2012 Provost's Committee on the potential of campus expansion into the Knowledge District.
 2011-2013 Sheridan Center Advisory Board Member.
 2011-2012 Admissions Office Support – gave presentation for admissions office to admitted high school students.
 2011-2013 *TEAM* leader, discussion group from the DoC office addressing diversity issues in advising.
 2011-2013 IMNI Advisory Board member.
 2012 Chair of Physics
 2012 Initiated faculty search in Condensed Matter Experiment after submitting a request to the Dean of the Faculty for two searches.
 2012-2014 Worked on faculty promotion cases.
 2012-2013 Instituted and co-led a weekly communication seminar for 1st year grad students with Jay Tang.

2012 First Year and Sophomore Advisor – advised 6 students in total.
 2012 Gave the faculty address at the Midyear Completion Ceremony
 2012,2014 Panel Member/Speaker about teaching to new faculty
 2012 Member of the Open Graduate Program Selection Committee
 2012 Provost’s Committee for the Agenda of Chair and Director’s Meetings
 2012-2013 Admissions Office Support – participated in recruiting events.
 2012-2014 TEAM leader and member, discussion group from DoC addressing diversity issues in advising.
 2012-2014 Led a First Readings seminar
 2012 Evaluator of University equipment proposals for OVPR
 2012 Goldwater Scholarship Selection Committee
 2013 co-led discussion of Sciences at Brown for URM Recruiting session
 2013 Presented “My Reflections on Teaching” to the Sheridan Center Certificate 1 program students
 2014 *Chair of Physics*
 2014 Initiated faculty searches in Astro/Cosmo Experiment and Particle 2014 Phenomenology.
 2014 Presented two promotion cases to TPAC.
 2014 Initiated 3 promotion cases.
 2014 Led a weekly communication seminar for 1st year grad students
 2014 *First Year and Sophomore Advisor – advised 12 students in total*
 2014 *Member, Sexual Assault Task Force*
 2014 *Math Department internal review committee*
 2014 *First year and sophomore advisor (about 10 students)*
 2014 *Science Center Advisory Board Member*
 2014 *Sheridan Center Advisory Board Member*
 2014 *Men’s Soccer Team, faculty liaison*
 2014 *Admissions Office Support – participated in URM recruiting events*
 2014 *TEAM leader and member, advising discussion group*
 2014 *IMNI Advisory Board member*
 2014 *Campus Life Subcommittee on Athletics and Physical Education - member*
 2014 *Faculty Panelist at Sheridan Center’s New Faculty Orientation to Teaching*
 2014 *Gave talk to Rookie Meiklejohn advisors to kick off their orientation*
 2014 *Led a First Readings seminar*
 2014 *International Student Orientation Lunch*
 2014 *Taught science units at the Vartan Gregorian School on a monthly basis*
 2014 *Transformative Conversations Facilitator*
 2015 *Chair of Physics*
 2015 Hired 3 faculty members, Fan, Pober and Alexander
 2015 Presented two promotion cases to TPAC.
 2015 Led development of metrics for the physics department
 2015 Initiated 1 promotion case.
 2015 Nominated faculty for awards including the Waterman (Fan), Sloan (Fan), Simon’s and Blavatnik (Volovich)
 2015 Led a weekly communication seminar for 1st year grad students
 2015 *First Year and Sophomore Advisor – advised about 12 students*
 2015 *Member, Sexual Assault Task Force*
 2015 *First year and sophomore advisor (about 10 students)*
 2015 *Science Center Advisory Board Member*

- 2015 *Sheridan Center Advisory Board Member*
- 2015 *Men's Soccer Team, faculty liaison*
- 2015 *Admissions Office Support* – participated in URM recruiting events
- 2015 *TEAM leader and member*, advising discussion group
- 2015 *IMNI Advisory Board member*
- 2015 *Campus Life Subcommittee on Athletics and Physical Education* - member
- 2015 *Led a First Readings seminar*
- 2016 Chair of Physics
- 2016 *First year and sophomore advisor* (about 10 students)
- 2016 *Science Center Advisory Board Member*
- 2016 *Sheridan Center Advisory Board Member*
- 2016 *Men's Soccer Team, faculty liaison*
- 2016 *Admissions Office Support* – participated in URM recruiting events
- 2016 *TEAM leader and member*, advising discussion group
- 2016 *IMNI Advisory Board member*
- 2016 *Campus Life Subcommittee on Athletics and Physical Education* - member
- 2016 Condensed Matter Experiment Search Committee – member
- 2016 Prospective Student Interviews for Advancement - met with students interested in physical sciences to encourage them to consider Brown by discussing their interests and how they can pursue them on College Hill.
- 2016 Panelist for Catalyst - participated in discussions of how students can advocate for themselves as a panelist at a summer Catalyst event.
- 2016 Panelist for SIAM - invited to join a panel discussion with other faculty members from the physical science on submitting and publishing papers for the benefit of graduate students and postdocs.
- 2016 Steering Committee Member for Learning in the 21st Century - under Dean Mandel, the steering committee is helping plan a multi-university conference at Brown for 2019 as part of the celebration of the 50th anniversary of the "New Curriculum".
- 2017 Sheridan Center Advisory Board Member
 Campus Life Sub Committee on Athletics and Physical Education
 TEAM-Team Enhanced Advising and Mentoring
 Science Center Advisory Board Member
 Executive Masters in Science and Technology Leadership Member
 HHMI Grant Advisory Board Member
 Title IX Council, Chair
 Dean of the College and Sheridan Center Problem Solving Committee
 Honors Coordinator, Department of Physics
 DDIAP Committee, co-Director
 IMSD Advisory Board
- (ii) Profession
- 1991-1992 Co-organizer of the Oregon Materials Science Symposium
- 1992-1993 Organizing Committee for the XX International Conference on Low Temperature Physics.
- 1992-present Reviewer of NSF proposals
- 1992-present Member American Physical Society
- 1992-1997, 2000 Member Materials Research Society
- 1992-present Reviewer for the Physical Review, Solid State Communications, Nature, Science and other journals

1995-1996 Served on a NSF Committee for reviewing a set of Small Business Innovative Research proposals on superconductivity

1995-1996 Organized a seminar series entitled, “*The Physics/Biology Interface: Towards New Physical Techniques for Cell Biology*” in collaboration with Professor K. Mowry and Dr. J. Denegre, Department of Biology. It was funded by a Wayland Collegium grant of \$5,000.

1997-present Member, Project Kaleidoscope Faculty for the 21st Century

1998 NSF Review Panelist for Career Proposals

1998 Reviewed proposal for the Israel Science Foundation

1992- Reviewer of National High Magnetic Field Laboratory, Cottrell Foundation proposals

1999 Co-organizer and host of Workshop on “The Physics of Ultrathin Metal Films near the Metal-Insulator Transition”

2000 Member of Steering Committee for 5th Academia-Industrial Outreach Workshop sponsored by the AIP

2002 *Panelist*, NSF SBIR proposal panel on nano-electronics.

2003-2006 *Chair (2005, 2006) Secretary(2004) and Member(2003)*, National High Magnetic Field Laboratory User’s Committee

2005 Co-Organizer of an International Workshop on “The Physics of Ultrathin Films near the Metal-Insulator Transition” held at Brookhaven National Laboratory, Jan. 6-7, 2005.

2006 Member of the External Advisory Committee of the NHMFL

2007 *Reviewer*, NSF, US-Israel Bi-national Science Foundation and DOE Proposals and *Physical Review* and other journal manuscripts.

2008 Co-organized the international *Workshop on Conductor-Insulator Quantum Phase Transitions* held at the Ohio State University, January 9-11, 2008
NSF Panelist for Physics of Living Systems grant proposals—reviewed approximately 20 proposals and met with a panel for *two* days
Reviewer – reviewed approximately 10 manuscripts for a number of journals including, *Physical Review Letters* and *Physical Review B*, *ACS Nano*, NSF proposals

2009 *Program Committee member* – International Conference on Magneto Science, 26-29 October 2009, Radboud University Nijmegen the Netherlands
International Organizing Committee member – the International Conference on Magneto-Science
Reviewer – reviewed approximately 10 manuscripts for a number of journals including, *Physical Review Letters* and *Physical Review B*, *ACS Nano*, NSF proposals

2010 *Reviewer* – reviewed approximately 10 manuscripts for a number of journals including, *Physical Review Letters* and *Physical Review B*, *ACS Nano*, NSF proposals as part of a panel review.

2011 *Reviewer* – reviewed approximately 10 manuscripts for a number of journals including, *Physical Review Letters* and *Physical Review B*, *ACS Nano*.

- Committee on the Status of Women in Physics Meeting* – participated in APS sponsored meeting in Washington, D.C.
- 2012 *Reviewer* – reviewed approximately 10 manuscripts for a number of journals including, Physical Review Letters and Physical Review B, ACS Nano.
- Chair* – National Science Foundation Science and Technology site visit committee
- Member* – Organizing Committee and Advisory Board of International Committee on Magneto-Science
- 2014 *Reviewer* – reviewed approximately 10 manuscripts for a number of journals including, Physical Review Letters and Physical Review B, ACS Nano and an National Science Foundation panel
- Chaired Review of Harvard's NSF Funded Science and Technology Center*
- Member* – Organizing Committee and Advisory Board of International Committee on Magneto-Science
- 2015 *Reviewer* – reviewed approximately 10 manuscripts for a number of journals including, Physical Review Letters and Physical Review B, ACS Nano and an National Science Foundation panel
- 2016 *Reviewer* – reviewed approximately 10 manuscripts for a number of journals including, Physical Review Letters and Physical Review B, and Nature Journals
- Co-Organizer - 7th International Workshop on Materials Analysis and Processing in Magnetic Fields*, June 15-18, 2016, Brown University, Providence, RI -- There were 35 participants from 7 nations. This workshop promoted discussions of recent advances in research on the use of magnetic fields for the study of materials properties, the manipulation of materials and the processing of materials.
- (iii) Public
- 1999-2005 Presentations on static electricity at the Children's Museum-presented two hours of shows to children of ages ranging from 5 to adult on static electricity.
- 2003-2008 Career Day Keynote Speaker, Barrington Middle School, Barrington, RI, May – These presentations were for roughly 275 8th graders. I was to get them started for a day of presentations on different careers.
- 2010-2011 Gave presentation to students at Vartan Gregorian School entitled, *Magnets Push on Living Things*, as part of an NSF GK-12 Science Conference.

8. Academic honors

1981 Magna Cum Laude, Dartmouth College
1982-84 Graduate Fellow, University of Massachusetts
1986-87 IBM Graduate Fellow
1990-92 Alfred P. Sloan Fellow
1993 Elected to Sigma Xi
2013 The Harriet W. Sheridan Award for Distinguished Contribution to Teaching and Learning
2013 Elected Fellow of the American Physical Society

Research grants

1990-92 – Alfred P. Sloan Foundation Fellowship – \$25,000
1991-94 – NSF, “Electron Tunneling Studies of Ultrathin Normal Metal Films”
– \$180,000
1991-94 – ONR, “Electron Tunneling Studies of Ultrathin Films Near the Metal Insulator
Transition” – \$240,000

1995-98 – ONR, “Ballistic Electron-Emission Microscopy Studies of High T_c Superconductor
Normal Metal Interfaces” – \$389,715

1995-98 – NSF, “Ultra Low Temperature Transport and Scanning Tunneling Microscopy Studies of
Quench Condensed Films” – \$300,000

1997-98 - Salomon Faculty Research Award with Professor K. Mowry - \$21,000

1998-00 – NSF, “Tunneling and Transport Studies of Ultrathin Films of Metals and
Superconductors” - \$270,000

1999-00 – NSF, “Manipulation of Cell Division with Static Magnetic Fields”-\$100,000

2002-04 – NSF, “Quantum Phase Transitions in Nanostructured Superconductors in 2D”- \$270,000

2001-05- NASA, “Magnetic Field Gradient Levitation System for Physics and Biophysics”-\$438,000

2004-2007 NASA, “Microscopic Studies of Gravi-Sensitive Microtubule Assembly in Simulated
Variable Gravity Conditions”, co-PI with Professor Jay Tang - \$472,000

2005 Jet Propulsion Laboratory “Investigations of the Adaptation of Euglena to Changes in a
Simulated Gravity Environment” - \$50,000

2006-2009 NSF, “Vortices and Quasi-particles in Superconducting Films in Small Order Parameter
Amplitude Limit” - \$355,000

2008-2010 NSF, “Studies of the Force Sensitivity of Individual Swimming Protists Using Magnetic
Force Buoyancy Variation” - \$335,364

2009-2014 NSF, “Probing Cooper Pair Insulator to Superconductor Transitions in Amorphous
Films” - \$400,000

2013-2015 AAU, “Changing the Culture of Introductory Science”, submitted with Dean Bergeron, Dean Targan, and Kathy Takayama - \$500,000

2013-2016 NSF, “Experimental Investigations of an Inhomogeneous Electronic Phase of Matter, the Cooper Pair Insulator”- \$380,000

9. Teaching

University of Oregon

1989-90

Winter – Graduate Solid State Physics II, approximate enrollment 25-30 students
Spring – Graduate Solid State Physics III, approximate enrollment 25-30 students
Shih-Ying Hsu, PhD candidate

1990-91

Fall – Graduate Solid State Physics II, approximate enrollment 25-30 students
Spring – Graduate Solid State Physics III, approximate enrollment 25-30 students
Shih-Ying Hsu, PhD candidate
Yeong Kuo Lin, PhD candidate

1991-92

Fall – Classical Waves and Vibrations for Sophomores, approximate enrollment 25-30 students
Winter – Electromagnetic Waves and Matter Waves for Sophomores, approximate enrollment 25-30 students
Spring – Statistical and Thermal Physics for Sophomores, approximate enrollment 25-30 students
Shih-Ying Hsu, PhD candidate
Yeong Kuo Lin, PhD candidate

Brown University

1992-93

Fall – Physics 5 conference section
Spring – Physics 7 conference section
Shih-Ying Hsu, PhD candidate
Yeong Kuo Lin, PhD candidate at University of Oregon
Matthias Wickert, exchange student, directed research project
James Chervenak, PhD candidate
Kamil Ekinci, PhD candidate

1993-94

Fall – Physics 5, enrollment 65 students
Spring – Physics 6, enrollment 46 students
Shih-Ying Hsu, PhD candidate
Yeong Kuo Lin, PhD candidate
James Chervenak, PhD candidate
Kamil Ekinci, PhD candidate

Peng Dai, PhD candidate, transferred to computer science
Stephon Alexander, directed two-semester reading course

1994-95

Fall – Physics 5, enrollment 60 students

Spring – Physics 6, enrollment 51 students

Shih-Ying Hsu, PhD candidate, received degree 1995

Yeong Kuo Lin, PhD candidate at University of Oregon, received degree 1995

James Chervenak, PhD candidate

Kamil Ekinci, PhD candidate

Meher Antia, PhD candidate

Taejon Kouh, PhD candidate

Jason Ledell, senior thesis project

Edward Price, senior thesis project

1995-96

Fall – Physics 5, enrollment 70 students

Spring – Physics 6, enrollment 57 students

James Chervenak, PhD candidate

Kamil Ekinci, PhD candidate

Meher Antia, PhD candidate

Taejon Kouh, PhD candidate

Kevin Lin, senior thesis project

1996-97

Fall – Physics 153, enrollment 20 students

Spring – Physics 56, enrollment 9 students

James Chervenak, PhD candidate

Kamil Ekinci, PhD candidate

Meher Antia, PhD candidate

Taejon Kouh, PhD candidate

Eric Galburt, Senior Thesis Project

Jami Valentine, Graduate Reading Course

1997-98

Fall - Physics 153, enrollment 9 students

Spring – Physics 56, enrollment 22 students

James Chervenak, PhD completed

Kamil Ekinci, PhD candidate

Taejoon Kouh, PhD candidate

Joseph Chang, PhD candidate

Owen Gray, Senior Thesis Project

Barry Jordan, Senior Thesis Project

Jun Liu, Graduate Reading Course

Joseph Chang, Graduate Reading Course

1998-99

Fall – Sabbatical in Mowry Laboratory, Department of Molecular Biology, Biochemistry and Cell Biology

Kamil Ekinci, PhD completed

Taejoon Kouh, PhD candidate
Zhenyi Long, PhD candidate
Jami Valentine, research course
W. B. Jordan, senior thesis

1999-2000

Fall - Physics 3, enrollment 190 students
Taejoon Kouh, PhD candidate
Zhenyi Long, PhD candidate
Jami Valentine, research course
Sarah Wasserman, senior thesis research
Erin Quinn, senior thesis research

2000

Fall – Physics 47, enrollment 33 students
Fall – Reading course for Kevin Turner
Taejoon Kouh, PhD candidate
Zhenyi Long, PhD candidate
Sarah Wasserman, Senior thesis
Erin Quinn, Senior thesis
Caterina Schweidenback, Senior thesis research
Jill Edwardson, research in my lab
Kevin Turner, research in my lab

2001

Fall – Physics 47, enrollment 33 students
Taejoon Kouh-PhD candidate, defended dissertation “Studies of Nanostructured Quench Condensed Pb and Pb/Ag Films” on 12/20/01.
Zhenyi Long-PhD candidate
Karine Guevorkian-PhD candidate
Caterina Schweidenback-senior thesis research on magnetic field altered cell division.
Mariana Mihalusova-summer undergraduate research project.
Laura Martin-summer high school research student working on gravity sensitivity in biological systems.

2002

Fall – Physics 47, enrollment 33 students
Zhenyi Long-PhD candidate
Karine Guevorkian-PhD candidate
Michael Stewart-PhD candidate
Mariana Mihalusova- undergraduate research project.
Samuel Wurzel-senior thesis project.

2003

Spring – Physics 242, enrollment 9 students
Zhenyi Long-PhD candidate
Karine Guevorkian-PhD candidate
Michael Stewart-PhD candidate
Samuel Wurzel- senior thesis project
Mariana Mihalusova- undergraduate research project.
Carl Quindel-undergraduate research project

2004

Spring – Physics 242, Solid State Physics II, enrollment 4 students
Fall – Physics 3, Basic Physics, enrollment approximately 216 students
Zhenyi Long-PhD candidate
Karine Guevorkian-PhD candidate
Michael Stewart-PhD candidate
Yongxing Guo – PhD candidate
Hung Nguyen – PhD candidate
Nicholas Schade – senior thesis research project, UTRA student
Niravun Pavenayotin – senior thesis research project, REU student

2005

Spring – Physics 242, Solid State Physics II, enrollment 5 students
Spring – Physics 262, Selected Topics in Molecular Biophysics (approximately 30 students) I co-organized this course with Professors Tang (physics), Mierke (biomed) and Yeh (biomed) that featured about 20 different lecturers speaking on the latest developments in this rapidly moving field. The course attracted graduate and senior undergraduate students from a range of departments. As part of the requirements, graduate students presented a talk on a research effort in the area of Molecular Biophysics.
Fall – Physics 3, Basic Physics, enrollment approximately 200 students
Zhenyi Long-PhD candidate, Dissertation, “Studies of Two Dimensional Superconductor-Normal Metal Hybrid Thin Films”,
Karine Guevorkian-PhD candidate
Michael Stewart-PhD candidate
Yongxing Guo – PhD candidate
Hung Nguyen – PhD candidate
Nicholas Schade – senior thesis (ScB 2005 and winner of the Lindsay Prize)
Niravun Pavenayotin – senior thesis (ScB 2005)

2006

Spring – Physics 8, Introduction to Relativity and Quantum Mechanics (68 students)
Spring – Lectured in Selected Topics in Molecular Biophysics
Fall – Physics 3, Basic Physics (200 students)
Karine Guevorkian –PhD Dissertation Completed, “Experimental Studies of Protozoan Response to Intense Magnetic Fields and Forces”, May 2006
Michael Stewart-PhD candidate
Yongxing Guo – PhD candidate
Hung Nguyen – PhD candidate
Ryan Murphy -- undergraduate working on thin film measurements
Octavia Crompton – undergraduate working on thin film measurements
Amy Lowitz – undergraduate working on paramecia
Robbie McQueen – Barrington High School student working on a calculation for paramecia swimming in confined geometries

2007

Spring – Physics 8, Introduction to Relativity and Quantum Mechanics (about 60 students)
Spring – Lectured in Selected Topics in Molecular Biophysics
Fall – Physics 3, Basic Physics (about 200 students)
Michael Stewart-PhD candidate
Yongxing Guo – PhD candidate

Hung Nguyen – PhD candidate
Shawna Hollen – PhD candidate
Ryan Murphy -- undergraduate working on senior thesis
Preliminary Exam Committees – *Georgios Koutroulakis, Manfred Steiner, Adam Hartman, Chasity Coleman (Tulane), Jun He, Maryam Jouzi*
PhD Committees – *Chasity Coleman (Tulane), Adam Hartman, Maryam Jouzi*

2008

Fall – Physics 0070, Analytical Mechanics (about 50 students)
Michael Stewart – PhD candidate completed
Yongxing Guo – PhD candidate completed
Hung Nguyen – PhD candidate
Il-Yong Jung – PhD candidate
Shawna Hollen – PhD candidate
Ryan Murphy – undergraduate senior thesis completed
Christine Pappas- undergraduate working on senior thesis
Christine Sunu – undergraduate Biophysics research
Preliminary Exam Committees – *Jiayi Li, Heng Xu, Phong Tran*
PhD Committees – *Michael Stewart, Scott Woltman, Yongxing Guo, Hiroshi Eguchi, Yifeng Liu, Marc-Andre Vachon*

2009

Fall – Physics 0070, Analytical Mechanics (61 students)
Hung Nguyen – PhD candidate
Il-Yong Jung – PhD candidate
Shawna Hollen – PhD candidate
Christine Pappas – undergraduate senior thesis
Michael Wagman – undergraduate Biophysics research
Sabrina Antonelli – middle school teacher worked on our biophysics effort
Preliminary Exam Committees – *Shawna Hollen, Dafei Jin, Nhiem Tran, Steven Palefsky, Cuong Dang*
PhD Committee – *Patrick Oakes, Jun He, Feifei Li, Rongwei Wu, Jiayi Zhang, Fan Yang*

2010

Shawna Hollen – PhD candidate
Jimmy Joy – PhD candidate
Il-yong Jung – PhD candidate
Hung Nguyen – PhD candidate
Eric Rudisaille – undergraduate senior thesis
Maura Lynch – undergraduate Biophysics research
Ryan Provencher – undergraduate Biophysics research
Michael Wagman – undergraduate Biophysics research
Taylor Turner – La Salle High School student
Grace To – Barrington High School student
Preliminary Exam Committee – *Son Le*
PhD Committee – *Hung Nguyen, Heng Xu, Phong Anh Tran, Georgios Koutroulakis*

2011

Shawna Hollen – PhD candidate
Il-yong Jung – PhD candidate
Jimmy Joy – PhD candidate

Maura Lunch – undergraduate senior thesis completed
Luis Lazo del Sol – undergraduate student
Harry Mickalide – undergraduate
Hojin Park – undergraduate
Alexander Berg – undergraduate student
Cole Van Krieken – undergraduate student
Tamera Carvalho – High School Student
Preliminary Exam Committees (4)
PhD Committees – *Nhiem Tran, Hyeyung Jung, Stephen Palefsky, and Zhijun Jiang*
Led a weekly conference in Physics 70

2012

Preliminary Exam Committees - *Li Wei Lu, Alex Loosely, Zhoulin Xie, Jimmy Joy, and Mai Tran*
Jing Wang – PhD committee
Wanchun Wei – PhD committee
Peter To – High School Student
Nick Zimmerman – High School Student
Shawna Hollen – PhD candidate completed
Jimmy Joy – PhD candidate
Il-yong Jung – PhD candidate
Luis Lazo del Sol – Senior thesis
Alexander Berg – Senior thesis
Cole Van Krieken – Senior thesis
Chenming Jiang – undergraduate research
Harry Mickalide – Senior thesis
Eva Lyubich – undergraduate research
Led a weekly conference for Physics 70

2013

Preliminary Exam Committees - Mike Morse, Daniel Kim, Xinjun Guo
PhD committees - Shan Che, Son Le, Qian Miao
Nick Zimmerman – High School Student
Jimmy Joy – PhD candidate
Il-yong Jung – PhD candidate
Xue Zhang – PhD candidate
Alexander Berg – Senior thesis
Cole Van Krieken – Senior thesis
Chenming Jiang – Senior thesis
Eva Lyubich – undergraduate research
Led a weekly conference for Physics 70

2014

Led a weekly conference for Physics 70
Problem solving workshop facilitator for Physics 50 and 60
Preliminary Exam Committees (2 – Wencong Liu, Declan Oller)
PhD Committees (3 – *Xu Liu, Dongfang Li, Alex Loosely*)
Jimmy Joy – PhD candidate
Il-yong Jung – PhD candidate
Xue Zhang – PhD candidate
Chenming Jiang – Senior thesis

Avilash Cramer – Senior thesis
Kevin Argueta – undergraduate research
Ricky Oliver – undergraduate research

2014

Preliminary Exam Committees (3 – *Stephen Sirisky, Xue Zhang, and Yang Song*)
PhD Committees (4 - *Pei Liu, Mike Morse, Lu Lu, and Xinjun Guo*)
Jimmy Joy – PhD candidate
Il-yong Jung – PhD candidate, PhD 2015
Xue Zhang – PhD candidate
Alex Levine – undergraduate research
Rebecca Cheng – undergraduate research

2017

- Xinjun Guo, 6, Dissertation Committee
- James Joy, 6, Primary Advisor
- Pei Liu, 6, Dissertation Committee
- Wencong Liu, 1, Dissertation Committee
- Lu Lu, 6, Dissertation Committee
- Michael Morse, 6, Dissertation Committee
- Declan Oller, 1, Dissertation Committee
- Yang Song, 1, Dissertation Committee
- Mai Tran, 1, Dissertation Committee
- Xue Zhang, 5, Primary Advisor
- Philip Zucker, 1, Dissertation Committee

Fall: Taught PHYS0070 Analytical Mechanics as a Mandatory S/NC Course (65 students)

10. Date of preparation: February 20, 2018.