

MICHAEL GEIST LITTMAN

PERSONAL:

Office: D-202A Engineering Quadrangle, Princeton University
Department of Mechanical & Aerospace Engineering
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EDUCATION:

1977: Ph.D. Physics, Massachusetts Institute of Technology

Thesis: "Stark Structure of Atomic Sodium"

Advisor: Professor Daniel Kleppner

1972: B.A. *summa cum laude*, Brandeis University

EMPLOYMENT:

2000 - Professor, Department of Mechanical and Aerospace Engineering,
Princeton University, Princeton, NJ

2004-07 Associate Chairman, Department of Mechanical and Aerospace
Engineering, Princeton University, Princeton, NJ

1998 - Director of Undergraduate Studies, Department of Mechanical and
Aerospace Engineering, Princeton University, Princeton, NJ

1985-00 Associate Professor, Department of Mechanical and Aerospace
Engineering, Princeton University, Princeton, NJ

1979-85 Assistant Professor, Department of Mechanical and Aerospace
Engineering, Princeton University, Princeton, NJ

SOCIETIES:

Fellow, Optical Society of America (OSA)

Member, Sigma Xi

Member, Phi Beta Kappa

Member, American Society of Engineering Education (ASEE)

Member, Society for Information Technology and Teacher Education (SITE)

CONSULTING HISTORY:

- * EG&G/Princeton Applied Research Corporation, Princeton, NJ
 - Light Signatures, Inc., Los Angeles, CA
 - Molelectron Corporation, Sunnyvale, CA
 - * Mnemos, Inc., Lawrenceville, NJ
 - Electrographics, Inc., Southampton, PA
 - Quanta-Ray, Inc., Mountain View, CA
 - * Lumonics, Inc., Kanata, Ontario, Canada
 - Partnership Limited, Lawrenceville, NJ
 - * Concurrent Computer, Tinton Falls, NJ
 - * Therapeutics Corp., Trenton, NJ
 - Newport Research Corp., Fountain Valley, CA
 - * Universal Instruments, Binghamton, NY
 - ADC Telecommunications, Ewing, NJ
 - Weil, Gotshal & Manges, Menlo Park, CA
 - * Princeton Satellite Systems, Inc., Princeton, NJ
 - * Goodwin Procter LLP, New York, NY
 - Andlinger & Company, Inc., Tarrytown, NY
 - * Dewey & LeBoeuf
 - * DLA Piper LLP
 - * Buchanan Ingersoll & Rooney PC
 - * Abermarle County Schools, VA - STEM Education Project (US Dept of Ed)
 - * Smithsonian National Museum of American History
 - * University of Northern Colorado - STEM Education Project (NSF)
 - * Fujen International Education
- * = major consulting projects

TEACHING HISTORY:

MAE 511 Experimental Methods Laboratory
MAE 548 Applications of Quantum Mechanics: Optics and Spectroscopy
MAE 412 *Microprocessors for Measurement and Control
CHE 404 Molecular Spectroscopy (with D. McClure and W. Warren)
CEE 102 *Engineering in the Modern World
MAE 433 *Automatic Control (C. Rowley, lecture; M. Littman, lab)
EGR 194 Intro Engineering (with P. Prucnal and J. Benziger)
EGR 250 *Community Project Studio (CPS)
FRS 106 *Freshman Seminar, "Art and Science of Motorcycle Design"
MAE 519 *Laboratory Methods (Cohen, Glaser, Deike, Arnold, Littman)

* = *current*

HONORS:

2015	School of Engineering & Applied Sciences Distinguished Educator
2015	Johanna Nichols Visiting Scholar (Taipei American School)
2010	OSA Fellow
2005	OSA Paul F. Forman Engineering Excellence Award
1989	Member, The Franklin Institute Science Museum (Railroad Hall)
1981	Alfred Rheinsteins Award, School of Engineering
1972	Louis Brandeis Honorary Scholar

PROFESSIONAL AND OTHER ACTIVITIES:

Chairman	OSA Leadership Award Committee, 2011
Chairman	Esther H. Beller Award Committee of the OSA, 1995-96
Chairman	1990 Annual Meeting of the OSA, Boston, MA
Topical Editor	JOSA part B Atomic Spectroscopy (1983-1986)
Member	NAS/NRC Committee on Atomic Spectroscopy (1978-1981)
Member	Princeton Regional Schools Board of Education (1993 - 1999)

MUSEUM EXHIBITS:

1989-95:	Railroad Hall "Computerized Model Railroad" - exhibit co-designer, Franklin Institute Science Museum, Philadelphia PA
1992-97:	"Its All in Your Head", SMEC (Science Museum Exhibit Consortium) Science Exhibit about the Brain - device designer and exhibit advisor, Franklin Institute, Philadelphia, PA

RECENT INVITED LECTURES:

11/9/2018:	Williams College Physics Colloquium, "Digital Design, Analysis, and Manufacturing for the 21 st Century: Powerful Tools for Science, Engineering, and Education"
11/15/2018:	Johns Hopkins Center for Talented Youth, Lecture, "Digital Design, Analysis, and Manufacturing for the 21 st Century: Powerful Tools for Science, Engineering, and Education"
2/9/2019:	Princeton Public Library, Inventor's Day Lecture, "Joseph Henry and Thomas Edison"
2/13/2019:	Teachers as Scholars Workshop, part 1, "3D Printing and CNC Milling: Tools for Education and Design"
2/27/2019:	Teachers as Scholars Workshop, part 2. "3D Printing and CNC Milling: Tools for Education and Design"
5/2/2019:	Princeton Public Library, "Leonardo da Vinci: Optics, Camera Obscura, and Linear Perspective"
6/20/2019:	Princeton Alumni Association of Canada, Alberta Chapter, Calgary, "Art and Science of Motorcycle Design"

- 10/30/2019: West Orange Public Library, "NJ Contributions to Space Science and Technology"
- 11/16/2019: Center for Talented Youth Lecture, "Joseph Henry and Samuel Morse: Origins of the Telegraph"
- 2/8/2020: Dorothea's House, Casa di Cultura Italiana, Lecture, "Leonardo da Vinci: Innovations in Optics and Art"
- 3/17/2020: New Canaan (CT) Public Library, "Leonardo da Vinci"

PATENTS:

1. No. 4,811,214: "MultiNode Reconfigurable Pipeline Computer," D.M. Nosenchuck and M.G. Littman (March 7, 1989)
2. No. 4,860,748: "Thermal Pattern Generator for Pain Control," A. Chiurco and M.G. Littman (August 29, 1989)

PUBLICATIONS:

1. M.J. Levine, D. Schwalm, and M.G. Littman, " ^{12}C Decay of Highly Excited States in ^{24}Mg ," *J. de Phys.* **32**, 1971, pp. C6-219.
2. P. Zimmerman, T.W. Ducas, M.G. Littman, and D. Kleppner, "Stark Mixing Spectroscopy in Cesium," *Opt. Comm.* **12**, 1974, p. 198.
3. M.G. Littman, "Precise Calibration Method for Time-to-Amplitude Converters," *Rev. Sci. Inst.* **45**, 1974, p. 1068.
4. T.W. Ducas, M.G. Littman, R.R. Freeman, and D. Kleppner, "Stark Ionization of High Lying Levels of Sodium," *Phys. Rev. Lett.* **35**, 1975, p. 366.
5. T. W. Ducas, M.G. Littman, and M.L. Zimmerman, "Observations of Oscillations in Resonance Absorption from a Coherent Superposition of Atomic States," *Phys. Rev. Lett.* **35**, 1975, p. 1752.
6. M.G. Littman, M.L. Zimmerman, T.W. Ducas, R.R. Freeman, and D. Kleppner, "Structure of Sodium Rydberg States in Weak to Strong Electric Fields," *Phys. Rev. Lett.* **36**, 1976, p. 788.
7. T.W. Ducas, M.G. Littman, M.L. Zimmerman, and D. Kleppner, "Radiative Lifetimes of Selected Vibrational Levels in the $^1\text{S}_u$ State of Na_2 ," *J. Chem. Phys.* **65**, 1976, p. 842.

8. M.G. Littman, M.L. Zimmerman, and D. Kleppner, "Tunneling Rates for Excited States of Sodium in a Static Electric Field," *Phys. Rev. Lett.* **37**, 1976, p. 486.
9. M.L. Zimmerman, T.W. Ducas, M.G. Littman, and D. Kleppner, "Stark Structure of Barium Rydberg States," *J. Phys. B.* **11**, 1978, p. L11.
10. M.G. Littman and H.J. Metcalf, "Spectrally Narrow Pulsed Dye Laser Without Beam Expander," *Appl. Opt.* **17**, 1978, p. 2224.
11. M.G. Littman, M.M. Kash, and D. Kleppner, "Field Ionization Processes in Excited Atoms," *Phys. Rev. Lett.* **41**, 1978, p. 103.
12. M.G. Littman, "Single Mode Operation of Grazing Incidence Pulsed Dye Laser," *Opt. Lett.* **3**, 1978, p. 138.
13. M.L. Zimmerman, M.G. Littman, M.M. Kash, and D. Kleppner, "Stark Structure of the Rydberg States of Alkali-Metal Atoms," *Phys. Rev.* **A20**, 1979, p. 2251.
14. D. Kleppner, M.G. Littman, and M.L. Zimmerman, "Highly Excited Atoms," *Sci. Amer.* **244**, 1981, p. 130.
15. K. Liu and M.G. Littman, "Novel Geometry for Single-Mode Scanning of Tunable Lasers," *Opt. Lett.* **6**, 1981, p. 117.
16. J.R. Rubbmark, M.M. Kash, M.G. Littman, and D. Kleppner, "Dynamical Effects at Avoided Level Crossings--A Study of the Landau-Zener Effect Using Rydberg Atoms," *Phys. Rev. A* **23**, 1981, p. 3107.
17. D. Kleppner, M.G. Littman, and M.L. Zimmerman, "Rydberg Atoms in Strong Fields," in Rydberg States of Atoms and Molecules (Cambridge University Press, Cambridge), ed., R.F. Stebbings and R.B. Dunning, 1983.
18. M.G. Littman and W.D. Phillips, "A New Method for Measuring the Fine Structure Constant Using Stark Spectroscopy," in Precision Measurements and Fundamental Constants II. (National Bureau of Standards, Washington, D.C.), ed. B.N. Taylor and W.D. Phillips, Spec. Pub. No. 617, 1984.
19. M.G. Littman and E. Korevaar, "Atoms in Crossed Electric and Magnetic Fields," *J. de Phys.* **43**, 1982, p. C1-455.
20. E. Korevaar and M.G. Littman, "Effects of Crossed Electric and Magnetic Fields on Sodium Rydberg States," *J. Phys. B* **16**, 1983, p.L437.
21. M.G. Littman, "Single-Mode Pulsed Tunable Dye Laser," *Applied Optics* **23**, 1984, p. 4465.

22. C.W. Clark, E. Korevaar, and M.G. Littman, "Quasi-Penning Resonances of a Rydberg Electron in Crossed Electric and Magnetic Fields," *Phys. Rev. Lett.* **54**, 1985, p. 320.
23. M.G. Littman, R. Wotiz, and G. Blaha, "The Hornby Zero-One System for Microcomputer Control of Model Trains," *Model Railway Electronics* **1**, 1984, p. 90.
24. M.G., Littman, "Computerized Model Railroad at Princeton University," *Model Railway Electronics* **1**, No. 3, 1984, p. 88.
25. M.G. Littman, "Zeeman and Stark Effects," in The Encyclopedia of Physics, Van Nostrand, New York, ed., R.M. Besancon, 1985.
26. E. Korevaar and M.G. Littman, "Effects of Crossed Electric and Magnetic Fields on Atoms," in Atomic Excitation and Recombination in External Fields," Gordon and Breach, New York, eds., M.H. Nayfeh and C.W. Clark, 1985.
27. C.W. Clark, M.G. Littman, T.J. McIlrath, R. Miles, C.H. Skinner, S. Suckewer, and E. Valeo, "Possibilities for Achieving X-ray Lasing Action by Use of High-Order Multiphoton Processes," *J. Opt. Soc. Am. B* **3**, No. 3, 1986, p. 371.
28. D.M. Nosenchuck, M.G. Littman, and W. Flannery, "Two-Dimensional Nonsteady Viscous Flow Simulation on the Navier-Stokes Computer MiniNode," *J. of Scientific Computation*, **1**, No. 1, 1986, p. 53.
29. D.M. Nosenchuck and M.G. Littman, "The Navier-Stokes Computer," in Computational Mechanics, Ed., G. Noor, ASME, New York, 1986.
30. M.G. Littman, M.L. Zimmermann, T.W. Ducas, R.R. Freeman, and D. Kleppner, "Structure of Sodium Rydberg States in Weak to Strong Electric Fields," in Atoms in High Rydberg States, Ed., B. Dunning, AAPT, 1986. (Re-print of earlier paper--see Ref. 7.)
31. A. Gomez, M.G. Littman and I. Glassman, "Comparative Study of Soot Formation on the Centerline of Axisymmetric Laminar Diffusion Flames: Fuel and Temperature Effects," *Combustion and Flame* **70**, pp. 225-241, (1987).
32. M.G. Littman, "Excimer-Pumped Dye Laser," in Pulsed Single-Frequency Lasers: Technology and Applications, Ed. L. Rahn and W. Bischel, SPIE, Vol. 912, 1988, p. 56.
33. M.G. Littman and J. Montgomery, "Grazing-Incidence Designs Improve Pulsed Dye Lasers," *Laser Focus* **24**, No. 2, 1988, p. 70.

34. M.G. Littman, "Tunable Dye Lasers are not just for Physicists Anymore," *The Scientist* **2**, No. 10, 1988, p. 26.
35. M.E. Hayder, W.S. Flannery, M.G. Littman, D.M. Nosenchuck, and S.A. Orszag, "Large-Scale Turbulence Simulation on the Navier-Stokes Computer," *Computers and Structures*, **30**, No. 1/2, 1988, p. 357.
36. M.G. Littman, J. Gelfand, M. Liker, W. Stubbeman, J. Russakow, and C. McGee, "Electromechanical Analogs of Human Reflexes," *Ann. NY Acad. Sci.*, **563**, pp. 184-194 (1989).
37. M. Husman, C. Schwieters, M. Littman, and H. Rabitz, "Molecular Dynamics Simulator for Optimal Control of Molecular Motion," *Amer. J. of Physics*, **59** (11), 1991, p. 1012.
38. M.G. Littman, "Ophthalmoscope Device," *Optics and Photonics News*, **3**, 1992, p. 82.
39. L. Shen, S. Shi, C. Lin, M. Littman, H. Rabitz, and A. Weiner, "Optimal Control of the Electric Susceptibility of a Molecular Gas by Designed Non-resonant Laser Pulses of Limited Amplitude," *J. Chem. Phys.* **98**, p. 7792 (1993).
40. X. Wang and M.G. Littman, "Laser Cavity for Generation of Variable-Radius Rings of Light," *Optics Letters* **18**, p. 767 (1993).
41. P. Gross, V. Ramakrishna, E. Villalonga, H. Rabitz, M. Littman, M. Shayegan, and S. Lyon, "Optimally Designed Potentials for Control of Electron-Wave Scattering in Semiconductor Nano-devices," *Phys. Rev. B*, **49**, p.11,100 (1994).
42. D. Morris, C. Schwieters, M. Littman, and H. Rabitz, "A Molecular Dynamics Simulator for Optimal Control of Molecular Motion," *Amer. J. of Phys.* **62**, no.9, 817, 1994.
43. X.Ying, J.P. Lu, J.J. Heremans, M.B. Santos, M. Shayegan, S.A. Lyon, M. Littman, P.Gross and H. Rabitz, "Quantum reflection and transmission of ballistic two-dimensional electrons by a potential barrier", *Appl. Phys. Letter.* **65**, 1154 (1994).
44. X. Wang, M. G. Littman, J. B. McManus, M. Tadi, Y.S. Kim, A. Askar, and H. Rabitz, "Focused Bulk Ultrasonic Waves Generated by Ring-shaped Laser Illumination and Application to Flaw Detection," *Joul. Appl. Phys.* **80**, No. 8, p. 4274 (1996).

45. L. Shen, T-S. Ho, S. Shi, H. Rabitz, C. Lin, M. Littman, and A. Weiner, "Induced Transient Birefringence of a Resonantly Pumped Molecular Gas," *Joul. Chem. Phys.* **105**, No. 15, p. 6200 (1996).
46. M. K. Apostolos, M. Littman, S. Lane, D. Handelman, and J. Gelfand, "Robot Choreography; An Artistic-Scientific Connection," *Computers Math. Applic.*, **32**, No. 1 p. 1 (1996).
47. M.G. Littman and X. Wang, "Pulsed Lasers" in Atomic, Molecular, and Optical Physics, Vol. 29C of Experimental Methods in the Physical Sciences, Edited by F.B. Dunning and R.G. Hulet, p. 137 (1997).
48. J. Kasdin, R. Vanderbei, M. Littman, D. Spergel, "Extrasolar Planet Finding via Optimal Apodized-Pupil and Shaped-Pupil Coronagraphs" in The Astrophysical Journal, Vol. **582**, No. 2 (January 2003).
49. J. Pearson, Clay Spence, William E. Sullivan, Jeffrey Lubin, Jack Gelfand, Stephen Lane, David Handelman, Michael Littman, "Multidisciplinary Studies of Integrated Neural Network Systems", final technical report, Advanced Research Projects Agency (March 1994).
50. J. Kasdin, R. Brown, C. Burrows, S. Kilston, M. Kuchner, M. Littman, M. Noecker, S. Seager, D. Spergel, E. Turner, W. Traub, R. Vanderbei and R. Woodruff, "An Optical/UV Space Coronagraph Concept for the Terrestrial Planet Finder", Advances in Space Research, Volume 34, Number 3, 2004.
51. N.J. Kasdin, Robert J. Vanderbei, Michael G. Littman, and David N. Spergel, Optimal One-dimensional Apodizations and Shaped Pupils for Planet Finding Coronagraphy, *Appl. Opt.* **44**, issue 7, p. 1117 (2005)
52. M. G. Littman and Lucas Stern, "A New Understanding of the First Electromagnetic Machine: Joseph Henry's Vibrating Motor" *Am J Phys* **79**, No. 2, p. 172 (February 2011).
53. EYS Tjung, D, Kaufmann, MG Littman, "Joseph Henry's House and Plan for the Princeton Campus", *Journal of the Washington Academy of Sciences*, Fall 2014, pp. 49- 72.
54. G. Bull, J. Garofalo, M. Littman, R. Sherman, M. Hoffman, M. Grant and A. Grier, "Make to Learn: Invention through Emulation", *Smart Learning Environments*, **4:8** 2017 (published December 16, 2017) Springer.
55. M. Littman, M. Garlock, and S. Tobias, Invited Case Study, "CEE 102 – Engineering in the Modern World", Engineering-Enhanced Liberal Education Project, ASEE (2016) - <https://www.asee.org/engineering-enhanced-liberal-education-project/case-studies>

56. G. Bull, J. Garofalo, M. Littman, and M. Hoffman, "The Make to Learn Electric Motor Design Sequence", *International Journal of Designs for Learning*, (2018) **9:1**, pp. 1-13, Indiana University.
57. G. Bull, J. Rutter, J. Garofalo, and M. Littman, "Maker Education: A Historical Perspective", *Routledge International Encyclopedia of Education*, edited by G. McCullough and D. Crook, Routledge, London and New York in the 2019-2020 edition.
58. G. Bull and M. Littman, Chapter 3, "Arcade Games", in *An Introduction to Computational Thinking Through Art, Music, and Games* by G. Bull, J. Garofalo, and N. Rich Nguyen, Society for Information Technology and Teacher Education (2019).
59. M. Littman, (invited paper) "Lessons from David Billington", *Journal of the International Association for Shell and Spatial Structures*, Special Issue, "Structural Art in Design and Education: The Billington Legacy", guest editors, John F. Abel and Maria E. M. Garlock, **61:1**, (March 2020). pp 31-38.
60. Forward by Michael Littman, *From Insight to Innovation: Engineering Ideas that Transformed America in the Twentieth Century*, by David P. Billington, Jr., MIT Press, Cambridge MA (2020).
61. G. Bull, J. Watts, and M. Littman, "Creating Online Maker Education Courses Incorporating Invention Kits and Desktop Manufacturing", in *Teaching, Technology, and Teacher Education during the COVID-19 Pandemic: Stories from the Field*, Association for the Advancement of Computing in Education (AACE), edited by R.E.Ferdig, E. Baumgartner, R. Hartshorne, R. Kaplan-Rakowski, and C. Mourza (2020).

CONFERENCE PAPERS:

1. A.M. Gottlieb, M. Feldman, M. Littman and P. Heller, "Anisotropy and Temperature Dependence of the Zero Field Uniform Mode Relaxation Rate in MnF_2 Near T_N^* ," *Conference Proceedings* , **18**, part 2, *Magnetism and Magnetic Materials*, 1973, ed. by C.D. Graham and J.J. Rhyne, New York, 1974.
2. K.A. Smith and M.G. Littman, "Endpoint Position Control Using Biological Concepts," *Proceedings of the 1993 International Symposium on Intelligent Control*, Chicago, IL, August 1993.
3. M.G. Littman and D. Spergel, "A Gaussian Pupil Coronagraph: A New Approach to Detecting Terrestrial Planets", *American Astronomical Society Annual Meeting* (Pasadena, CA), June 3 - 7 (2001).

4. J. Kasdin, R. Vanderbei, D. Spergel, and M. Littman, "Optimal shaped pupils for extrasolar planet detection" SPIE Proceedings (Vol. 4860) of the Conference on High-Contrast Imaging for Exo-Planet Detection, 23-26 August 2002 at Waikoloa, Hawaii.
5. M. G. Littman, M. Carr, J. Leighton, E. Burke, D. N. Spergel, J. Kasdin, Princeton Univ. "Control of optical phase and amplitude in a coronagraph using a Michelson interferometer", SPIE Proceedings (Vol. 4854) of the Conference on Future EUV-UV and Visible Space Astrophysics Missions and Instrumentation, 22-23 August 2002 at Waikoloa, Hawaii.
6. J. Kasdin, R. Brown, C. Burrows, S. Kilston, M. Kuehner, M. Littman, M. Noecker, S. Seager, D. Spergel, E. Turner, W. Traub, R. Vanderbei and R. Woodruff, "An Optical/UV Space Coronagraph Concept for the Terrestrial Planet Finder", World Space Congress, (Houston, Texas), COSPAR Poster No. E1.5-0020-02., (October 2002).
7. J. Kasdin, R. Vanderbei, M. Littman, D. Spergel, M. Carr, D. Mumm, and L. Pueyo, "Development and Testing of an Optimal Shaped Pupil Coronagraph for Extrasolar Planet Finding" , 201st AAS Meeting, (Seattle, WA), January 5-8 (2003).
8. J. Kasdin, M. Littman, A. Giveon, R. Vanderbei, D. Spergel, and M. Carr, "Optimal Shaped Pupils and Wavefront Control for Planet Finding Coronagraphy", Towards Other Earths: Darwin & TPF, (Heidelberg, Germany), (April 2003).
9. M. Littman, M. Carr, J. Kasdin, L. Pueyo, D. Spergel, and R. Vanderbei, "Amplitude and Phase Control of Pupil Coronagraph for Exo-planet Detection using Spatial Light Modulators", The International Symposium on Optical Science and Technology, SPIE's 48th Annual Meeting, Paper 5170-24, August 3-8 (2003).
10. Giveon, J. Kasdin, D. Spergel, M. Littman, R. Vanderbei, and P. Gurfil "Stochastic Optimal Phase Retrieval Algorithm for High-Dynamic Range Imaging", The International Symposium on Optical Science and Technology, SPIE's 48th Annual Meeting, Paper 5169-32, August 3-8 (2003).
11. Giveon, J. Kasdin, D. Spergel, M. Littman, R. Vanderbei, and P. Gurfil "Feasible Optimal Deformable Mirror Shaping Algorithm for High-Dynamic Range Imaging", The International Symposium on Optical Science and Technology, SPIE's 48th Annual Meeting, Paper 5169-33, August 3-8 (2003).
12. M. Lieber, S. Kilston, J. Kasdin, R. Vanderbei, and M. Littman, "Evolving Exosolar Planet Detection Methods with Lab Experiments and Integrated

Modeling", The International Symposium on Optical Science and Technology, SPIE's 48th Annual Meeting, Paper 5170-09, August 3-8 (2003).

13. Giveon, J. Kasdin, D. Spergel, M. Littman, R. Vanderbei, and P. Gurfil, "Feasible Optimal Deformable Mirror Shaping Algorithm for High-Dynamic Range Imaging", The International Symposium on Optical Science and Technology, SPIE's 48th Annual Meeting, Paper 5169-33, August 3-8 (2003).
14. Giveon, J. Kasdin, D. Spergel, M. Littman, R. Vanderbei, and P. Gurfil, "Stochastic Optimal Phase Retrieval Algorithm for High-Dynamic Range Imaging", The International Symposium on Optical Science and Technology, SPIE's 48th Annual Meeting, Paper 5169-32, August 3-8 (2003).
15. J. Kasdin, R. Vanderbei, M. Littman, and D. Spergel, "Optimal Shaped Pupils for Planet Finding Coronagraphy", 203rd Annual Meeting of the American Astronomical Society, Poster 3.07, January 4-8 (2004).
16. Giveon, L. Pueyo, M. Littman, and R. Vanderbei, "Wavefront Estimation and Control Algorithms for High Contrast Imaging", 203rd Annual Meeting of the American Astronomical Society, Poster 3.02, January 4-8 (2004).
17. J. Kasdin, R. Vanderbei, M. Littman, M. Carr and D. Spergel, "The Shaped Pupil Coronagraph for Planet Finding Coronagraphy: Optimization, Sensitivity, and Laboratory Testing", in Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation, 5487(63), 2004.
18. L. Pueyo, A. Give'on, M. Carr, M. Littman, J. Kasdin, R. Vanderbei, "High Dynamic Range Wavefront Stability: Amplitude and Phase Control", in Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation, 5487(184), 2004.
19. A. Give'on, J. Kasdin, Y. Avitzour, R. Vanderbei, M. Littman, D. Spergel, "High-Frequency Folding and Optimal Phase Conjugation for High-Contrast Adaptive Optics", in Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation, 5487(155), 2004.
20. R. Belikov, J. Beall, M. Carr, A. Give'on, J. Kay, T. Kolade, M. Littman, F. Mycroft, L. Pueyo, R. Vanderbei, and N.J. Kasdin, Towards 10¹⁰ Contrast for NASA's Terrestrial Planet Finder Mission: Demonstration of High Contrast in a Shaped-Pupil Coronagraph at Princeton, Proceedings of the International Astronomical Union, 1 p. 415 (2005)
21. N.J. Kasdin, R. Belikov, J. Beall, R. Vanderbei, M. Littman, M. Carr, and A Give'on, Shaped Pupil Coronagraphs for Planet Finding: Optimization, Manufacturing, and Experimental Results, Proceedings of the SPIE

- "Techniques and Instrumentation for Detection of Exoplanets II" (Coulter, Daniel, editor), **5905** p. 128 (2005)
22. L. Pueyo, M. Littman, N.J. Kasdin, R. Belikov, and A. Give'on, Chromatic Behavior of Amplitude and Phase Compensators, Proceedings of the International Astronomical Union, **1** p.435 (2005)
 23. L. Pueyo, M. Littman, N.J. Kasdin, R. Vanderbei, R. Belikov, and A. Give'on, Chromaticity Effects in Adaptive Optics: Wavelength Dependence of Amplitude Compensation, Proceedings of the SPIE **5903**, (2005)
 24. N. J. Kasdin, R. Belikov, E. Cady, M. Carr, J. Kay, M. Littman, L. Pueyo, R. J. Vanderbei, J. T. Trauger, K. Balasubramanian, P. Echternach, A. Give'on, A. Kuhnert, S. Shaklan, F. Shi, A. R. Neureuther, D. Ceperley, M. Miller, T. Shih, S. Kilston, M. Lieber, and J. Beall "Shaped Pupil Coronagraph: State of the Art and Projections for TPF Performance and Readiness" Coronagraph Workshop, Pasadena, CA, September 28-29, 2006, JPL Publication 07-02 (2006).
 25. M.A. Paluszek, J.B. Mueller, and M.G. Littman, "Optical Navigation System", AIAA Infotech, Atlanta, GA, 20-22 April (2010).
 26. E. Jensen, A. Carlotti, N.J. Kasdin, M. Littman, "Interference-Based Coronagraphy for Speckle Identification" American Astronomical Society, AAS meeting #217, #254.32, Bull AAS, vol. 43 (2011).
 27. E. J. Young, N. J. Kasdin, A. Carlotti, and M. Littman, "Speckle Identification to Assist the Direct Detection of Exoplanets", Proc. SPIE: 8151, 81511A (2011); doi:10.1117/12.893880.
 28. G. Bull, M. Hoffman, M. Littman, J. Rutter, N. Standish, "The Maker Classroom: Introducing the Historical Reconstruction 'Invention Kit'", session B417, Jul 1, 2015, International Society for Technology in Education Conference, Philadelphia PA, June 28 - Jul 1, 2015.
 29. M. Littman, "Connecting Engineering to the Social Sciences and Humanities", Workshop, Virginia Technology and Engineering Education Association (VTEEA) Conference 2015, July 29-31, 2015, Charlottesville VA.
 30. M. Littman, "Alexander Graham Bell and Joseph Henry: Telephone Receiver Demonstration in 1875", paper GL04, American Association of Physics Teachers Summer Conference, College Park MD, July 25-29, 2015
 31. I. Paya-Zaforteza, C. Eiben, M. Littman, "Discovering the Role of Engineering in the World", paper GC-02, International Association for Bridge and Structural Engineering Conference, Geneva Switzerland, Sept 22-25, 2015.

32. M. Littman, "Engineering in the Modern World", presentation as component of Sunday Workshop U259B, "Introducing Engineering to Non-Engineering Students: Timing, Variability, Institutional Commitment", American Society of Engineering Education (ASEE) Annual Meeting, New Orleans, June 26-29, 2016.
33. M. Littman, "A Freshman Seminar: 'The Art and Science of Motorcycle Design'", Session M1D: Enrollment, Instruction, and Pedagogy, 8th Annual Conference First Year Engineering Experience, American Society of Engineering Education (ASEE), Ohio State University, July 31-Aug 2, 2016.
34. M. Littman, "Integrating History, Science, and Engineering through Replication and Application of Transformational Inventions", Hawaii International Conference on Education, Honolulu Hawaii, Jan 4-7, 2018 (presented, STEM education session: Jan 5, 2018).
35. M. Littman, "Make to Learn and Serve: A College-Level Projects-Based Course", Hawaii International Conference on Education, Honolulu Hawaii, Jan 4-7, 2020 (presented at poster session, Jan 6th, 2020).