Curriculum Vita:

University of New England
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Education & Research Experience

NSF sponsored Phase III Modeling Instruction Trainee, UCDavis, 7/99 & 7/00, Prof. David Hestenes
Post-graduate Researcher, Iowa State University, 8/92-6/95 P.I.: Prof. Eric Henderson
Post-graduate Researcher, University of Oregon, 10/90-6/92. P.I.: Prof. Carlos Bustamante
Post-graduate Researcher, University of California, 10/89-9/90. P.I.: Prof. Yin Yeh
Ph.D., Physics, University of California, Davis, September 1989.
M.Sc., Physics, University of California, Davis, March 1986.
B.A., Physics/Chemistry, Clark University, Worcester, Massachusetts, May 1982.

Teaching Experience

Professor, Department of Chemistry and Physics, University of New England (9/09 – Present). Courses: Studio Algebra and Calculus-based introductory physics, modern physics, & optics.

Associate Professor, Department of Chemistry and Physics, University of New England (9/03 – 5/09). Courses: Algebra-based physics and associated labs, modern physics, & optics.

Assistant Professor, Department of Chemistry and Physics, University of New England (9/99 – 5/03). Courses: Algebra-based physics and associated labs.

Assistant Professor, Physics Department, California State University Fresno, (9/95-5/99), Courses: Algebra-based physics, advanced E&M, and nanotechnology

Adjunct Assistant Professor, Physics Department, Iowa State University, (9/94-12/94), Course: Calculus-based physics recitation

Instructor, Zoology and Genetics Department, Iowa State University, (9/92-5/95), Course: Scanning probe microscopy operation and sample preparation methods.

Workshop Facilitator Experience

Mini-Workshop Presenter: 1-Day Modeling Activities for 8 to 24 teachers/year at The University of Maine Annual Physics Teachers Day. Modeling Faster and Faster (3/07), Modeling Exponential Decay in Circuits (3/08), Modeling Bernoulli Principle (3/09), Modeling Doppler Shift (3/10), Modeling Resonance with Earbuds (3/11), Modeling Ideal Gas (3/13).

Workshop Director & UMaine Adjunct Instructor: Modeling high school science training, 28 teachers. Chemistry and Physics (7,8/12) at FPUU Kennebunk ME.

Workshop Director and Instructor: Self-supported Modeling high school physics teacher training at FPUU Kennebunk ME. “Kinematics & Dynamics” (7/08, 7/09, 7/10, 7/11). Energy, Collisions and Circular Motion" (8/09,8/10, 8/11).

Workshop Instructor: Maine Mathematics and Science Alliance (MMSA)-supported Modeling middle school physical science teacher training. “Sound and Light” at UNE (7/08). “Matter” at UNE (6/07). (8/06) “Energy” at Central Maine Community College. “Motion” at UNE (6/06).

Workshop Director and Instructor: NSF Maine Mathematics and Science Teacher Excellence Collaborative-supported Modeling middle school science teacher training. “Matter” at UNE (Winter/05). “Motion” at University College at Springvale Maine (8/04).

Workshop Instructor: NSF Fresno Collaborative for Excellence in Preparing Teachers-supported Modeling high school physics teacher training at California State University, Fresno. “Kinematics & Dynamics” (6/04). “Energy” (6/03). “2-D motion and Collisions” (6/02). “Kinematics & Dynamics” (6/01).

Workshop Instructor: Massachusetts DOE Modeling high school physics teacher training. “Kinematics & Dynamics” at Bridgewater State College (8/03). Refunded in 2005.

Workshop Director and Instructor: NSF Supported Modeling instruction for UNE faculty. "Kinematics & Dynamics" at UNE (8/02).

Workshop Director and Instructor: NSF-supported Modeling high school physics teacher training. "Kinematics & Dynamics" at UNE (8/00). "2-D Motion, Energy, & Collisions" at UNE (8/01).

Honors and Grants

NSF Collaborative Proposal: Multi-scale, Multi-sense Fluids for Life Science Students submitted 2/4/14
NSF Major Research Instrumentation Award DBI 1125672, co-PI ($433,938 8/24/11)
NSF TUES DUE-1044154, PI ($88,000 out of $200,000– 6/11)
NSF Research Opportunity Award, subgrantee ($25K, 6/11)
Maine DOE Math & Science Partnership award/Co-PI ($41,572 out of $384,958 9/05-8/08).
NSF CCLI DUE 0737458 Co-PI ($13,499 out of $136,637– 6/08)
CAS Summer Honors Undergraduate Research Stipend ($5,920 – 5/08)
UNE President/Provost Research Awards (cumulative $15,600 – 1/00-5/08)
UNE – CAS Minigrant (cumulative $13,900 – 1/00-5/08)
CAS Dean's Educational Support award ($4774 – 5/05)
NSTA/Vernier Science and Technology Award ($3000 – 2/05)
MMSTEC/MMSA Modeling Workshop Support ($15,000 - 8/03)
NSF Major Research Instrumentation Award DMR 0116398 ($156,000 - 9/01)
Maine Mathematics and Science Alliance Summer Academy Grant ($42,000 - 4/00)
NSF Course, Curriculum, Laboratory Improvement Award DUE 9952668 ($140,000 - 3/00)
Togus-VA Equipment Salvage ($12,000 - 10/99)
CSU-Fresno Claude Laval Research Award ($5000 - 1/99)
CSU-Natural Science Performance Awards ($2000 - 2/96, 2/97, 2/98, 11/98)
CSU-Fresno Indirect Cost Return Award: Networked Microscopy ($2000 - 5/96 & 5/98)
CSU-Fresno Convocation Award: Recognition for teaching and research (8/97)
IBM-Almaden Equipment Donations ($80,000 - 6/97)
CSU Award for Research & Creative Activity: ($3000 - 5/96 & 5/97)
NSF Instructional Laboratory Improvement Grant: Networked SPM ($120,000 - 5/97)
CSU Fresno Instructional Technology Award: Real-time SPM ($5000 - 11/97)
Research Corporation Award: SPM investigations of quadruplex DNA ($49,000 - 5/96)
Outstanding Graduate Student Teaching Award, UC Davis (5/89).
Graduate Phi Beta Kappa and Magna Cum Laude, Clark University (6/82).

Professional Affiliations

American Association of Physics Teachers – American Physical Society,
Council of Undergraduate Research

Student Talks:

K. Misaiko & J. Vesenka, and E. Whitmore & J. Vesenka, AAPT summer meeting, Portland OR (7/13)
K. Misaiko & J. Vesenka, AAPT summer meeting, Philadelphia PA (7/12)
M. van den Berg & J. Vesenka, Northeast Undergraduate Research and Development Symposium (3/12)
M. van den Berg & J. Vesenka, UNE Summer Research Symposium (8/11)
J. Oliveira, & J. Vesenka, UNE Arts & Sciences Symposium (5/10).
S. Dobrowolski, M. Weglarz, M. Meyer, & J. Vesenka, UNE Arts & Sciences Symposium (5/08).
E. McAndrew, E, J. Vesenka, & A. Davidoff, UNE Arts and Sciences Symposium (5/08).
M. Weglarz, S. Yerkes, E. Kmiec, & J. Vesenka, UNE Arts & Sciences Symposium (5/08).
S. Dobrowolski, M. Weglarz, M. Meyer, & J. Vesenka, 35th Maine Biological Medical Sciences Symposium (4/08).
E. McAndrew, J. Vesenka, J, & A. Davidoff, 35th Maine Biological Medical Sciences Symposium (4/08).
S. Dobrowolski, M. Weglarz, D. Schmidt, M. Meyer, & J. Vesenka, UNE Arts & Sciences Symposium (5/07).
E. McAndrew, S. Johnson, M. Weglarz, J. Vesenka, & A. Davidoff, UNE Arts and Sciences Symposium (5/07).

K. Scharf-Gray, D. Bagg, A. Wolff, A. Reichert, R. Möller, W. Fritzsche, & J. Vesenka, UNE Arts and Sciences Symposium (5/07).

S. Dobrowolski, M. Weglarz, D. Schmidt, M. Meyer, & J. Vesenka. 34th Maine Biological Medical Sciences Symposium (4/07).

E. McAndrew, M. Weglarz, J. Vesenka, & A. Davidoff, 34th Maine Biological Medical Sciences Symposium (4/07).

K. Scharf-Gray, D. Bagg, A. Wolff, A. Reichert, R. Möller, W. Fritzsche, & J. Vesenka, 34th Maine Biological Medical Sciences Symposium (4/07).

D. Bagg, K. Eccleston, M. Luhrs & J. Vesenka, UNE Arts and Sciences Symposium (5/03).

N. Demers, B. Rioux, M. Fletcher & J. Vesenka, UNE Arts and Sciences Symposium (5/02).

T. Armstrong & J. Vesenka, UNE Arts and Sciences Symposium (5/01).

N. Demers & J. Vesenka, UNE Arts and Sciences Symposium (5/00).

C. Vellandi,... & J. Vesenka, "Inexpensive Tapping SPM", *Scanning* **19**:3, 246 (1997).

J. Root,... & J. Vesenka, "LCSTM of G-wires", *Scanning* **19**:3, 243-244 (1997).

I. Kumar, C. West,. & J. Vesenka, "Orientation of G-wires", *Scanning* **19**:3, 234-235 (1997).

D. Detweiler, S. Laslovich,. & J. Vesenka, "General microscopy" *Scanning* **19**:3, 205 (1996).

C. West, I. Kumar, & J. Vesenka, *Scanning* **19**:3, journal cover (1997).

J. Stafford & J. Vesenka, "An SPM Internet Site" *Scanning* **18**:3, 252-253 (1996).

C. Wilson & J. Vesenka, "Atomic Force Microscopy of Olivine" *Scanning* **18**:3, 254 (1996).

Selected List of Recent Professional Presentations: (> 70 lifetime presentations)

James Vesenka and Bradley Moser – Modeling Instruction in Science, College of the Holy Cross, Worcester, MA, November 15, 2013

James Vesenka, Katherine Misaiko and Elizabeth Whitmore. Modeling Fluid Statics to Help Students Understand Fluid Dynamics. American Association of Physics Teacher Meeting, Portland OR July 13-17, 2013.

James Vesenka – Using Active Kinematics and Dynamics using Geogebra, UNE, May 22, 2013

James Vesenka and Dean Meggison. Mini-modeling workshop. Milton Academy, Milton MA April 13, 2013.

Katherine Misaiko and James Vesenka. Student conceptions about fluid dynamics: Bernoulli's Principle. American Association of Physics Teacher Meeting, Philadelphia PA, August 1, 2012.

James Vesenka. "Why Biologists Need Modeling", **Invited Speaker**, American Association of Physics Teacher Meeting, Philadelphia PA, July 29, 2012.

Matt van den Berg and James Vesenka. Student conceptions about fluid statics: What does floating really mean?. American Association of Physics Teacher Meeting, Ontario CA, February 6-9, 2012.

James Vesenka, Matt van den Berg, Jessica Bolker, Dawn Meredith. Multiple Representations of Buoyancy. American Association of Physics Teacher Meeting, Jacksonville FL , January, 2011.

James Vesenka, Meredith Weglarz, and Jessica Oliveira. Multiple Representations of Buoyancy. American Association of Physics Teacher Meetings, Durham NH October 16, 2009 and Washington D.C. February 16, 2010.

M. Weglarz, J. Vesenka, S. Yerkes, T. Schwartz, & E. Kmiec "Correlation Between Huntington's Disease Control and Guanine-Rich Oligonucleotide Structure." **Juried presentation**, AFMBiomed, Monterey CA, October 15-18, 2008

J. Vesenka, "Analysis of G5x Quadruplex DNA", **Invited Speaker**, International Symposium on DNA–Based Nanodevices, Jena, Germany, May 30, 2008.

J. Vesenka, "Faster and Faster, Back to Galileo", American Association of Physics Teachers Northeast Regional Meeting, Storrs, CT, October 19, 2007.

J. Vesenka, "Auto-Orientation of G-wire DNA on Mica", American Chemical Society Northeast Regional Meeting, Binghamton, NY, October 5, 2006.

J. Vesenka, "Auto-Orientation of G-wire DNA on Mica", **Plenary Session Invited Speaker**, International Conference on Self-Assembly of Guanine Derivatives, Bled, Slovenia, September 14, 2006.

J. Vesenka, "Auto-Orientation of G-wire DNA on Mica", **Invited Speaker**, International Conference on DNA–Based Nanoscale Integration, Jena, Germany, May 19, 2006.

J. Vesenka, "Abschluss Vortrag", Micro-biological Devices Seminar Speaker, Institute for Physical High Technology, Jena, Germany, January 10, 2006.

A. Steinbrück*, J. Vesenka, A. Csaki, G. Festag*, W. Fritzsche "Bi-metal Nanostructures: Fabrication and Characterization", Poster Presentation, Scanning Probe Microscopy in the Life Sciences, Charité University of Medicine, Berlin, Germany, October 13, 2005.

J. Vesenka, D. Bagg* "Auto-Orientation of G-wire DNA on Mica", Seminar speaker, University of Balogna, Italy, October 11, 2005.

J. Vesenka, G. Champagne* "Integration of G-wire DNA in Potential Nanoelectronic Devices", Seminar speaker, University of Ferrara, Italy, October 11, 2005.

J. Vesenka, B. Goblirsch*, T. Marsh "Progress Towards Growth and Colloidal Gold decoration of G-wire DNA", **Invited Speaker**, EC IST-FET 38951 Workshop: DNA Based Nanowires, Modena, Italy October 7-8, 2005.

J. Vesenka, T. Martin* "Scanning Probe Microscopy of G-wire DNA", Micro-biological Devices Seminar Speaker, Institute for Physical High Technology, Jena, Germany, September 19, 2005.

J. Vesenka, D. Bagg* "Auto-orientation of G-wire DNA", Physics Department Seminar Speaker, Clark University, Worcester, MA, September 1, 2005.

J. Vesenka, "Dynamic Microcantilever Sensing of DNA and IGG", Division of Life Sciences-Nanotechnology Group Speaker, Oak Ridge National Laboratory, Oak Ridge, TN, August 11, 2005.

J. Vesenka, D. Bagg* "Auto-orientation of G-wire DNA", Physics Department Seminar Speaker, Clark University, Worcester, MA, September 1, 2005.

J. Vesenka, T. Martin* "Scanning Probe Microscopy of G-wire DNA", Laboratory for Surface Science and Technology Seminar Speaker, University Maine, Orono, ME, June 1, 2004.

J. Vesenka, D. Bagg* "Auto-orientation of G-wire DNA", **Invited Speaker**, DNA Based Molecular Electronics, Jena, Germany, May 13-15, 2004.

J. Vesenka, T. Martin* "Scanning Probe Microscopy of G-wire DNA", Physics Department Seminar Speaker, University Vermont, Burlington, VT, April 9, 2004.

D. Andrews, J. Arvizu, & J. Vesenka, "The Implication of Modeling Training on Physics Teacher Development in California's Central Valley." TPPI conference, Washington D.C. (03/04).

J. Vesenka "Gain Disparity between Newtonian and Non-Newtonian Thinkers", New England APS/AAPT, Bates, Lewiston, ME (10/03).

J. Vesenka , K. Eccleston*, M. Luhrs*, "Orientation of G-wire DNA", New England APS/AAPT, Bridgewater State College, Bridgewater, MA (10/02).

J. Vesenka, "Remote Scanning Probe Microscopy Operation", New England APS/AAPT, Bridgewater State College, Bridgewater, MA (10/02).

J. Vesenka , K. Eccleston*, M. Luhrs*, E. Henderson, & T. Marsh, "Construction and Examination of G-wire DNA", **Invited Speaker**, DNA Based Molecular Construction, Jena Germany, May 23-25, 2002.

J. Vesenka, "DNA Nanowires." Toward a Sustainable World: Physics and Technology Assessment. A Celebration of the Research and Teaching of Christoph Hohenemser, Worcester MA, April 20, 2001.

J. Vesenka, B. Rioux*, M. Fletcher*, "Orientation of Quadruplex DNA (G-wires) and purported G-wire crystals on Mica." NES APS Announcer **Fall 2001**, 14 (2001).

J. Vesenka, "Physics Teacher Enhancement & Summer Student Education through Modeling Instruction", NES APPT Announcer **Fall 2001**, 2 (2001).

J. Vesenka, B. Rioux*, M. Fletcher*, "Orientation of Quadruplex DNA (G-wires) and purported G-wire crystals on Mica." Augustusburg Conference of Advanced Science, Molecular Nanotechnology 2001, Augustusburg Germany, September 6-7, 2001.

J. Vesenka, "Adaptation and Implementation of Modeling Techniques in a General Physics Course: On the Cheap", AAPT Announcer **29**, 82 (2000).

J. Vesenka, "Remote Microscopy operation at CSU Fresno", *Scanning.* **21** 53-54 (1999).

J. Vesenka, "Potential Applications of Scanning Probe Microscopy in Gene Therapy", Scanning '98, Baltimore, MD (4/98).

J. Vesenka, T.C. Marsh, J. Root, W. Han, S.M. Lindsay, E. Henderson, "Electronic Properties of 'G-wire' DNA investigated by Low Current Scanning Tunneling Microscopy," 44th American Vacuum Society meeting, San Jose, CA (11/97).

J. Vesenka, "Scanning Probe Microscopy in Education" Digital Instruments Users Conference, Santa Barbara, CA (8/97).

J. Vesenka, C. West, D. Detweiler, S. Laslovich, F. Schreiber, "A General Microscopy Course" , Scanning '97, Monterey, CA (4/97).

J. Vesenka, "Linking Large Audiences to Campus Microscopes", Center for Enhancement of Teaching and Learning, 1st Annual Teaching Technology Conference, Fresno, CA (1/97).

Patents

E. Henderson & J. Vesenka, "Decontamination Device and Method Thereof", *U.S. Patent Serial No. 5,935,339*, United States Patent and Trademark Office (1999)

R. Miller & J. Vesenka, “Reconstructing the Shape of an Atomic Microscope Probe”, *United States Patent No. 5,591,903*, United States Patent and Trademark Office (1997).

Peer-reviewed Publications: "*" = Undergraduate Participant

58. J. Vesenka, J. Havu, & D. Emerson, "An analysis of *Leptothrix ochracea*-type sheaths by atomic force microscopy and model for sheath formation." *In preparation for PLOS One.*

57. A. Boucher, J. Allen, B. Moser, & J. Vesenka "Simulating Doppler Shifted Audio Spectrum from Earbuds Undergoing Circular Motion", *in preparation for The American Journal of Physics*.

56. J. Allen, A. Boucher, D. Meggison, & J. Vesenka "Cheap Audio Tricks: Inexpensive Earbud-based Sound Experiments", *in preparation for The Physics Teacher*.

55. A. Boucher & J. Vesenka "Slowing Down the Speed of Sound: Sound Waves in Corrugated Pipes", *in preparation for The Physics Teacher*.

54. E. Whitmore, K. Misaiko, D. Grimm, and J. Vesenka "Using Fluids Statics to Help Students Understand Fluid Dynamics", *in preparation for the American Journal of Physics*.

53. M. van den Berg M. Weglarz*, & J. Vesenka "Multiple Representations of Buoyancy", *in preparation for The Physics Teacher*.

52. P. Bilotta, B. Moser, and J. Vesenka "A Practical Guide to Modeling Instruction: Modeling Physics For a Life Science Curriculum". American Modeling Teachers Association, *in press*.

51. K. Misaiko and J. Vesenka "Connecting the Dots: Links between Kinetic Theory and Bernoulli's Principle", *in Physics Education Research Conference 2013 Proceedings, AIP Press*.

50. B. Moser and James Vesenka "Studio Physics: No Student Left Unnoticed." New England Faculty Development Consortium *Exchange*, Spring 2013 Newsletter.

49. J. Vesenka, "AFM of Guanine Rich Oligonucleotide Surface Structures", in *Guanine Quartets: Structure and Application*, eds. L. Spindler and W. Fritzsche, ISBN: 978-1-84973-695-4, DOI:10.1039/9781849736954, pp.120-130 (2012).

48. J. Vesenka, Preparation and atomic force microscopy of quadruplex DNA, Methods Mol Biol;749:105-13 (2011).

47. S. Yerkes, J. Vesenka, and E. B. Kmiec. A stable G-quartet binds to a huntingtin protein fragment containing expanded polyglutamine tracks. Journal of Neuroscience Research 88, 335-345 (2009).

46. M. Weglarz*, W. Fritzsche, S. Yerkes, E. Kmiec, & J. Vesenka, “Analysis of G5x Quadruplex DNA”, DNA-Based Nano-Scale Integration, AIP Conference Proceedings 1062, pp. 123-128 (2008).

45. J. Vesenka, D. Bagg*, A. Wolff, A. Reichert, & W. Fritzsche, “Auto-Orientation of G-wire DNA on Mica”, *Colloids and Surfaces B: Biointerfaces*, **58**, pp. 256-263 (2007).

44. T. Marsh and J. Vesenka, “Properties of G-Wire DNA”, in Nano and Molecular Electronics Handbook, Sergy Lyshevski ed., CRC Press, New York, 13, pp. 1-15 (2007).

43. J. Vesenka, R. Baron, S. Collins†, & R. Smith, "Analysis of G-wire DNA Conductivity" DNA-Based Nano-Scale Integration, AIP Conference Proceedings 859, pp. 83-88 (2006).

42. J. Vesenka, “Six years of modeling workshops: Three cautionary tales." *J. Physics Teacher Education On-line **3***(2), 16-18 (2005).

41. T. Armstrong, J. Root, & J. Vesenka, "Hydration Layer Scanning Tunneling Microscopy of "G-wire" DNA" DNA-Based Molecular Construction, Intern. Workshop on DNA-based molecular construction", Jena, Germany 2002, Editor: W. Fritzsche, AIP Conference Proceedings **725**. pp. 59-64 (2004).

40. D. Andrews, M. Oliver, & J. Vesenka, "The Implication of Modeling Training on Physics Teacher Development in California's Central Valley." *J. Physics Teacher Education On-line* **1**(4), 14-24 (2003).

39. J. Vesenka, E. Henderson, & T. Marsh, "Construction and Examination of G-Wire DNA." DNA-Based Molecular Construction, Intern. Workshop on DNA-based molecular construction", Jena, Germany 2002, Editor: W. Fritzsche, AIP Conference Proceedings **640**. pp. 109-122 (2002).

38. J. Vesenka, G. Munoz, F. Judd, & R. Key, "A comparison between traditional and "modeling" approaches to undergraduate physics instruction at two universities." *J. Physics Teacher Education On-line* **1**(1), 3-7 (2002).

37. C. Wilson* & J. Vesenka, "Atomic Force Microscopy of Olivine", in AFM/STM III. S. Cohen & M. Lightbody eds., Plenum Press, pp. 125-134 (2000).

36. J. Vesenka & E. Morales* "Scanning Probe Microscopy in Biology with Potential Applications in Forensics.", in AFM/STM III. S. Cohen & M. Lightbody eds., Plenum Press, pp. 31-48 (2000).

35. J. Vesenka, C. Vellandi, I. Kumar*, T. Marsh, & E. Henderson, "The diameter of duplex and quadruplex DNA measured by Scanning Probe Microscopy." *Scanning Microscopy* **12**, 2: 329-342 (1998).

34. T. Muir*, E. Morales*, J. Root*, I. Kumar*, B. Garcia*, C. Vellandi, D. Jenigian*, T. Marsh, E. Henderson, & J. Vesenka "The morphology of duplex and quadruplex DNA on mica." *J. Vac. Sci. Technol. A*. **16**, 1172-1177 (1998).

33. Yang, G., Vesenka, J.P., and Bustamante, C. "Effects of Tip-sample Forces and Humidity on the Imaging of DNA with a Scanning Force Microscope." *Scanning* **18** (5), (1996).

32. W. Fritzsche, L. Martin, D. Dobbs, D. Jondle*, R. Miller, J. Vesenka, E. Henderson, "Reconstruction of Ribosomal Subunits and rDNA Chromatin Imaged by Scanning Force Microscopy", *J. Vac. Sci. Technol. B* **14**, (1996).

31. J. Vesenka, T. Marsh, R. Miller, & E. Henderson, "High Resolution Atomic Force Microscopy Reconstruction of G-wire DNA." *J. of Vac. Sci. Technol. B* **14**, 1413-1417 (1996).

30. J. Vesenka, "Facile Procedure for Screening Nucleoproteins for Imagibility", H. Gaub Module Ed., Procedures in Scanning Probe Microscopies, J. Wiley & Sons, Ltd. (1996)

29. W. Fritzsche, J. Vesenka, & E. Henderson, "Scanning Force Microscopy of Chromatin", *Scanning Microscopy*, **9**, 729-739 (1995).

28. E. Henderson, L. Ambrosio, C. Mosher, D. Jondle*, E. Stanley, P. Haydon, T. Marsh, & J. Vesenka, "Analyzing Chromosomes, Calcium Channels and G-wires by AFM", *1994 NATO Advanced Research Workshop*: "Scanning Near Field Microscopies & Molecular Materials."

27. J. Vesenka, C. Mosher, S. Schaus, L. Ambrosio, & E. Henderson, "Combining Optical and Atomic Force Microscopy for Life Sciences Research", *Biotechniques*, **19**, 240-253 (1995).

26. L. Martin, J. Vesenka, E. Henderson, & D.D. Larson, "Dissociated chromatin structure from rDNA of Tretrahymena thermophila", *Biochemistry*, **34**;14, 4610-4616 (1995).

25. D. Jondle*, L. Ambrosio, J. Vesenka, & E. Henderson, "Imaging and Manipulating Chromosomes with the Atomic Force Microscope", *Chromosome Research*, **3**; 239-244 (1995).

24. T.C. Marsh, J. Vesenka, & E. Henderson, "Atomic Force Microscopy of A New DNA Nanostructure.", *Nucleic Acids Research*, **23**;4, 696-700 (1995).

23. R. Miller, J. Vesenka, & E. Henderson, "Three dimensional reconstruction of scanning probe apex from colloidal gold specimens." *SIAM, J. Math*. **55**, 1362-1371 (1995).

22. C. Mosher, D. Jondle*, J. Vesenka, & E. Henderson, "Microdissection and Measurement of Polytene Chromosomes Using the Atomic Force Microscope.", *Scanning Microscopy*, **8**;3, 491-497 (1994).

21. J. Vesenka, R. Miller, & E. Henderson, "Three dimensional probe reconstruction for Atomic Force Microscopy." *Rev. Sci. Instr.*, **65**; 7, 2249-2251 (1994).

20. T.C. Marsh, J. Vesenka, & E. Henderson, "Differential Height Characterization of Plasmid and G-Wire DNA as Determined by Atomic Force Microscopy." in press *Proc. MSA* (1994).

19. J. Vesenka, S. Manne, G. Yang, C. Bustamante, & E. Henderson, "Humidity effects on atomic force microscopy of gold-labeled DNA on mica." *Scanning Microscopy*, **7**, 781-788 (1993).

18. W-L Shaiu, J. Vesenka, D. Jondle, E. Henderson, & D.D. Larson, "Visualization of circular DNA molecules labeled with colloidal gold spheres using Atomic Force Microscopy." *J. Vac. Sci. Technol. A*, **11**, 820-823 (1993).

17. J. Vesenka, S. Manne, R. Giberson, T. Marsh, & E. Henderson, "Colloidal gold particles as an incompressible Atomic Force Microscopy imaging standard for assessing the compressibility of biomolecules." *Biophysical J.*, **65**, 992-997 (1993).

16. W.A. Rees, R.W. Keller, J.P. Vesenka, G. Yang, & C.J. Bustamante, "Evidence of DNA Bending in Transcription Complexes Imaged by Scanning Force Microscopy." *Science*, **260**, 1646-1649 (1993).

15. W-L Shaiu, D.D. Larson, J. Vesenka, & E. Henderson, "Atomic Force Microscopy of Oriented Linear DNA Molecules Labeled with 5 nm Gold Spheres." *Nucleic Acids Research*, **21**, 99-103 (1993).

14. J. Vesenka, T. Marsh, J. Weber, & E. Henderson, "AFM of Colloidal Gold Particles and Tobacco Mosaic Virus", **1**, *Royamount Proc.* (1993).

13. B. Samori, G. Siligardi, C. Qagliariello, A.L. Weisenhorn, J. Vesenka, & C.J. Bustamante, "Chirality of DNA supercoiling assigned by scanning force microscopy." *Proc. Natl. Acad. Sci. USA*, **90**, 3598-3601 (1993).

12. J. Vesenka, R.E. Feeney, & Y. Yeh, "Microbubble mediated surface probe and the ice-antifreeze glycoprotein solution system." *J. Crystal Growth*, **130**, 67-74 (1993).

11. L. Niu, W-L Shaiu, J. Vesenka, D.D. Larson, & E. Henderson, "Atomic force microscopy of DNA-colloidal gold and DNA-protein complexes.", *SPIE*, **1891**, 71-77 (1993).

10. J. Vesenka, H. Hansma, C. Siegerist, G. Siligardi, E. Schabtach, & C. Bustamante, "Scanning force microscopy of circular DNA and chromatin in air and propanol." *SPIE*, **1639**, 127-137 (1992).

9. M.-Q. Li, H.G. Hansma, J. Vesenka, G. Kelderman & P.K. Hansma, "Atomic Force Microscopy of Uncoated Plasmid DNA: Nanometer Resolution with only Nanogram Amounts of Sample." *J. Biomolecular Structure Dynamics*, **10**, 607-617 (1992).

8. H. Hansma, J. Vesenka, G. Kelderman, H. Morrett, R.L. Sinsheimer, V. Elings, C. Bustamante, & P.K. Hansma, "Reproducible imaging and dissection of plasmid DNA under liquid with the atomic force microscope", *Science*, **256**, 1180-1184 (1992).

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