

Mathematical Presentations and Publications

Richard Millman

A. Invited or Peer Reviewed Academic Presentations

1. "Constructing a Conceptual Mathematics Content course with Integrated Assessment for future teachers" Athens Institute for Education and Research Math Conference, Athens, Greece, 6/07 (joint work with X. Ma and M. Wells)
2. "ALGEBRA CUBED: A rural GK12 project in middle and high school", California State University, Northridge, CA, 4/07
3. "The space of Riemannian metrics and geometric properties" California State University, Northridge, CA, 4/07
4. "Constructing a Conceptual Mathematics Content Sequence with Integrated Assessment", Research on Undergraduate Mathematics Conference, San Diego, CA, 2/07 (with M. Wells)
5. "Spaces and Subspaces of the Space of Riemannian Metrics", University of Nevada, Las Vegas, NV, 4/06
6. "Topology of the Space of Riemannian Metrics" Tennessee Technological University, Cookeville, TN, 2/06
7. "Curves, Frames, and Differential Geometry" Morehead State University, Morehead, KY, 3/06
8. "Design of a Mathematics Content Course to Integrate the Assessment Principle: Recent Results", 4th Annual Hawaii Conference on Education, Honolulu, HI, 1/06, with Xin Ma
9. "Conceptual Ideas behind Fractions," PK-16 Miniworkshop, Tennessee Technological University, Cookeville, TN, 11/05
10. "Partnership Enhancement Projects in the area of Mathematics" NSF/ED Math Science Partnership State Coordinators' Meeting, Washington, D.C., 10/05 (with Paul Eakin and John Yopp)
11. "Use of Video Clips of Children in a Content Math Course for Future Elementary Teachers" with Kelly Svec and Dana Williams (UK undergraduates), Appalachian Association of Math Teacher Educators, Lexington, KY 9/05 (lightly refereed)
12. "Integrating the Assessment Principle into Mathematics Content Courses for Preservice Elementary Teachers," International Commission on Mathematics Instruction, 15th Study, Aguas de Lindoia, Brazil, 5/05 (with Xin Ma)

13. "Mathematical Mathematics Education with examples from the AMSP," Department of Mathematics and Statistics, Wright State University, Dayton, Ohio, 5/05
14. "A Brown Bag on the Math Strand of AMSP," CREMSE, San Diego State University, San Diego, California, 10/04
15. "AMSP: A Partnership to Create Opportunities Through Math and Science, K-20," Dept. of Statistics, North Carolina State University, Raleigh, North Carolina, 9/04
16. "Spectrum of Laplace Operator on Manifolds," Dalian, People's Republic of China, 8/97
17. "Writing in Mathematics/Science," North County Professional Development Foundation, Sullivan Middle School, Bonsall, California, 11/94 (day long workshop)
18. "Mathematics Education in USA via the NCTM Standards," Institute of Mathematics, Chinese Academy of Science (Academia Sinica), Beijing, People's Republic of China, 6/94
19. "NCTM Standards and School Reform," Hangzhou Teacher's College, Hangzhou, People's Republic of China, 5/94
20. "Writing Math in Middle School," University of Nevada, Reno, Nevada, 7/93
21. "Use of Writing to Assess Math Studies," Louisville, Kentucky, National Council of Teachers of English 11/92
22. "Writing in Mathematics," California State University, San Bernadino, California, 11/92
23. "Writing in Mathematics," University of Nevada, Las Vegas, Nevada, 9/92
24. "Conference on College Composition and Communications, "Writing Across the Curriculum and Mathematics," Cincinnati, Ohio, 3/92
25. "Writing in Science and Math," University of Toledo (2 hour workshop), Toledo, Ohio, 4/91
26. "Mathematics in English: Writing as a Tool to Learn," Greater Cleveland Council of Teachers of Mathematics," Cincinnati, Ohio, 1/91
27. "Writing to Learn Mathematics," Western Ohio Education Day, Celina, Ohio, 10/90
28. "Writing as a Tool to Learn Mathematics," Ohio Council of Teachers of Mathematics, Zanesville, Ohio, 3/90
29. "Spectrum of Riemannian Manifolds," National Security Agency, 11/88
30. "Laplace Operators on Riemannian Manifolds," University of Cincinnati, Cincinnati, Ohio, 11/86

31. "Geometric consequences of the Laplacian on Surfaces," Georgetown University, Washington, D.C., 11/85
32. "Superspace: An Introduction to Global Analysis," Smith College, Northampton, Massachusetts, 9/85
33. "Laplace-Beltrami Operator on Homogenous Spaces," Auburn University, Auburn, Alabama, 5/85
34. "Connectedness in the Space of Riemannian Metrics" and "Spectrum of Laplacian Operator," University of Petroleum and Minerals, Dharhan, Saudi Arabia, 4/84
35. "Recent Results about the Spectrum of the Laplacian," Colorado State University, Fort Collins, Colorado, 3/83
36. "Helices on Surfaces," Southern Illinois University, Carbondale, Illinois, 5/82
37. "Completeness in the Space of Riemannian Metrics," Central Michigan University, Mount Pleasant, Michigan, 5/82
38. "Laplace-Beltrami Operator on Riemannian Manifolds: Especially Lie Groups," Tulane University, New Orleans, Louisiana, 10/79
39. "Controllability of the Wave Equation on a Riemannian Manifold," NATO Advanced Study Institute/AMS Summer Institute in Applied Mathematics, Harvard University, Cambridge, Massachusetts, 6/79
40. "Laplace-Beltrami Operator on Riemannian Manifolds: Controllability, Applications and Computability," Texas Tech University, Lubbock, Texas, 4/79
41. "Riemannian Geometry: A Complete Discussion," Howard University, Washington, D.C., 10/78
42. "Spectra of the Laplace-Beltrami Operator on Homogenous Spaces," Oakland University, Rochester, Michigan, 3/78
43. "Spectra of the Laplace-Beltrami Operator on Homogenous Spaces," Texas A&M University, College Station, Texas, 3/78
44. "Spectra of the Laplace-Beltrami Operator on Lie Groups," Indiana University - Purdue University, West Lafayette, Indiana, 11/77
45. "Spectra of the Laplace-Beltrami Operator on Homogenous Spaces," University of Connecticut, Storrs, Connecticut, 2/77
46. "Spectra of the Laplace-Beltrami Operator on Lie Groups," AMS Meeting, Ann Arbor, Michigan, 11/76 (20 minutes)
47. "Spectra of the Laplace-Beltrami Operator for Semisimple Lie Groups," Washington University, St. Louis, Missouri, 4/76

48. "Spectra of the Laplace-Beltrami Operator on Differential Forms on Lie Groups," Princeton University, Princeton, New Jersey, 4/76
49. "Holomorphic Connections and Homotopy Invariance of the Dolbeault Cohomology," AMS Summer Institute in Several Complex Variables, 8/75 (45 minutes)
50. "A Non-synthetic Approach to Transformation Geometry," MAA Meeting, Rockford College, Rockford, Illinois, 4/75
51. "F-Structures Motivated by the Cousin Problem," A.M.S. Summer Institute in Differential Geometry, 8/74 (45 minutes)
52. "Geometry of Connection," University of Windsor, Windsor, Ontario, 11/72
53. "Holomorphic Connections on Real Product Bundles," AMS Meeting, St. Louis, Missouri, 7/72 (20 minutes)
54. "Structures of Real Product Bundles," Washington University, St. Louis, Missouri, 4/72

B. Refereed Publications

- Books – Authored
 1. *Mathematical Reasoning for Elementary Teachers*, Boston, Massachusetts, Pearson-Addison/Wesley, fifth edition (March, 2008, to appear, with C. Long and D. DeTemple)
 2. *Geometry: An Axiom and Models Approach*, New York, New York: Springer-Verlag (with G. Parker), first edition, (1981), 2nd edition (1991)
 3. *Calculus: A Practical Introduction*, New York, New York: McGraw-Hill Book Company, 1979 (with G. Parker)
 4. *Elements of Differential Geometry*, Englewood Cliffs, New Jersey: Prentice-Hall, 1977 (with G. Parker)
- Books – Edited
 1. *Proceedings of Conference on Differential Geometric Control Theory*, Boston, Massachusetts: Birkhauser, 1983 (with R. Brockett and H. Sussman)
 2. *Symmetries in Science*, New York, New York: Plenum Press, 1980 (with B. Gruber)
- Journal Articles
 1. "Tasks Using Video Clips of Children in a Content Math Course for Preservice Elementary School Teachers", *Effective Tasks in Primary School Education*, Springer-Verlag, 2007 (to appear) with Kelly Svec and Dana Williams

2. "Design of a Mathematics Content Course to Integrate the Assessment Principle: Recent Results", Proceedings of the 4th Annual Hawaii International Ed Conference, with Xin Ma, (2006), 4552-4558
3. "Using Self-Assessment and Peer-Assessment," NCTM Bulletin 42 (2005), p. 9, with Xin Ma
4. "Using Writing to Assess Mathematics Pedagogy and Students' Understanding," *Evaluating Writing, the Role of Teachers' Knowledge, NCTE Yearbook*, ed by C. Cooper and L. Odell, (1998): 154-169.
5. "Mathematicians' Concepts of Audience in Mathematics Textbook Writing," *Primus*, Volume 2, (1992): 335-347 (with R. Bullock)
6. "Artist's View of Points and Lines," *Mathematics Teacher* 84, No. 2 (February, 1991): 132-138 (with R. Speranza)
7. "Labor/Management Issues in Drug Testing From a Probabilistic Viewpoint," (with J. Brawley): *Mathematics in College*, (1991): 3-11
8. "Writing Around Humor as a Tool to Learn Mathematics," *Mathematics in College*, (1991): 3-11
9. "Circles in New Worlds," *Ohio Journal of School Mathematics* 8, (1990): 22-28
10. "Writing in a Non-Euclidean Geometry Course," *Using Writing to Teach Mathematics*, ed. by A. Sterrett, Mathematical Association of America, MAA Notes Number 16, (1990): 134-137
11. "Calculus from an Administrative Perspective," *Calculus for a New Century*, ed. by L.A. Steen, National Academy of Sciences, Mathematical Association of America, (1987): 141-144
12. "MacDonald's Eta Function Formula and Some Developments in Differential Geometry," *American Mathematical Monthly* 93, (1986): 369-371 (with H.D. Fegan)
13. "Laplace Operator on Differential Forms for Lie Groups," *Differential Topology-Related Fields and Their Applications to the Physical Sciences and Engineering*, ed. by G.M. Rassias, Teubner-Texte zur Mathematik, Band 76, (1985): 155-165 (with C. Givens)
14. "Manifolds with the same Spectrum," *American Mathematical Monthly* 90, (1983): 553-555
15. Review of: R. Hermann, "Cartanian Geometry, Nonlinear Waves and Control Theory, Parts A and B," *Bulletin of the American Mathematical Society* 6 (1982): 467-478
16. "Control Theory for the Wave Equation in Compact Riemannian Manifolds," *Funkcialaj Ekvacioj* 23, (1980): 39-62 (with G. Chen)

17. "Denseness of Bounded and Unbounded Riemannian Metrics," *Tensor 34*, (1980): 9-12 (with G. Parker)
18. "Remarks on Spectrum of Laplace-Beltrami Operator in the Middle Dimensions," *Tensor 34*, (1980): 94-96
19. "The Normal Degree of Immersions," *Bulletin of the Institute of Mathematics, Academia Sinica 8*, (1980): 241-249
20. "Topology of the Pin (n) Group," *Tensor 34*, (1980): 9-12 (with G. Parker)
21. "Upper Half Plane Model for Hyperbolic Geometry," *American Mathematical Monthly 87*, (1980): 48-53
22. "Quadrants in the Space of Riemannian Metrics," *Michigan Math 25*, (1978): 3-7 (with H.D. Fegan)
23. "Kleinian Transformation Geometry," *American Mathematical Monthly 84*, (1977): 338-349
24. "The Spectra of Laplace-Beltrami Operator on Compact, Semisimple Lie Groups," *American Journal of Mathematics 99*, (1977): 801-807 (with B.L. Beers)
25. "Analytic Vector Harmonic Expansions on SU(2) and the 2-sphere," *Journal of Mathematical Physics 16*, (1975): 11-19 (with B.L. Beers)
26. "Bundle Homogeneity and Holomorphic Connections," *Journal of Differential Geometry*, (1974): 531-536
27. "Geometry of Connections," *American Mathematical Monthly 80*, (1973): 487-500 (with A.K. Stehney)
28. "The Holomorphic Connection as a Smooth Phenomenon," *Canadian Mathematical Congress--Proceeding of the 13th Biennial Seminar, Vol 2* (1973): 93-101
29. "Complex Structures on the Real Product Bundles with Applications to Differential Geometry," *Transactions of the American Mathematical Society 166*, (1972): 71-99
30. Review of Gratton-Guiness, I., "The Development of the Foundation of Mathematical Analysis from Euler to Riemann," *American Mathematical Monthly 79*, (1972): 315-316
31. "Geodesics in Metrical Connections," *Proceedings of the American Mathematical Society 30*, (1971)
32. "How to Measure Holes in the Plane: An Introduction to Modern Topology," *New York State Mathematics Teachers' Journal 21*, (1971): 107-140
33. Review of Hall T., "Carl Friedrich Gauss: A Bibliography," *New York State Mathematics Teachers' Journal 21*, (1971): 119

34. "Representatives of Semisimple Lie Groups," mimeographed notes, Cornell University, 1970 (from lectures of C.J. Earle, W.H.J. Fuchs, J.S. Halperin, A.W. Knap, O.S. Rothaus, and H.C. Wang)
35. "Numerical Stability of One Evaluation Predictor--Corrector Algorithms for Numerical Solution for Ordinary Differential Equations," *Mathematics of Computation* 22 (1968): 557-564 (with R. Klopfenstein)

6-2007