CARL ERIC MUELLER

Personal Data

Carl Eric Mueller
Born: September 8, 1954

Education

B.A. California Institute of Technology 1976
Ph.D. University of California at Berkeley 1979

Professional Experience

1979-1981, NSF Postdoctoral Fellow, University of Illinois
1981-1984, Assistant Professor, University of Texas
1984-1987, Assistant Professor, University of Rochester
1987-1992, Associate Professor, University of Rochester
1992-present, Professor, University of Rochester

Awards

National Science Foundation Graduate Fellowship, 1976-1979
National Science Foundation Postdoctoral Fellowship, 1979-1981
Institute of Mathematical Statistics Fellow, 2016

Editorial Work

Associate Editor, Annals of Applied Probability, 1996-1999
Associate Editor, Annals of Probability, 2006-2012
Associate Editor, Communications on Stochastic Analysis, 2006-present
Associate Editor, Stochastic Processes and Applications, 2012-present
Associate Editor, Stochastic Partial Differential Equations. Analysis and Computations, 2012-present

---

Date: January, 2017.

Conferences Organized

Special session on SPDE, IMA conference, Boston, 1992.

Conference on SPDE, Rochester, July 1-31, 1992.

Co-organizer, period of concentration on SPDE, MSRI, Berkeley, Sept.-Oct. 1997

First Upstate New York Probability Seminar, U. of Rochester, April 2007

Co-organizer, Midwest Probability Colloquium, 2010

AMS special session on probability and statistical physics, September 2012

Co-organizer, Northeast Probability Seminar, 2011-present

Finger Lakes Probability Seminar, April 2015

Research Support

1982, University of Texas Research Institute, Summer Research Award

1982-83, NSF grant (with Klaus Bichteler)

1984, University of Texas Research Institute, Summer Research Award

1984, NSF grant (with Klaus Bichteler)

1985-86, NSF grant

1986, Visiting fellowship, Inst. for Math. and its Applications, Minnesota

1987-88, NSF grant

1991-93, NSA grant

1991-93, NSF grant

1991-94, Participating scientist, Cornell's Center of Excellence in Prob.

1993-1995, NSA grant

1993-1995, Participant, NSF grant for travel to Japan

1995-1997, NSA grant

1996-1999, NSF travel grant to England

1997-1999, NSA grant

1999-2001, NSA grant

2001-2003, NSA grant

2003-2006, NSF grant

2006-2008, NSA grant

2006-2010, NSF collaborative grant

2011-2015, NSF grant

Invited Lectures

Invited talk, Conference, Carbondale, Illinois, July 7-11, 1982

Colloquium and seminar, Minnesota, 1983 Seminar, Illinois, 1983

Invited talk, NSF Conference, Boulder, Colorado, August 1983

Colloquium, Cornell, 1985

Colloquium, Courant, 1985

Lecture, The Probability Consortium of the Western Reserve, 1985

Seminar Talk, Minnesota, 1986

Conference, Seattle, 1986

Seminar, Cambridge, 1987

Seminar, Strasbourg, 1987

Seminar, Delft, 1987

Conference, Cornell, 1987

Canadian Math Society Conference, Vancouver, 1987

Conference at Oberwolfach, Germany, 1988

Conference on Diffusion Processes, Northwestern University, 1989

Seminar, University of Minnesota, 1989

Conference at Kansas State, 1990

Seminar at Carleton University, 1990

Boston Probability Seminar, 1991

Conference on stochastic partial differential equations, Charlotte, 1991

Conference on stochastic partial differential equations, Marseille, 1992

Toronto probability seminar, 1992

Conference on SPDE and super-processes, Montreal 1992

Miniconference on SPDE, Case Western, January 1993

USC Probability seminar, March 1993

IMS International Conference, Bloomington, March 1993

Carleton Probability Seminar, April 1993

Nagoya Probability Seminar, May 1993

Tokyo Institute of Technology, probability seminar, May 1993

Conference on stochastic analysis, Cornell, July 1993

Berlin probability seminar, November 1993

Stony Brook MSI conference, Jan. 1994

Toronto Probability Seminar, March 1994

Minnesota Probability Seminar, March 1994

Technion Probability Seminar, Haifa, May 1994

Universite de Provence Probability Seminar, May 1994

Bernoulli Society Conference, Chapel Hill, June 1994

Midwest Probability Seminar, Oct. 1994
Wayne State Probability Seminar, Oct. 1994
UBC/Washington Probability Seminar, November 1994
AMS Conference in Guanajuato, Mexico, November 1995
SPDE conference at USC, January 1996
Probability seminar, Syracuse, February 1996
Probability seminar, Marseille, July 1996
Mathematical physics conference at Los Alamos, August 1996
Conference on SPDE, Trento, Jan. 1997
Instructional conference at Edinburgh, April 1997
Conference on applications of dynamical systems, Utah, May 1997
North England Probability Seminar, June 1997
Probability seminar, Cambridge, England, June 1997
MSRI, September, 1997
MSRI, October. 1997
Conference in honor of D. Dawson, Ottawa, June, 1998
Conference on Random Fields, Ascona, Switzerland, September 1999
Oberwolfach, May 2000
Lausanne, July 2000
Canadian Math. Soc., Toronto, September 2000
University of Warwick, July 2001 (2 talks)
University of Michigan, May 15 2002
Canadian Math. Soc., Quebec City, June 2002
Lausanne, July 2002
Ann Arbor, January 2003
Inst. for Advanced Studies, March 2003
Seminar on Stochastic Processes, Seattle, March 2003
Conference on SPDE, Warwick, August 2003
Conference in honor of John Walsh, Banff, September 2003
AMS meeting, Binghampton, October 2003
Conference on SPDE, Trento, January 2004
Seminar, University of Toronto, March, 2004
Colloquium, LSU, March 2004
Conference on SPDE, Beijing, May 2004
Seminar, Lausanne, June 2004
Conference on SPDE, Bielefeld, April 2005
Summer School on Probability, Cornell, June 2005
Seminar Talk, North Carolina State, September 2005
Seminar Talk, Purdue, March 2006
Seminar Talk, Tennessee, March 2006
Seminar Talk, Kansas, March 2006
Conference on SPDE, Pisa, March 2006

Seminar Talk, EPFL Switzerland, June 2006
Summer School in SPDE, Utah, July 2006
Seminar Talk, Ohio State, September 2006
Seminar Talk, Illinois, October 2006
Conference on Statistical Physics, Paris, January 2007
Conference on Probability, Cornell, April 2007
Conference on Probability, Ottawa, May 2007
Conference on Probability, Illinois, August 2007
Seminar Talk, Mittag-Leffler Institute, Sweden, October 2007
Seminar Talk, Illinois, December 2007
Upstate NY Prob. Seminar, April 2008
Seminar Talk, Minnesota, April 2008
Seminar Talk, CUNY Graduate Center, May 2008
Conference in Probability, Ascona, June 2008
Seminar Talk, Vancouver, Aug. 2008
AMS Session, Huntsville, Oct. 2008
Seminar Talk, Duke, Dec. 2008
Lecture series on SPDE and probability, Ajou University, Korea, Jan
2009
Seminar Talk, Carnegie-Mellon, May 2009
Seminar Talk, Georgia Tech, Oct 2009
Two Seminar Talks, UR, Sept 2009
Lecture series on SPDE and probability, Suwon Korea, Jan 2010
Seminar Talk, Brown, March 2010
Seminar Talk, U North Carolina, March 2010
NC State SIAM Conf. March 2010
Seminar Talk, North Carolina State, March 2010
Seminar Talk, Newton Institute, March 2010
British Math Soc, Edinburgh, April 2010
Newton Satellite Conference, York, June 2010
Seminar Talk, University of Swansea, June 2011
Seminar Talk, University of Manchester, June 2011
Seminar Talk, Fields Institute, December 2011
Seminar Talk, Purdue, February 2012
Minicourse, Lausanne, May 2012
Conference in Probability, Lausanne, June 2012
AMS session talk, RIT, September 2012
IMS Minnesota Conference on SPDE, January 2013
MSU seminar, March 2013
Minicourse, Bernoulli Center, Lausanne, May 2013
Conference on Probability and PDE, Pisa, May 2013
Seminar, Jussieu, Paris, June 2013

Short Minicourse, Nancy, June 2013
MSU Conference on SPDE, August 2013
Colloquium, University of Alabama Birmingham, October 2013
Southeast Probability Seminar talk, May 2014
Satellite Conference talk for ICM Seoul, August 2014
Colloquium, Wayne State, September 2014
Seminar, University of Colorado, October 2014
Seminar, Rutgers, October 2014
Seminar, USC, November 2014
Colloquium, University of Tennessee, March 2015
Seminar, Cornell, March 2015
Colloquium, University of Wyoming, May 2015
Conference at Cornell, June 2015
Four lectures, University of Science and Technology, Hefei, China, July 2015
Seminar, MSRI Berkeley, September 2015
Conference, MSRI Berkeley, October 2015
Seminar, Berkeley, December 2015
AMS Session, Salt Lake City, April 2016
Conference, Simons Center, SUNY Stony Brook, May 2016
Seminar, The Technion, June 2016
Conference in Mannheim, June 2016
Colloquium at University of Illinois, Chicago Circle, September 2016
Conference in Sheffield, June 2017
Banff Conference, October 2017

Publications

Articles:

1. A unification of Strassen's law and Levy's modulus of continuity, Z.Wahrsch., 56 (1981), 163-179.
2. A characterization of BMO and BMO_ρ, Studia. Math., 72 (1982), 47-57.
3. Exit times of diffusions, Proceedings of the Conference on Martingale Theory, Cleveland, Springer-Verlag (1982).
4. (with F. Weissler) Hypercontractivity for the heat semigroup for ultraspherical polynomials on the n-sphere, J. Functional Analysis, (2) 48 (1982), 262-283.
5. (Announcement) (with S. Goldberg) Brownian motion, geometry, and generalizations of Picard's little theorem, Bull. Amer. Math. Soc., 7 (1982), 259-263.
6. Strassen's law for local time, Z. Wahrsch, 63 (1983), 29-41.

7. (with S. Goldberg) Brownian motion, geometry, and generalizations of Picard's little theorem, Ann. Probab., 11 (1983), 833-846.

8. (with F. Weissler) Single point blow-up for a nonlinear heat equation. Indiana U. Math. J., 34 (1985), 881-913.

9. (with M. Cranston) A review of recent and older results on the absolute continuity of harmonic measure. (Proceedings of a Conference on Stochastic Differential Geometry) AMS Contemporary Mathematics Series, v.73, (1988), 9-20.

10. A counterexample concerning Brownian motion on manifolds. (Proceedings of a Conference on Stochastic Differential Geometry) AMS Contemporary Mathematics Series, v.73, (1988), 217-222.

11. (with Li Liu) On the extinction of measure-valued critical branching Brownian motion, Ann. of Probab. 17, (1989).

12. Probability and the Equivalence of Generalized Hp Spaces, Indiana U. Math. J., 38, 4 (1989).

13. A connection between Strassen's and Donsker-Varadhan's laws of the iterated logarithm, Probab. Th. Related Fields, 87, 365-388 (1991).

14. Limit results for two stochastic partial differential equations, Stochastics, 37, 3, 175-199, (1991).

15. On the support of solutions to the heat equation with noise, Stochastics, 37, 4, 225-246, (1991).

16. Long time existence for the heat equation with a noise term, Probab. Th. and Related Fields, 90, 505-518, (1991).

17. (with E. Perkins) The compact support property for solutions to the heat equation with noise, Probab. Th. Rel. Fields, 93, 325-358 (1992).

18. Coupling and invariant measures for the heat equation with noise term, Ann. Probab., 21, 4, 2189-2199, (1993).

19. A modulus for the 3-dimensional wave equation with noise: dealing with a singular kernel, Canadian J. Math., 45, 6, 1263-1275, (1993).

20. (with R. Sowers) Blow-up for the heat equation with a noise term. Probab. Th. Rel. Fields., 97, 287-320, (1993).

21. (with R. Tribe) (summary) A stochastic PDE arising as the limit of a long-range contact process, and its phase transition, Proceedings of a conference in probability at Montreal, CRM Proceed ings and Lecture Notes, vol. 5, 1994, 175-178.

22. (with R. Tribe) A phase transition for a stochastic PDE related to the contact process, Probab. Th. Rel. Fields, 100, 2, 131-156, (1994).

23. (with R. Sowers) Travelling waves for the KPP equation with noise, J. Functional Anal., 128, 439-498, (1995).

24. (with R. Sowers) (summary) Travelling wares for the KPP equation with noise. Proceedings of Symposia in Pure Mathematics, 57, 603-609, (1995).

25. (with D. Dawson, K. Fleischmann and Yi Li) Singularity of super-Brownian local time at a point catalyst, Ann. Probab., 23, 37-55, (1995).

26. (with D. Dawson and Yi Li) The support of measure-valued branching processes in a random environment, Ann. Probab., 23, 4, 1692-1718, (1995).

27. (with R. Tribe) Stochastic p.d.e.'s arising from the long range contact and long range voter models, Probab. Th. Rel. Fields, 102, 4, 519-546, (1995).

28. Singular initial conditions for the heat equation with noise, Ann. Probab., 24, 1, 377-398, (1996).

29. Long time existence for the wave equation with a noise term, Ann. Probab., 25, 1, 133-151 (1997).

30. (with K. Fleischmann) A super-Brownian motion with a locally infinite catalyst, Probab. Th. Rel. Fields, 107, 3, 325-358, (1997).

31. (with R. Tribe) Finite width for a random stationary interface, Electronic J. Probab., 2, paper 7, 1-27, (1997).

32. Long-time existence for signed solutions of the heat equation with a noise term, Probab. Th. Rel. Fields, 110, 51-68, (1998).

33. The heat equation with Levy noise, Stoch. Proc. and Appl., 74, 67-82 (1998).

34. (with E. Pardoux) The critical exponent for a stochastic PDE to hit zero. Stochastic analysis, control, optimization and applications, 325-338, Systems Control Found. Appl., Birkhäuser, Boston, MA, 1999.

35. (with K. Fleischmann) Finite time extinction of catalytic branching processes. Stochastic Models, Proceedings of the International Conference on Stochastic Models, Ottawa, Canada, June 10-13, 1998, edited by L.G. Gorostiza and B.G. Ivanoff, CMS Conference Proceedings, Vol. 26, AMS and CMS, Providence RI, 125-140.

36. (with E. Perkins) Extinction for two parabolic stochastic PDE's on the lattice, Ann. Inst. Henri Poincare, 36, 301-338, (2000).

37. (with D. Dawson and K. Fleischmann) Finite time extinction of superprocesses with catalysts, Ann. Probab., 28, 2, 603-642, (2000).

38. The critical parameter for the heat equation with a noise term to blow up in finite time, Ann. Probab., 28, 4, 1735-1746, (2000).

39. (with R. Tribe) A Measure-Valued Process Related to the Parabolic Anderson Model, Proceedings of a Conference at Ascona, Progress in Probability, Birkhäuser, Boston, MA, (2002).

40. (with R. Tribe) Hitting properties of a random string, Electronic J. Probab., 7, paper 10, 1-29, (2002).

41. (with R. Dalang) Some non-linear s.p.d.e.'s that are second order in time, Electronic J. Probab., 8, paper 1, 1-21, (2003)

42. (with C. Doering and P. Smereka) Noisy wavefront propagation in the Fisher-Kolmogorov-Petrovsky-Piscounov equation, in UpoN 2002: Proceedings of the 3rd International Conference on Unsolved Problems of Noise, NIH, Bethesda, ed. S. Bezrukov (American Institute of Physics, 2003). (pp 523-530)

43. (with C. Doering and P. Smereka) Interacting particles, the stochastic Fisher-Kolmogorov-Petrovsky-Piscounov equation, and duality, Phys. A 325, 243-259 (2003).

44. (with R. Tribe) A singular parabolic Anderson model, Electronic J. Prob., 9, paper 5, 98-144, (2004).

45. (with K. Fleischmann) Super-Brownian motion with extra birth at one point, SIAM J. Math. Anal., 36, 3, 740-772, (2004).

46. (with A. Stan) A stochastic Heisenberg inequality, in Quantum Information and Complexity, Proceedings of the Meijo Winter School 2003, edited by T. Hida, K. Saito, and Si Si, World Scientific, Singapore, 362-375, (2004)

47. (with A. Stan) A Heisenberg inequality for stochastic integrals, J. of Theoretical Probability, 18, 2, 291-315, (2005).

48. (with L. Mytnik and A. Stan) The heat equation with time-independent multiplicative stable Lévy noise, Stochastic Process. Appl., 116, 1, 70-100, (2006).

49. (with R. Dalang and L. Zambotti) Hitting properties of s.p.d.e.'s with reflection, Ann. Probab., 34, 4, 1423-1450, (2006).

50. (with K. Fleischmann and P. Vogt) On the large scale behavior of superbrownian motion with a single point source, Comm. Stoch. Anal., 1, 1, 19-28, (2007).

51. (with R. Dalang and R. Tribe) A Feynman-Kac-type formula for the deterministic and stochastic wave equations and other p.d.e.'s, Trans. Amer. Math. Soc. 360, 9, 4681-4703, (2008).

52. (with D. Nualart) Regularity of the density for the stochastic heat equation, Electronic J. Prob., 13, paper 74, 2248-2258, (2008).

53. (with L. Mytnik and J. Quastel) Small noise asymptotics of traveling waves, Markov Proc. Rel. Fields, 14, 3, 333-342, (2008).

54. (with Z. Wu) A connection between the stochastic heat equation and fractional Brownian motion, and a simple proof of a result of Talagrand, Electronic Comm. Prob., 14, 55-65, (2009).

55. Some tools and results for parabolic stochastic partial differential equations, in Proceedings of a summer school in probability, University of Utah, Editors Davar Khoshnevisan and Firas Rassoul-Agha, Lecture Notes in Mathematics number 1962, Springer, p. 111-144 (2009).

56. (with K. Lee) On the discrete heat equation taking values on a tree, Proc. Amer. Math. Soc., 137, 1467-1478, (2009).

57. (with R. Dalang) Intermittency properties in a hyperbolic Anderson model, Ann. Poincare, 45, 4, 1150-1164 (2009).

58. (with K. Lee and J. Xiong) Some properties for superprocess under a stochastic flow, Ann. Poincare, 45, 2, 477-490 (2009).

59. (With Y. Bakhtin) Solutions of semilinear wave equation via stochastic cascades, Comm. Stoch. Anal., 4, 3, 425-431 (2010).

60. (with K. Burdzy and E. Perkins) Non-uniqueness for non-negative solutions of parabolic stochastic partial differential equations, Ill. J. Math., 54, 4, 1481-1507 (2010).

61. (with K. Kim and R. Sowers) A stochastic moving boundary value problem, Ill. J. Math., 54, 3, 927-962 (2010).

62. (With R. Tribe) A phase diagram for a stochastic reaction diffusion system, Prob. Th. Rel. Fields, 149, 3-4, 561-637 (2011).

63. (with L. Mytnik and J. Quastel) Effect of noise on front propagation in reaction-diffusion equations of KPP type, Invent. Math. 184, 2, 405-453 (2011).

64. (with A. Wei, A. Gomez, K. Lee, and J. Xiong) Strong uniqueness for an SPDE via backward doubly stochastic differential equations, Stat. and Prob. Letters 83, 2186-2190 (2013).

65. (with S. Starr) The length of the longest increasing subsequence of a random Mallows permutation, J. of Th. Prob. 26, 2, 514-540 (2013).

66. (with L. Mytnik and E. Perkins) Nonuniqueness for a parabolic SPDE with $\frac{3}{4} - \varepsilon$-Hölder diffusion coefficients, Ann. Prob. 42, 5, 2032-2112 (2014).

67. (with G. Richards) Can solutions of the one-dimensional wave equation with nonlinear multiplicative noise blow up?, Open Prob. Math 2, 1-4 (2014).
68. (with R. Dalang) Multiple points of the Brownian sheet in critical dimensions, Ann. Prob. 43, 4, 1577-1593 (2015).
69. Lecture notes on SPDE from the point of view of particle systems and duality, in Stochastic Analysis: A Series of Lectures, Birkhäuser, Progress in Probability, 68, 271-295 (2015)
70. (with R. Dalang and Y. Xiao) Polarity of points for Gaussian random fields, Ann. Prob. 45, Number 6B (November 2017), 4700-4751 (2017).
71. (with D. Khoshnevisan and M. Joseph) Strong invariance and noise comparison principles for some parabolic SPDEs, Ann. Prob. 45, Number 1, 377-403 (2017).
72. (with L. Mytnik and E. Perkins) On the boundary of the support of super-Brownian motion, Ann. Prob. 45, Number 6A, 3481-3534 (2017).
73. (with A. Gomez, J. J. Lee, E. Neuman, and M. Salins) On uniqueness and blowup properties for a class of second order SDEs Electronic Journal of Probability 22, 1-17 (2017).

Submitted:
74. (with J. J. Lee and E. Neuman) Hitting probabilities of a Brownian flow with Radial Drift, Ann. Prob.
75. (with K. Lin) Can the Stochastic Wave Equation with Strong Drift Hit Zero?, Electronic Journal of Probability.