ERIC VANDEN-EIJNDEN

Professor of Mathematics
Courant Institute of Mathematical Science
New York University
251, Mercer Street
New York, NY 10012

Tel.: (212) 998 3154; Fax: (212) 995 4121; E-mail: eve2@courant.nyu.edu

http://www.cims.nyu.edu/∼eve2/

Education

1997 Ph.D. in theoretical physics, Université Libre de Bruxelles,
Advisor: Prof. R. Balescu.

1992 B.S. and M.S. in theoretical physics, Université Libre de Bruxelles, Belgium.

Appointments

2006–pres. Professor of Mathematics, Courant Institute of Mathematical Science, New York University.

2005–2006 Visiting Miller Professor, University of California Berkeley.

2003–2006 Associate Professor of Mathematics, Courant Institute of Mathematical Science, New York University.

2002–2003 Member of the School of Mathematics, Institute for Advanced Study.

2001–2003 Assistant professor, Courant Institute of Mathematical Science, New York University.

1999–2001 Courant instructor, Courant Institute of Mathematical Science, New York University.

1998–1999 Associate research scientist, Courant Institute of Mathematical Science, New York University.

Awards

2009 Germund Dahlquist Prize from SIAM.

2003 NSF CAREER award.

2002 Sloan fellowship.

1998 Honorary fellow of the Belgian American Education Foundation (BAEF).

1997 First prize winner of the Annual PhD Competition of the Royal Academy of Sciences, Literature, and Fine Arts of Belgium.

Latest Invited Talks

April 2010: Plenary speaker at the British Mathematics Colloquium & British Applied Mathematics Colloquium, Edinburgh, UK.

Nov. 2009: Invited speaker at the AM^3 meeting, University of Texas, Austin.

Nov. 2009: Lecturer at the Winter School on Multiscale Modeling and Simulations in Science, KTH, Stockolm.

Oct. 2009: Mathematical Colloquium at UIUC.

Sept. 2009: Invited speaker at the Volkswagenstiftung Statussymposium 2009, Max Planck Institute for Polymer Research, Mainz, Germany.

Sept. 2009: Invited speaker at the Workshop on PDEs and material, Oberwolfach, Germany.

Sept. 2009: Invited speaker at the SAMSI Opening Workshop of the Program on Stochastic Dynamics.

July 2009: PhD lectures at University of Rome I (La Sapienza), Italy.

June 2009: Plenary speaker at the Capstone Conference, Warwick, UK.

May 2009: Plenary speaker at SciCADE 2009, Beijing, China.

Jan. 2009: Invited speaker at the IMA Workshop on Chemical Dynamics: Challenges and Approaches, University of Minnesota.

Nov. 2008: Plenary speaker at the 2nd Okinawa Conference on Mathematics and Biology, Okinawa Institute of Science and Technology, Japan.

Nov. 2008: Invited speaker at the IMA Workshop on Development and analysis of multiscale methods, University of Minnesota.

Oct. 2008: GBA Theoretical Chemistry Lecture Series, BC - BU - Harvard - MIT.

Oct. 2008: EPFL Mathematical Colloquium, Lausanne, Switzerland.

Oct. 2008: Mathematical Sciences Colloquium at RPI.

Sept. 2008: Lecturer at the Berlin Mathematical School on the Mathematics of Multiscale Phenomena, Free University of Berlin, Germany.

Aug. 2008: Plenary speaker at the Dynamics Days 2008 in Delft, Netherlands.

April 2008: Plenary speaker at the Conference on Molecular Simulations in Biosystems and Material Science (April 2 - 5, 2008) of the ESF-programme SIMBIOMA at the University of Konstanz, Germany.

March 2008: Rockefeller Mathematics Seminar, Rockefeller University.

Feb. 2008: Probability seminar, Brown University.

Jan. 2008: CSC Colloquium, Warwick, UK.

Jan. 2008: Invited speaker at the Workshop on Geometric and Stochastic Methods in GFD, Bremen, Germany.

Dec. 2007: Plenary speaker at the Workshop on Mathematics of Multi-Scale Problems, HKUST, Hong Kong.

Nov. 2007: CNCS Seminar, Duke University.

Sept. 2007: Invited speaker at the Opening Workshop of the 2007-08 Program on Random Media, SAMSI, Research Triangle Park.

Sept. 2007: Plenary speaker at the Conference on Computational Physics 2007, Brussels, Belgium.

July 2007: Invited speaker at the workshop on Classical and Quantum Approaches in Molecular Modeling, IMA, University of Minnesota.

June 2007: Invited speaker at the workshop on Large Deviations and Applications, University of Michigan.

April 2007: Invited speaker at the SPDE meeting, Cornell University.

April 2007: PICASSO lunch time seminar, Princeton.

March 2007: Invited speaker at the workshop on Stochastic Dynamical Systems and Control, MSRI, Berkeley.

Other Recent Activities

- Co-organizer (with Frank Noé, Christof Schuette, John Chodera and Vijay Pande) of the first Workshop on Molecular Kinetics, Free University of Berlin, Germany (May 26–30, 2009).
- Co-organizer (with P. Bolhuis and Ch. Dellago) of the Program on "Metastability and Rare Events in complex Systems," Erwin Schrdinger International Institute for Mathematical Physics (ESI), Vienna, Austria (Feb.–April 2008).
- Co-organizer (with J. Mattingly) of the Workshop on "The practice and theory of stochastic simulation," American Institute of Mathematics (AIM), Palo Alto (Oct. 2007)
- Lecturer of the tutorials for CSCAMM meeting on "Multiscale Modeling and Simulation of Complex Fluids," University of Maryland (April 2007).
- Program leader of the Program on "Random Media," at the Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park (2007–2008).
- **Editorial boards**: Communications in Mathematical Sciences, Journal of Statistical Physics, Journal of Nonlinear Sciences.

Postdocs Mentored

- Fabio Tal (Sept. 2002 – Jan. 2004)
- Jon Wilkening (Sept. 2002 – Aug. 2005)
- Di Liu (Sept. 2003 – Aug. 2005)
- Daan Crommelin (Sept. 2004 – Aug. 2006)
- Alexander Fischer (Sept. 2004 – Aug. 2006)
- Robert Lee DeVille (Sept. 2004 – Aug. 2007)
- Luca Maragliano (Jan. 2005 – Dec. 2007)
- Philipp Metzner (Jan. 2008 – Dec. 2008)
- Jonathan Weare (Sept. 2007 – present)
- Maddalena Venturoli (Sept. 2007 – present)
- Jonathan Weare (Sept. 2007 – present)
- Mikael Rechtsman (Sept. 2008 – present)
- Nawaf Bou-Rabee (Sept. 2008 – present)
- Maria Cameron (Sept. 2008 – present)

Graduate Students

- Ibrahim Fatkullin (PhD: Summer 2002)
- Maria Reznikoff (PhD: Summer 2004 – co-advisor: Robert V. Kohn)
- Gil Ariel (PhD: Summer 2006)
- Matthias Heymann (PhD: Summer 2007)
- Qi Zhang (current)
- Giulio Triglia (current)
- Ling Lin (current)
- Ning Xuan (current)

Publications

Refereed Journals

1. C. Abrams and E. Vanden-Eijnden, "Large-scale conformational sampling of proteins using temperature-accelerated molecular dynamic," Proc. Nat. Acad. Sci. USA, in press.
2. W. E and E. Vanden-Eijnden, "Transition-Path Theory and Path-Finding Algorithms for the Study of Rare Events," Annu. Rev. Phys. Chem. **61**, 391–420 (2010).
3. I. Fatkullin, G. Kovacic and E. Vanden-Eijnden, "Reduced dynamics of stochastically perturbed gradient flows," Commun. Math. Sci. **8**, 439–461 (2010).
4. E. G. Tabak and E. Vanden-Eijnden, "Density estimation by dual ascent of the log-likelihood," Commun. Math. Sci. **8**, 217–233 (2010).
5. C. Hijon, P. Espanol, E. Vanden-Eijnden and R. Delgado-Buscalioni, "Mori-Zwanzig formalism as a practical computational tool," Faraday Discussions **144**, 301–322 (2010).
6. A. Madar, A. Greenfield, H. Oster, E. Vanden-Eijnden and R. Bonneau, "The inferelator 2.0: A scalable framework for reconstruction of dynamic regulatory network models," Conf. Proc. IEEE Eng. Med. Biol. Soc. **1**, 5448–5451 (2009).
7. Y. Pokern, A. M. Stuart and E. Vanden-Eijnden, "Remark on the Drift Estimation for Diffusion Processes," Multiscale Model. Simul. **8**, 69–95 (2009).
8. F. Noé, Ch. Schuette, E. Vanden-Eijnden, L. Reich and T. R. Weikl, "Constructing the equilibrium ensemble of folding pathways from short off-equilibrium simulations," Proc. Nat. Acad. Sci. USA **106**, 19011–19016 (2009).
9. L, Maragliano, E. Vanden-Eijnden and B. Roux, "Free Energy and Kinetics of Conformational Transitions from Voronoi Tessellated Milestoning with Restraining Potentials," J. Chem. Theo. Comput. **5**, 2589–2594 (2009).
10. D. Crommelin and E. Vanden-Eijnden, "Data-based inference of generators for Markov jump processes using convex optimization," Multi. Mod. Simu. **7**, 1751–1778 (2009).
11. E. Vanden-Eijnden and M. Venturoli, "Exact rate calculations by trajectory parallelization and tilting," J. Chem. Phys. **131**, 044120 (2009).

12. W. E, W. Ren and E. Vanden-Eijnden, "A general strategy for designing seamless multiscale methods," J. Comp. Phys. **228**, 5437–5453 (2009).

13. E. Vanden-Eijnden, "Some recent techniques for free energy calculations," J. Comp. Chem. **30**, 1737–1747 (2009).

14. E. Vanden-Eijnden and M. Venturoli, "Markovian milestoning with Voronoi tesselations," J. Chem. Phys. **130**, 194101 (2009).

15. E. Vanden-Eijnden and M. Venturoli, "Revisiting the finite temperature string method for the calculation of reaction tubes and free energies," J. Chem. Phys. **130**, 194103 (2009).

16. P. Metzner, Ch. Schuette, and E. Vanden-Eijnden, "Transition Path Theory for Markov Jump Processes," Multiscale Model. Simul. **7**, 1192–1219 (2009).

17. M. Venturoli, E. Vanden-Eijnden and G. Ciccotti, "Kinetics of phase transitions in two dimensional Ising models studied with the string method," J. Math. Chem. **45**, 188–222 (2009).

18. E. Vanden-Eijnden, M. Venturoli, G. Ciccotti and R. Elber, "On the assumptions underlying milestoning," J. Chem. Phys. **129**, 174102 (2008).

19. M. Monteferrante, S. Bonella, S. Meloni, E. Vanden-Eijnden and G. Ciccotti, "Calculations of free energy barriers for local mechanisms of hydrogen diffusion in alanates," Scientific Modeling and Computations **15**, 1874 (2008).

20. R. E. L. DeVille and Eric Vanden-Eijnden, "Regular gaits and optimal velocities for motor proteins," Biophys. J. **95**, 2681–2691 (2008).

21. M. Heymann and E. Vanden-Eijnden, "Pathways of Maximum Likelihood for Rare Events in Nonequilibrium Systems: Application to Nucleation in the Presence of Shear," Phys. Rev. Lett. **100**, 140601 (2008).

22. L. Maragliano and E. Vanden-Eijnden, "Single-sweep methods for free energy calculations," J. Chem. Phys. **128**, 184110 (2008)

23. T. Lelièvre, C. Le Bris, and Eric Vanden-Eijnden, "Analyse de certains schémas de discrétisation pour des équations différentielles stochastiques contraintes," C. R. Acad. Sci. Paris, Ser. I **346**, 471-476 (2008).

24. W. E, T. Li, and E. Vanden-Eijnden, "Optimal Partition and Effective Dynamics of Complex Networks," Proc. Nat. Acad. Sci. USA. **105**, 7907–7912 (2008).

25. M. G. Westdickenberg and E. Vanden-Eijnden, "Rare Events in Stochastic Partial Differential Equations on Large Spatial Domains," J. Stat. Phys. **131**(6), 1023–138 (2008).

26. M. Heymann and E. Vanden-Eijnden, "The Geometric Minimum Action Method: A least action principle on the space of curves," Comm. Pure. App. Math. **61**(8), 1052–1117 (2008).

27. C. Muratov and E. Vanden-Eijnden, "Noise-induced mixed-mode oscillations in a relaxation oscillator near the onset of a limit cycle," Chaos **18**, 015111 (2008) .

28. R. E. L. DeVille and Eric Vanden-Eijnden, "Regularity and synchrony in motor proteins," Bull. Math. Bio. **70**, 484–516 (2008).

29. E. Vanden-Eijnden and M. Heymann, "The geometric minimum action method for computing minimum energy paths," J. Chem. Phys. **128**, 061103 (2008).

30. D. Crommelin and E. Vanden-Eijnden, "Subgrid-scale parameterization with conditional Markov chains," J. Atom. Sci. **65** 2661–2675 (2008).

31. G. Ciccotti, T. Lelièvre, and E. Vanden-Eijnden "Projection of diffusions on submanifolds: Application to mean force computation," Comm. Pure App. Math. **61**(3) 371–408 (2008).

32. L. Maragliano and E. Vanden-Eijnden, "On-the-fly string method for minimum free energy paths calculation," Chem. Phys. Lett. **446**, 182-190 (2007).

33. T. F. Miller III, E. Vanden-Eijnden, and D. Chandler, "Solvent coarse-graining and the string method applied to the hydrophobic collapse of a hydrated chain," Proc. Nat. Acad. Sci. USA **104**, 14559–14564 (2007).

34. C. R. Doering, K. V. Sargsyan, L. M. Sander, E. Vanden-Eijnden, "Asymptotics of rare events in birth-death processes bypassing the exact solutions,"Journal of Physics: Condensed Matter **19**, 065145 (2007).

35. J. C. Mattingly, T. M. Suidan and E. Vanden-Eijnden, "Simple Systems with Anomalous Dissipation and Energy Cascade," Comm. Math. Phys. **276**(1), 189–220 (2007).

36. J. C. Mattingly, T. M. Suidan and E. Vanden-Eijnden, "Anomalous Dissipation in a Stochastically Forced Infinite-Dimensional System of Coupled Oscillators," **128**(5), 1145–1152 (2007).

37. E. Vanden-Eijnden, "On HMM-like integrators and projective integration methods for systems with multiple time scales" Comm. Math. Sci. **5** (2): 495–505 (2007).

38. W. E, B. Engquist, X. Li, W. Ren, and E. Vanden-Eijnden, "Heterogeneous multiscale methods: A review," Comm. Comp. Phys. **2**(3): 367–450 (2007).

39. W. E, W. Ren, and E. Vanden-Eijnden, "Simplified and improved string method for computing the minimum energy paths in barrier-crossing events," J. Chem. Phys. **126**(16): 164103 (2007).

40. W. E, D. Liu, E. Vanden-Eijnden, "Response to "Comment on 'Nested stochastic simulation algorithm for chemical kinetic systems with disparate rates' [J. Chem. Phys. 123, 194107 (2005)]" J. Chem. Phys. **126**(13): 137102 (2007).

41. R. E. L. Deville and E. Vanden-Eijnden "Self-induced stochastic resonance for Brownian ratchets under load," Comm. Math. Sci. **5**(2): 431–446 (2007).

42. R. E. L. DeVille and E. Vanden-Eijnden, "Wavetrain response of an excitable medium to local stochastic forcing," Nonlinearity **51**, 51–74 (2007).

43. R.V. Kohn, F. Otto, M.G. Reznikoff, and E. Vanden-Eijnden, "Action minimization and sharp-interface limits for the stochastic Allen-Cahn equation," Comm. Pure App. Math. **60** 393–438 (2007)

44. R. E. Lee DeVille, Paul A. Milewski, Ricardo J. Pignol, Esteban G. Tabak, and Eric Vanden-Eijnden, "Nonequilibrium statistics of a reduced model for energy transfer in waves," Comm. Pure App. Math. **60** 439–461 (2007)

45. W. E, D. Liu, E. Vanden-Eijnden, "Nested stochastic simulation algorithm for chemical kinetic systems with multiple time-scales," J. Comp. Phys. **221**, 158–180 (2007).

46. R. Lee DeVille and E. Vanden-Eijnden, "A nontrivial scaling limit for multiscale Markov chains," J. Stat. Phys. **126** 75–94 (2007)

47. G. Ariel and E. Vanden-Eijnden, "Testing transition state theory on Kac-Zwanzig model," J. Stat. Phys. **126** 43–73 (2007)

48. C. B. Muratov, E. Vanden-Eijnden, and W. E, "Noise can play an organizing role for the recurrent dynamics in excitable media," Proc. Nat. Acad. USA **104**(3): 702–707 (2007).

49. A. Majda, I. Timofeyev and E Vanden-Eijnden, "Stochastic models for selected slow variables in large deterministic systems," Nonlinearity **19** 769–794 (2006).

50. D. T. Crommelin and E. Vanden-Eijnden, "Reconstruction of diffusions using spectral data from time-series," Comm. Math. Sci. **4**, 651–668 (2006).

51. D. T. Crommelin and E. Vanden-Eijnden, "Fitting timeseries by continuous-time Markov chains: A quadratic programming approach," J. Comp. Phys. **217**, 782–805 (2006).

52. E. Vanden-Eijnden and G. Ciccotti, "Second-order integrators for Langevin equations with holonomic constraints," Chem. Phys. Lett. **429**, 310–316 (2006).

53. P. Metzner, Ch. Schütte, and E. Vanden-Eijnden, "Illustration of transition path theory on a collection of simple examples," J. Chem. Phys. **125**, 084110 (2006).

54. L. Maragliano and E. Vanden-Eijnden, "A temperature accelerated method for sampling free energy and determining reaction pathways in rare events simulations," Chem. Phys. Lett. **426**, 168–175 (2006).

55. L. Maragliano, A. Fischer, E. Vanden-Eijnden, and G. Ciccotti, "String method in collective variables: Minimum free energy paths and isocommittor surfaces," J. Chem. Phys. **125**, 024106 (2006)

56. R. E. Lee DeVille, C. B. Muratov, and E. Vanden-Eijnden, "Non-meanfield deterministic limits in chemical reaction kinetics," J. Chem. Phys, **124**, 231102 (2006).

57. W. E and E. Vanden-Eijnden, "Toward a theory of transition paths," J. Stat. Phys. **123**, 503–523 (2006).

58. F. Tal, E. Vanden-Eijnden, "Transition state theory and dynamical corrections in ergodic systems," Nonlinearity, **19**, 501-509 (2006).

59. E. Vanden-Eijnden, F. Tal, "Transition state theory: Variational formulation, dynamical corrections, and error estimates," J. Chem. Phys. **123**, 184103 (2005)

60. W. E, D. Liu, E. Vanden-Eijnden, "Nested stochastic simulation algorithm for chemical kinetic systems with disparate rates," J. Chem. Phys. **123**, 194107 (2005)

61. W. Ren, E. Vanden-Eijnden, P. Maragakis, W. E, "Transition pathways in complex systems: Application of the finite-temperature string method to the alanine dipeptide,," J. Chem. Phys. **123**, 134109 (2005).

62. W. E, W. Ren, E. Vanden-Eijnden, "Transition pathways in complex systems: Reaction coordinates, isocommittor surfaces, and transition tubes", Chem. Phys. Lett. **413**, 242–247 (2005).

63. R. E. Lee DeVille, E. Vanden-Eijnden, and C. B. Muratov, "Two distinct mechanisms of coherence in randomly perturbed dynamical systems," Phys. Rev. E **72**, 031105 (2005).

64. C. B. Muratov, E. Vanden-Eijnden, and W. E "Self-induced stochastic resonance in excitable systems," Physica D **210**, 227–240 (2005).

65. G. Ciccotti, R. Kapral, and E. Vanden-Eijnden, "Blue Moon sampling, vectorial reaction coordinates, and unbiased constrained dynamics," ChemPhysChem **6**, 1809–1814 (2005).

66. W. E, D. Liu and E. Vanden-Eijnden, "Analysis of Multiscale Methods for Stochastic Differential Equations," Comm. Pure App. Math. **58**, 1544–1585 (2005).

67. C. Franzke, A. J. Majda, and E. Vanden-Eijnden, "Low-order stochastic mode reduction for a realistic barotropic model climate," J. Atmos. Sci. **62**, 1722–1745 (2005).

68. W. E, W. Ren, and E. Vanden-Eijnden, "Finite Temperature String Method for the Study of Rare Events," J. Phys. Chem. B. **109**, 6688–6693 (2005).

69. R. V. Kohn, M. Reznikoff and E. Vanden-Eijnden, "Magnetic Elements at Finite Temperature and Large Deviation Theory," J. Nonlinear Sci. **15**, 223–253 (2005).

70. M. Reznikoff and E. Vanden-Eijnden, "Invariant measures of stochastic partial differential equations and conditioned diffusions," C. R. Acad. Sci. Paris, Ser. I **340**, 305–308 (2005).

71. I. Fatkullin and E. Vanden-Eijnden, "A computational strategy for multiscale systems with applications to Lorenz 96 model", J. Comp. Phys. **200**, 605–638 (2004).

72. T. Li, E. Vanden-Eijnden, P. Zhang, and W. E, "Stochastic models of polymeric fluids at small Deborah number", J. Non-Newtonian Fluid Mech. **121** (2004), 117–125.

73. W. E, W. Ren, and E. Vanden-Eijnden, "Minimum action method for the study of rare events," Comm.Pure Applied Math. **52**, 637–656 (2004).

74. C. B. Muratov and E. Vanden-Eijnden, "Breakup of universality in the generalized spinodal nucleation theory", J. Stat. Phys. **114**, 605–623 (2004).

75. W. E and E. Vanden-Eijnden, "A Note a generalized flows," Physica D **183**, 159–174 (2003).

76. A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "Systematic Strategies for Stochastic Mode Reduction in Climate," J. Atmos. Sci. **60** (2003), 1705–1722.

77. I. Fatkullin and E. Vanden-Eijnden,"Statistical Description of Contact-Interacting Brownian Walkers on the Line," J. Stat. Phys. **111** (2003), 565–679.

78. E. Vanden-Eijnden,"Numerical Techniques for multi-scale dynamical systems with stochastic effects," Comm. Math. Sci. **1** (2003), 385–391.

79. W. E, W. Ren, and E. Vanden-Eijnden,"Energy Landscape and Thermally Activated Switching of Submicron-sized Ferromagnetic Elements," J. App. Phys. **93** (2003), 2275-2282.

80. P. R. Kramer, A. J. Majda, and E. Vanden-Eijnden,"Closure Approximations for Passive Scalar Turbulence: A Comparative Study on an Exactly Solvable Model with Complex Features," J. Stat. Phys. **111** (2003), 565–679.

81. A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "A priori tests of a stochastic mode reduction strategy," Physica D **170** (2002), 206–252.

82. W. E, W. Ren, and and E. Vanden-Eijnden, "String method for the study of rare events," Phys. Rev. B. **66** (2002), 052301.

83. P. Milewski, E. Tabak, and E. Vanden-Eijnden, "Resonant wave interaction with random forcing and dissipation," Stud. App. Math. **108** (2002), 123–144.

84. E. Vanden-Eijnden, "Non-Gaussian Invariant Measures for the Majda Model of Decaying Turbulent Transport," Comm. Pure App. Math. **54** (2001), 1146–1167.

85. A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "A Mathematical framework for stochastic climate models," Comm. Pure App. Math. **54** (2001), 891–974.

86. W. E and E. Vanden-Eijnden, "Prandtl Number Effect in Passive Scalar Advection," Physica D, **152** (2001), 636–645.

87. W. E and E. Vanden-Eijnden, "Generalized Flows, Intrinsic Stochasticity, and Turbulent Transport," Proc. Natl. Acad. Sci. USA. **97** (2000), 8200–8205.

88. W. E and E. Vanden-Eijnden, "Statistical Theory for the Stochastic Burgers Equation in the Inviscid Limit," Comm. Pure App. Math. **53** (2000), 852–901.

89. J.-P. Boon, E. Vanden-Eijnden and D. Hanon, "A lattice gas automaton approach to turbulent diffusion," Chaos, Solitons and Fractals **11**, (2000) 187–192.

90. W. E and E. Vanden-Eijnden, "Another note on Burgers turbulence," Phys. Fluids **12** (2000), 149–154 (companion paper of R. H. Kraichnan, "Note on Burgers turbulence," Phys. Fluids **11** (1999), 3738–3742).

91. A. J. Majda, I. Timofeyev, and E. Vanden-Eijnden, "Models for stochastic climate prediction," Proc. Natl. Acad. Sci. USA **96** (1999) 14687–14691.

92. W. E and E. Vanden-Eijnden, "Asymptotic Theory for the Probability Density Functions in Burgers Turbulence," Phys. Rev. Lett. **83** (1999), 2572–2575.

93. W. E and E. Vanden-Eijnden, "On the statistical solution of Riemann equation and its implication for Burgers turbulence," Phys. Fluids **11** (1999), 2149-2153.

94. E. Vanden-Eijnden, "Studying random differential equations as a tool for turbulent diffusion," Phys. Rev. E **58** (1998), R5229–5232.

95. E. Vanden-Eijnden and A. Grecos, "Stochastic modelling of turbulence and anomalous transport in plasmas," J. Plasma Phys. **59** (1998), 683–694.

96. E. Vanden-Eijnden, "Some remarks on the quasilinear treatment of the stochastic acceleration problem," Phys. Plasmas **4** (1997), 1486–1488.

97. E. Vanden-Eijnden and R. Balescu, "Transport in sheared stochastic magnetic fields," Phys. Plasmas **4** (1997), 270–276.

98. D. Carati and E. Vanden-Eijnden, "On the similarity assumption in dynamic models for large eddy simulations," Phys. Fluids. **9** (1997), 2165–2167.

99. E. Vanden-Eijnden and R. Balescu, "Statistical description and transport in stochastic magnetic fields," Phys. Plasmas **3** (1996), 874–888.

100. E. Vanden-Eijnden and R. Balescu, "Strongly anomalous diffusion in sheared magnetic configurations," Phys. Plasmas **3** (1996), 815–823.

101. E. Vanden Eijnden and R. Balescu, "Liouvillian theory of magnetic fluctuations," J. Plasma Phys. **54** (1995), 185–199.

102. H.-D. Wang, M. Vlad, E. Vanden Eijnden, F. Spineanu, J. H. Misguich, and R. Balescu, "Diffusive processes in a stochastic magnetic field," Phys. Rev. E **51** (1995), 4844–4859.

103. R. Balescu, E. Vanden-Eijnden, and B. Weyssow, "The drift-wave dispersion equation revisited," J. Plasma Phys. **50** (1993), 425–444.

Contribution to Books

104. E. Vanden-Eijnden, *Transition Path Theory*, in: "Computer Simulations in Condensed Matter: From Materials to Chemical Biology - Vol. 1" (M. Ferrari, G. Ciccotti, and K. Binder eds.) LNP **703**, Springer (2006).

105. W. E, X. Li, and E. Vanden-Eijnden, *Some Recent Progress in Multiscale Modeling*, in: "Multiscale Modelling and Simulation" (S. Attinger and P. Koumoutsakos eds.) LNCSE **39**, Springer (2004).

106. W. E and E. Vanden-Eijnden, *Metastability, conformation dynamics, and transition pathways in complex systems*, in: "Multiscale Modelling and Simulation" (S. Attinger and P. Koumoutsakos eds.) LNCSE **39**, Springer (2004).

107. E. Vanden Eijnden and R. Balescu, *Strongly anomalous diffusion in sheared magnetic configurations*, in "Transport, Chaos and Plasma Physics 2," (S. Benkadda, F. Doveil, and Y. Elskens, eds.), World Scientific (1996).

Conference Proceedings

108. W. E, W. Ren, and E. Vanden-Eijnden, *Energy Landscapes and Rare Events*, ICM report, 2002.

109. D. Carati and E. Vanden-Eijnden, "Dynamic procedure and self-similarity assumption," pp 60 in: Memorandum No. 1394, University of Twente, DNS and LES of complex flows: Numerical and modelling aspects (B. Geurts and H. Kuerten, eds.), Twente, The Netherlands, May 1997.

110. R. Balescu, J. H. Misguich, F. Spineanu, E. Vanden-Eijnden, M. Vlad, and H.-D. Wang, "Non linear theory of magnetic field line diffusion in a stochastic layer," pp. 196 in: Proc. 21^{st} EPS Conference on Controlled Fusion and Plasma Physics (E. Joffrin, P. Platz, and P. E. Stott, eds.), Montpellier, France, July 1994.

Reports

111. E. Vanden-Eijnden, *Contribution to the statistical theory of turbulence. Application to anomalous transport in plasmas*, PhD dissertation (1997).

112. M. Vlad, F. Spineanu, J. H. Misguich, H.-D. Wang, E. Vanden Eijnden, and R. Balescu, "Field line separation and particle-field line decorrelation in a stochastic magnetic field," Rapport CEA-Euratom, EUR-CEA-FC-1516 (1995).

113. H.-D. Wang, M. Vlad, F. Spineanu, J. H. Misguich, E. Vanden Eijnden, and R. Balescu, "Theory of magnetic fluctuation and magnetic field line diffusion," Rapport CEA-Euratom, EUR-CEA-FC-1515 (1995).