

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 AM³ meeting, University of Texas, Austin.
- Nov. 2009: Lecturer at the Winter School on Multiscale Modeling and Simulations in Science, KTH, Stockholm.

- 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 Schrödinger 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. Weigl, “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 tessellations,” *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. DeVillè 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. DeVillè 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. 21st 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).