

## References

- [1] W. E and D. Li, “On the crystallization of 2D hexagonal lattices”, *Comm. Math. Phys.*, to appear.
- [2] W. E and D. Li, “The Andersen thermostat in molecular dynamics” *Comm. Pure Appl. Math.*, to appear.
- [3] X. Zhou and W. E, “Study of noise-induced transitions in the Lorenz system using the minimum action method”, submitted to *Comm. Math. Sci.*.
- [4] X. Zhou, W. Ren and W. E, “Adaptive minimum action method for the study of rare events”, *J. Chem. Phys.*, vol. 128 (10): 104111, 2008
- [5] W. E, “Multiscale analysis of density functional theory”, Proceedings of the 6th International Congress of Industrial and Applied Mathematics, Zurich, 2007.
- [6] W. E, P. Ming and J. Z. Yang, “Analysis of the quasicontinuum method”, submitted to *Multiscale Modeling and Simulation*.
- [7] W. E, W. Ren and E. Vanden-Eijnden, “A General Strategy for Designing Seamless Multiscale Methods”, submitted to *J. Comput. Phys.*.
- [8] C. Garcia-Cervera, J. Lu, Y. Xuan and W. E, “ A Linear Scaling Subspace Iteration Algorithm with Optimally Localized Non-Orthogonal Wave Functions for Kohn-Sham Density Functional Theory”, submitted to *Phys. Rev. B*.
- [9] W. Gao and W. E “Orbital minimization with localization”, to appear in *Discrete and Continuous Dynamical Systems*.
- [10] W. E, T. Li and E. Vanden-Eijnden, “Optimal partition and effective dynamics of complex networks”, *Proc. Natl. Acad. Sci. USA*, vol. 105, 7907 (2008).
- [11] W. E, T. Li and J. Lu, “Localized basis of eigen-subspaces”, submitted to *Proc. Natl. Acad. Sci. USA*.
- [12] C. J. Garcia-Cervera, J. Lu and W. E, “Asymptotics-based sublinear scaling algorithms and applications to the study of electronic structure of materials”, *Comm. Math. Sci.*, vol. 5(4): 990-1026, 2007.
- [13] T. Li, A. Abdulle and W. E, “Effectiveness of implicit methods for stiff stochastic differential equations,” *Comm. Comput. Phys.*, vol. 3, no. 2, pp. 295-307, 2008.
- [14] S. Chen, W. E, Y. Liu and C.-W. Shu, “A discontinuous Galerkin implementation of a domain decomposition method for kinetic-hydrodynamic coupling multiscale problems in gas dynamics and device simulations,” *J. Comput. Phys.*, vol. 225, no. 2, pp. 1314-1330, 2007.
- [15] W. E, B. Engquist, X. Li, W. Ren and E. Vanden-Eijnden “Heterogeneous multiscale methods: A review,” *Comm. Comput. Phys.*, vol. 2, no. 3, pp. 367-450, 2007.
- [16] W. E and J.F. Lu, “Seamless multiscale modeling via dynamics on fiber bundles,” *Comm. Math. Sci.*, vol. 5, no. 3, pp. 649-663, 2007.
- [17] W. E and J.F. Lu, “The continuum limit and QM-continuum approximation of quantum mechanical models of solids,” *Comm. Math. Sci.*, vol. 5, no. 3, pp. 679-696, 2007.
- [18] W. E and J.F. Lu, “The Elastic Continuum Limit of the Tight Binding Model,” *Chinese Ann. Math. Ser. B*, vol. 28, no. 6, pp. 665-676, 2007.
- [19] W. E, D. Liu and E. Vanden-Eijnden, “Nested stochastic simulation algorithms for chemical kinetic systems with multiple time scales,” *J. Comput. Phys.*, vol. 221, no. 1, pp. 158-180, 2007.

- [20] W. E and P.B. Ming, “Cauchy-Born Rule and the Stability of Crystalline Solids: Dynamic Problems,” *Acta Math. Appl. Sin. Engl. Ser.*, vol. 23, no. 4, pp. 529-550, 2007.
- [21] W. E and P.B. Ming, “Cauchy-Born Rule and the Stability of Crystalline Solids: Static Problems ” *Arch. Rat. Mech. Anal.*, vol. 183, no. 2, pp. 241-297, 2007.
- [22] W. E, W. Ren, E. Vanden-Eijnden, “Simplified and improved string method for computing the minimum energy paths in barrier-crossing events,” *J. Chem. Phys.*, vol. 126, no. 16, 164103, 2007.
- [23] W. Guo, T. P. Schulze and W. E, “Simulation of impurity diffusion in a strained nanowire using off-lattice KMC,” *Comm. Comput. Phys.*, vol. 2, no. 1, pp. 164-176, 2007.
- [24] D. Hu, P. Zhang and W. E, “Continuum theory of a moving membrane,” *Phys. Rev. E*, vol. 75, no. 4, 041605, 2007.
- [25] X. Li and W. E, “Variational boundary conditions for molecular dynamics simulations of crystalline solids at finite temperature: Treatment of the thermal bath ” *Phys. Rev. B*, vol 76, no. 10, 104107, 2007.
- [26] C.B. Muratov, E. Vanden-Eijnden, W. E, “Noise can play an organizing role for the recurrent dynamics in excitable media ” *Proc. Natl. Acad. Sci.*, vol. 104, no. 3, pp. 702-707, 2007.
- [27] T. Qian, W. Ren, J. Shi, W. E and P. Sheng “Numerical study of metastability due to tunneling: The quantum string method ” *Phys. A*, vol. 379, no. 2, pp. 491-502, 2007.
- [28] W. Ren and W. E, “Boundary conditions for the moving contact line problem,” *Phys. Fluids*, vol. 19, 022101, 2007.
- [29] X. Yue and W. E, “The local microscale problem in the multiscale modeling of strongly heterogeneous media: Effect of boundary conditions and cell size ” *J. Comput. Phys.*, vol. 222, no. 2, pp. 556-572, 2007.
- [30] W. E and E. Vanden-Eijnden, “Towards a theory of transition paths,” *J. Stat. Phys.*, vol. 123, no. 3, pp. 503-523, 2006.
- [31] X.-T. Li and W. E, “Variational boundary conditions for molecular dynamics simulation of solids at low temperature,” *Comm. Comput. Phys.*, vol. 1, no. 1, pp. 135-175, 2006.
- [32] X.-P. Wang, K. Wang and W. E, “Simulations of 3-D Domain Wall Structures in Thin Films,” *Discrete Contin. Dyn. Syst. Ser. B*, vol. 6, no. 2, pp. 373-389, 2006.
- [33] J.Z. Yang and W. E, “Generalized Cauchy-Born rules for elastic deformation of sheets, plates, and rods: Derivation of continuum models from atomistic models ” *Phys. Rev. B*, vol. 74, no 18, 184110, 2006.
- [34] D. Zhou, P. Zhang and W. E, “Modified models of polymer phase separation,” *Phys. Rev. E*, vol. 73, no. 6, 061801, 2006.
- [35] S. Chen, W. E and C.-W. Shu “The Heterogeneous Multiscale Method Based on the Discontinuous Galerkin Method for Hyperbolic and Parabolic Problems,” *Multiscale Model. Simul.*, vol. 3, no. 4, pp. 871-894, 2005.
- [36] N. Choly, G. Lu, W. E and E. Kaxiras, “Multiscale Simulations in Simple Metals: A Density-Functional Based Methodology,” *Phys. Rev. B*, vol. 71, no. 9, 094101, 2005.
- [37] W. E and B. Engquist, “The Heterogeneous Multi-Scale Method for Homogenization Problems,” *Multiscale Methods in Sci. and Eng.*, pp. 89-110, *Lect. Notes in Comput. Sci. Eng.*, vol. 44, Springer, Berlin, 2005.

- [38] X.-T. Li and W. E, “Multiscale Modeling of the Dynamics of Solids at Finite Temperature,” *J. Mech. Phys. Solids*, vol. 53, pp. 1650-1685, 2005.
- [39] W. E and X.-T. Li, “Multiscale Modeling of Crystalline Solids,” *Handbook of Materials Modeling*, Part A, pp. 1491-1506, Springer Netherlands, 2005.
- [40] W. E, D. Liu and E. Vanden-Eijnden, “Nested stochastic simulation algorithm for chemical kinetic systems with disparate rates,” *J. Chem. Phys.*, vol. 123, no. 19, 194107, 2005.
- [41] W. E, D. Liu and E. Vanden-Eijnden, “Analysis of multiscale methods for stochastic differential equations,” *Comm. Pure Appl. Math.*, vol. 58, no. 11, pp. 1544-1585, 2005.
- [42] W. E and P.B. Ming, “Analysis of the local quasicontinuum method,” *Frontiers and Prospects of Contemp. Appl. Math.*, pp. 18-32, *Contemporary Appl. Math.*, vol. 6, Higher Education Press, Beijing, 2005.
- [43] W. E, P.B. Ming and P.-W. Zhang, “Analysis of the heterogeneous multiscale method for elliptic homogenization problems,” *J. Amer. Math. Soc.*, vol. 18, no. 1, pp. 121-156, 2005.
- [44] W. E, W. Ren and E. Vanden-Eijnden, “Finite temperature string method for the study of rare events,” *J. Phys. Chem. B*, vol. 109, no. 14, pp. 6688-6693, 2005.
- [45] W. E, W. Ren and E. Vanden-Eijnden, “Transition pathways in complex systems: Reaction coordinates, iso-committor surfaces and transition tubes,” *Chem. Phys. Lett.*, vol. 143, no. 1-3, pp. 242-247, 2005.
- [46] W. Ren, E. Vanden-Eijnden, P. Maragakis and W. E, “Transition pathways in complex systems: Application of the finite temperature string method to the alanine dipeptide,” *J. Chem. Phys.*, vol. 123, no. 13, 134109, 2005.
- [47] T.-J. Li, E. Vanden-Eijnden, P.W. Zhang and W. E, “Stochastic models of polymeric fluids at small Deborah number,” *J. Non-Newtonian Fluid Mechanics*, vol. 121, no. 2-3, pp. 117-125, 2004.
- [48] C.B. Muratov, E. Vanden-Eijnden and W. E, “Self-induced stochastic resonance in excitable systems,” *Phys. D*, vol. 210, no. 3-4, pp. 227-240, 2005.
- [49] W. Ren and W. E, “Heterogeneous multiscale method for the modeling of complex fluids and microfluidics,” *J. Comput. Phys.*, vol. 204, no. 1, pp. 1-26, 2005.
- [50] S. Succi, W. E and E. Kaxiras, “Lattice Boltzmann Methods for Multiscale Fluid Problems,” *Handbook of Materials Modeling*, Part B, pp. 2475-2486, Springer Netherlands, 2005.
- [51] X. Yue and W. E, “Numerical methods for multiscale transport equations and application to two-phase porous media flow,” *J. Comput. Phys.*, vol. 210, no. 2, pp. 656-675, 2005.
- [52] W. E and B. Engquist. The heterogeneous multiscale method. Second Intl. Congress of Chinese Mathematicians, *Proc. of ICCM2001*, Taipei, pp. 57-74, *New Studies in Advanced Mathematics*, vol. 4, Intl. Press, 2004.
- [53] W. E and X.-T. Li, “Analysis of the Heterogeneous Multiscale Method for Gas Dynamics,” *Methods Appl. Anal.*, vol. 11, no. 4, pp. 557-572, 2004.
- [54] W. E, X. Li, E. Vanden-Eijnden “Some Recent Progress in Multiscale Modeling,” *Multiscale Modelling and Simulation*, pp. 3-22, *Lect Notes Comput. Sci. Eng.*, vol. 39, Springer, Berlin, 2004.
- [55] W. E, T.-J. Li and P.-W. Zhang, “Well-posedness for the dumbbell model of polymeric fluids,” *Comm. Math. Phys.*, vol. 248, no. 2, pp. 409-427, 2004.

- [56] W. E and P.B. Ming, “Analysis of multiscale methods,” *J. Comput. Math.*, vol. 22, no. 2, pp. 210–219, 2004.
- [57] W. E, W. Ren, E. Vanden-Eijnden, “Minimum action method for the study of rare events,” *Comm. Pure Appl. Math.*, vol. 57, no. 5, pp. 637-656, 2004.
- [58] W. E and E. Vanden-Eijnden, “Metastability, conformation dynamics, and transition pathways in complex systems,” Multiscale modelling and simulation, pp. 35-68, *Lect. Notes Comput. Sci. Eng.*, vol. 39, Springer, Berlin, 2004.
- [59] W. E and X. Yue, “Heterogeneous multiscale method for locally self-similar problems,” *Comm. Math. Sci.*, vol. 2, no. 1, pp. 137-144, 2004.
- [60] X. Nie, S. Chen, W. E and M.O. Robbins, “A Continuum and Molecular Dynamics Hybrid Method for Micro- and Nano-Fluid Flow,” *J. Fluid Mech.*, vol. 500, pp. 55-64, 2004.
- [61] X. Nie, S. Chen, W. E and M. Robbins, “Hybrid continuum-atomistic simulation of singular corner flow,” *Phys. Fluids*, vol. 16, no. 10, pp. 3579-3591, 2004.
- [62] Y. Xiang and W. E, “Misfit elastic energy and a continuum model for epitaxial growth with elasticity on vicinal surfaces,” *Phys. Rev. B*, vol. 69, no. 3, 035409, 2004.
- [63] Y. Xiang, D.J. Srolovitz, L.-T. Cheng and W. E, “Level set simulations of dislocation-particle bypass mechanisms,” *Acta Materialia*, vol. 52, no. 7, pp. 1745-1760, 2004.
- [64] A. Abdulle and W. E, “Finite difference heterogeneous multi-scale method for homogenization problems,” *J. Comput. Phys.*, vol. 191, no. 1 pp. 18-39, 2003.
- [65] L.-T. Cheng and W. E, “The heterogeneous multi-scale method for interface dynamics,” Recent advances in scientific computing and partial differential equations (Hong Kong, 2002), pp. 43-53, *Contemp. Math.*, vol. 330, Amer. Math. Soc., Providence, RI, 2003.
- [66] W. E, “Analysis of the heterogeneous multiscale method for ordinary differential equations ” *Comm. Math. Sci.*, vol. 1, no. 3, pp. 423-436, 2003.
- [67] W. E and B. Engquist, “The heterogeneous multiscale methods,” *Comm. Math. Sci.*, vol. 1, no. 1, pp. 87-132, 2003.
- [68] W. E and B. Engquist, “Multiscale Modeling and Computation,” *Notices Amer. Math. Soc.*, vol. 50, no. 9, pp. 1062-1070, 2003.
- [69] W. E, B. Engquist and Z. Huang, “Heterogeneous multiscale method: A general methodology for multiscale modeling,” *Phys. Rev. B*, vol. 67, no. 9, 092101, 2003.
- [70] W. E and J.-G. Liu, “Gauge method for viscous incompressible flows,” *Comm. Math. Sci.*, vol. 1, no. 2, pp. 317-332, 2003.
- [71] W. E, W. Ren and E. Vanden-Eijnden, “Energy landscape and thermally activated switching of submicron-sized ferromagnetic elements,” *J. Appl. Phys.*, vol. 93, no. 4, pp. 2275-2282, 2003.
- [72] W. E and E. Vanden-Eijnden, “A note on generalized flows,” *Phys. D*, vol. 183, no. 3-4, pp. 159-174, 2003.
- [73] C.J. Garcia-Cervera and W. E, “Improved Gauss-Seidel projection method for micromagnetics simulations,” *IEEE Trans. Magnetics*, vol. 39, no. 3, pp. 1766-1770, 2003.
- [74] C.J. Garcia-Cervera, Z. Gimbutas and W. E, “Accurate numerical methods for micromagnetics simulations with general geometries,” *J. Comput. Phys.*, vol. 184, no. 1, pp. 37-52, 2003.

- [75] T. Schulze, P. Smereka and W. E, "Coupling kinetic Monte-Carlo and continuum models with application to epitaxial growth," *J. Comput. Phys.*, vol. 189, no. 1, pp. 197-211, 2003.
- [76] Y. Xiang, L.-T. Cheng, D.J. Srolovitz and W. E, "A level set method for dislocation dynamics," *Acta Materialia*, vol. 51, no. 18, pp. 5499-5518, 2003.
- [77] W. E and Z. Huang, "A dynamic atomistic-continuum method for the simulation of crystalline materials," *J. Comput. Phys.*, vol. 182, no. 1, pp. 234-261, 2002.
- [78] W. E and D. Liu, "Gibbsian dynamics and invariant measures for stochastic dissipative PDEs," *J. Stat. Phys.*, vol. 108, no. 5-6, pp. 1125-1156, 2002.
- [79] W. E and J.-G. Liu, "Projection method III: spatial discretization on the staggered grid," *Math. Comp.*, vol. 71, no. 237, pp. 27-47, 2002.
- [80] W. E, T.-J. Li, P.-W. Zhang, "Convergence of a stochastic method for the modeling of polymeric fluids," *Acta Math. Appl. Sin. Engl. Ser.*, vol. 18, no. 4, pp. 529-536, 2002.
- [81] W. E, W. Ren and E. Vanden-Eijnden, "String method for the study of rare events," *Phys. Rev. B*, vol. 66, no. 5, 052301, 2002.
- [82] W. E, W. Ren and E. Vanden-Eijnden, "Energy Landscapes and Rare Events," *ICM Report*, vol. 1, pp. 621-630, Higher Ed. Press, Beijing, 2002.
- [83] C.B. Muratov and W. E, "Theory of phase separation kinetics in polymer-liquid crystal systems," *J. Chem. Phys.*, vol. 116, no. 11, pp. 4723-4734, 2002.
- [84] P. Palfy-Muhoray, T. Kosa and W. E, "Brownian motors in the photoalignment of liquid crystals," *Appl. Phys. A*, vol. 75, no. 2, pp. 293-300, 2002.
- [85] P. Palfy-Muhoray, T. Kosa, W. E, "Brownian ratchets and the photoalignment of liquid crystals," *Braz. J. Phys.*, vol.32 no.2b, pp. 552-563, So Paulo, 2002.
- [86] P. Palfy-Muhoray, T. Kosa and W. E, "Dynamics of a Light Driven Molecular Motor," *Mol. Cryst. Liq. Cryst.*, vol. 375, no. 1, pp. 577-592, 2002.
- [87] Q. Wang, W. E, C. Liu, P.-W. Zhang, "Kinetic theory for flows of nonhomogeneous rodlike liquid crystalline polymers with a nonlocal intermolecular potential," *Phys. Rev. E*, vol. 65, no. 5, 051504, 2002.
- [88] Y. Xiang and W. E, "Nonlinear evolution equation for the stress-driven morphological instability," *J. Appl. Phys.*, vol. 91, no. 11, pp. 9414-9422, 2002.
- [89] W. E, "Stochastic hydrodynamics," *Current Developments in Mathematics*, pp. 109-147, Intl. Press, Somerville, MA, 2001.
- [90] W. E, "Stochastic PDES in turbulence theory," Proc. 1st Intl. Congress Chinese Math. (Beijing, 1998), pp. 27-46, *AMS/IP Stud. Adv. Math.*, vol. 20, Amer. Math. Soc., Providence, RI, 2001.
- [91] W. E "Selected Problems in Materials Science," *Mathematics Unlimited - 2001 and Beyond*, Engquist, Bjrn; Schmid, Wilfried (Eds.), pp. 407-432, Springer, Berlin, 2001.
- [92] W. E, "Numerical methods for viscous incompressible flows: some recent advances," *Advances in scientific computing*, p. 29, Science Press, 2001.
- [93] W. E and Z. Huang, "Matching conditions in atomistic-continuum modeling of materials," *Phys. Rev. Lett.*, vol. 87, no. 13, 135501, 2001.

- [94] W. E and J.C. Mattingly, "Ergodicity for the Navier-Stokes equation with degenerate random forcing: Finite-dimensional approximation," *Comm. Pure Appl. Math.*, vol. 54, no. 11, pp. 1386-1402, 2001.
- [95] W. E, J.C. Mattingly and Ya. Sinai, "Gibbsian dynamics and ergodicity for the stochastically forced Navier-Stokes equation," *Comm. Math. Phys.*, vol. 224, no. 1, pp. 83-106, 2001.
- [96] W. E and E. Vanden-Eijnden, "Turbulent Prandtl number effect on passive scalar advection," *Phys. D*, vol. 152-153, pp. 636-645, 2001.
- [97] W. E and N.K. Yip, "Continuum theory of epitaxial crystal growth. I," *J. Stat. Phys.*, vol. 104, no. 1-2, pp. 221-253, 2001.
- [98] C.J. Garcia-Cervera and W. E, "Effective dynamics for ferromagnetic thin films," *J. Appl. Phys.*, vol. 90, no. 1, pp. 370-374, 2001.
- [99] J.-G. Liu and W. E, "Simple finite element method in vorticity formulation for incompressible flows," *Math. Comp.*, vol. 70, no. 234, pp. 579-593, 2001.
- [100] M.I. Mendeleev, D.J. Srolovitz and W. E, "Grain-boundary migration in the presence of diffusing impurities: simulations and analytical models," *Philos. Mag. A*, vol. 81, no. 9, pp. 2243-2269, 2001.
- [101] T. Schulze and W. E, "A continuum model for the growth of epitaxial films," *J. Crystal Growth*, vol. 222, no. 1-2, pp. 414-425, 2001.
- [102] X.-P. Wang, C.J. Garcia-Cervera and W. E, "A Gauss-Seidel projection method for micromagnetics simulations," *J. Comput. Phys.*, vol. 171, no. 1, pp. 357-372, 2001.
- [103] W. E, "Boundary layer theory and the zero-viscosity limit of the Navier-Stokes equation," *Acta Math. Sin.*, vol. 16, no. 2, pp. 207-218, 2000.
- [104] W. E, K. Khanin, A. Mazel and Ya. Sinai, "Invariant measures for Burgers equation with stochastic forcing," *Ann. of Math.*, vol. 151, no. 3, pp. 877-960, 2000.
- [105] W. E and J.-G. Liu, "Gauge finite element method for incompressible flows," *Intl. J. Numer. Methods in Fluids*, vol. 34, no. 8, pp. 701-710, 2000.
- [106] W. E and Ya. Sinai, "Recent results on mathematical and statistical hydrodynamics," *Russ. Math. Survey*, vol. 55, no. 4, pp. 635-666, 2000.
- [107] W. E and E. Vanden-Eijnden, "Statistical theory for the stochastic Burgers equation in the inviscid limit," *Comm. Pure Appl. Math.*, vol. 53, no. 7, pp. 852-901, 2000.
- [108] W. E and E. Vanden-Eijnden, "Another note on forced Burgers turbulence," *Phys. Fluids*, vol. 12, no. 1, pp. 149-154, 2000.
- [109] W. E and E. Vanden-Eijnden, "Generalized flows, intrinsic stochasticity and turbulent transport," *Proc. Natl. Acad. Sci.*, vol. 97, no. 15, pp. 8200-8205, 2000.
- [110] W. E and X.-P. Wang, "Numerical methods for the Landau-Lifshitz equation," *SIAM J. Numer. Anal.*, vol. 38, no. 5, pp. 1647-1665, 2000.
- [111] W. E and N.K. Yip, "Continuum limits of step flow models," *Intl. Conf. Differential Equations*, vol. 1, 2 (Berlin, 1999), pp. 448-453, World Sci. Publishing, River Edge, NJ, 2000.
- [112] T. Kosa, W. E and P. Palffy-Muhoray "Brownian motors in the photoalignment of liquid crystals," *Intl J. Eng. Sci.*, vol. 38, no. 9-10, pp. 1077-1084, 2000.

- [113] H. Yuan, W. E and P. Palffy-Muhoray, “Analytical solution of Maxwell’s equations in lossy and optically active crystals,” *Phys. Rev. E*, vol. 61, no. 3, pp. 3264-3266, 2000.
- [114] R. Caflisch, W. E, M. Gyure, B. Merriman and C. Ratsch, “Kinetic model for a step edge in epitaxial growth,” *Phys. Rev. E*, vol. 59, no. 6, pp. 6879-6887, 1999.
- [115] W. E, “Aubry-Mather theory and periodic solutions of the forced Burgers equation,” *Comm. Pure Appl. Math.*, vol. 52, no. 7, pp. 811-828, 1999.
- [116] W. E and P. Palffy-Muhoray, “Dynamics of filaments during the isotropic-smectic A phase transition,” *J. Nonlin. Sci.*, vol. 9, pp. 417-437, 1999.
- [117] W. E and E. Vanden-Eijnden, “On the statistical solution of the Riemann equation and its implications for Burgers turbulence,” *Phys. Fluids*, vol. 11, no. 8, pp. 2149-2153, 1999.
- [118] W. E and E. Vanden-Eijnden, “Asymptotic theory for the probability density functions in Burgers turbulence,” *Phys. Rev. Lett.*, vol. 83, no. 13, pp. 2572-2575, 1999.
- [119] W. E and P. Palffy-Muhoray, “Orientational ratchets and angular momentum balance in the Janossy effect,” *Mol. Cryst. Liq. Cryst.*, vol. 320, no. 1, pp. 193-206, 1998.
- [120] W. E and P. Palffy-Muhoray, “Domain size in the presence of random fields,” *Phys. Rev. E*, vol. 57, no. 1, pp. 135-137, 1998.
- [121] W. E, “Nonlinear continuum theory of smectic-A liquid crystals,” *Arch. Rat. Mech. Anal.*, vol. 137, no. 2, pp. 159-175, 1997.
- [122] W. E and B. Engquist, “Blowup of solutions of the unsteady Prandtl’s equation,” *Comm. Pure Appl. Math.*, vol. 50, no. 12, pp. 1287-1293, 1997.
- [123] W. E, K. Khanin, A. Mazel and Ya. Sinai, “Probability distribution functions for the random forced Burgers equation,” *Phys. Rev. Lett.*, vol. 78, no. 10, pp. 1904-1907, 1997.
- [124] W. E and J.-G. Liu, “Finite difference schemes for incompressible flows in the velocity-impulse density formulation,” *J. Comput. Phys.*, vol. 130, no. 1, pp. 67-76, 1997.
- [125] W. E and J.-G. Liu, “Finite difference methods for 3D viscous incompressible flows in the vorticity-vector potential formulation on nonstaggered grids,” *J. Comput. Phys.*, vol. 138, no. 1, pp. 57-82, 1997.
- [126] W. E and P. Palffy-Muhoray, “Phase separation in incompressible systems,” *Phys. Rev. E*, vol. 55, no. 4, pp. R3844-R3846, 1997.
- [127] F. Otto and W. E, “Thermodynamically driven incompressible fluid mixtures,” *J. Chem. Phys.*, vol. 107, no. 23, pp. 10177, 1997.
- [128] W. E, “Dynamics of vortices in superconductors,” *World Congress of Nonlinear Analysts '92*, vol. 1-4 (Tampa, FL, 1992), pp. 3811-3821, de Gruyter, Berlin, 1996.
- [129] W. E and J.-G. Liu, “Vorticity boundary condition and related issues for finite difference schemes,” *J. Comput. Phys.*, vol. 124, no. 2, pp. 368-382, 1996.
- [130] W. E and J.-G. Liu, “Essentially Compact Schemes for Unsteady Viscous Incompressible Flows,” *J. Comput. Phys.*, vol. 126, no. 1, pp. 122-138, 1996.
- [131] W. E and J.-G. Liu, “Projection Method II: Godunov-Ryabenki Analysis,” *SIAM J. Numer. Anal.*, vol. 33, no. 4, pp. 1597-1621, 1996.

- [132] W. E and J.-G. Liu, "Finite difference schemes for incompressible flows in vorticity formulations," Vortex flows and related numerical methods, II (Montreal, PQ, 1995), pp. 181-195, *ESAIM Proc.*, vol. 1, Soc. Math. Appl. Indust., Paris, 1996.
- [133] W. E, Yu. Rykov and Ya. Sinai, "Generalized variational principles, global weak solutions and behavior with random initial data for systems of conservation laws arising in adhesion particle dynamics," *Comm. Math. Phys.*, vol. 177, no. 2, pp. 349-380, 1996.
- [134] M. Avellaneda and W. E, "Statistical properties of shocks in Burgers turbulence," *Comm. Math. Phys.*, vol. 172, no. 1, pp. 13-38, 1995.
- [135] M. Avellaneda, R. Ryan and W. E, "PDFs for velocity and velocity gradients in Burgers' turbulence," *Phys. Fluids*, vol. 7, no. 12, pp. 3067-3071, 1995.
- [136] W. E and J.-G. Liu, "Projection Method I: Convergence and Numerical Boundary Layers," *SIAM J. Numer. Anal.*, vol. 32, no. 4, pp. 1017-1057, August, 1995.
- [137] Z.-T. Chen and W. E, "Convergence of Legendre Methods for Navier-Stokes Equations," *J. Comput. Math.*, vol. 12, no. 4, pp. 298-311, 1994.
- [138] P. Constantin, W. E and E.S. Titi, "Onsager's conjecture on the energy conservation for solutions of Euler's equation," *Comm. Math. Phys.*, vol. 165, no. 1, pp. 207-209, 1994.
- [139] W. E, "Dynamics of vortices in Ginzburg-Landau theories with applications to superconductivity," *Phys. D*, vol. 77, no. 4, pp. 383-404, 1994.
- [140] W. E, "Dynamics of vortex liquids in Ginzburg-Landau theories with applications to superconductivity," *Phys. Rev. B*, vol. 50, no. 2, pp. 1126-1135, 1994.
- [141] W. E and C.-W. Shu, "A Numerical Resolution Study of High Order Essentially Non-oscillatory Schemes Applied to Incompressible Flow," *J. Comput. Phys.*, vol. 110, no. 1, pp. 39-46, 1994.
- [142] W. E and C.-W. Shu, "Small-scale structures in Boussinesq convection," *Phys. Fluids*, vol. 6, no. 1, pp. 49-58, 1994.
- [143] W. E, "Convergence of Fourier Methods for the Navier-Stokes Equations," *SIAM J. Numer. Anal.*, vol. 30, no. 3, pp. 650-674, 1993.
- [144] B. Engquist and W. E, "Large time behavior and homogenization of solutions of two-dimensional conservation laws," *Comm. Pure Appl. Math.*, vol. 46, no. 1, pp. 1-26, 1993.
- [145] W. E and C.-W. Shu, "Effective equations and the inverse cascade theory for Kolmogorov flows," *Phys. Fluids A*, vol. 5, no. 4, pp. 998-1010, 1993.
- [146] Z. Cai and W. E, "Hierarchical method for elliptic problems using wavelet," *Comm. Appl. Numer. Methods*, vol. 8, no 11, pp. 819-825, 1992.
- [147] W. E, "Propagation of oscillations in the solutions of 1-D compressible fluid equations," *Comm. Partial Differential Equations*, vol. 17, no. 3-4, pp. 347-370, 1992.
- [148] W. E, "Homogenization of linear and nonlinear transport equations," *Comm. Pure Appl. Math.*, vol. 45, no. 3, pp. 301-326, 1992.
- [149] W. E, "Homogenization of scalar conservation laws with oscillatory forcing terms," *SIAM J. Appl. Math.*, vol. 52, no. 4, pp. 959-972, 1992.
- [150] W. E, "Convergence of Spectral Methods for Burgers' Equation," *SIAM J. Numer. Anal.*, vol. 29, no. 6, pp. 1520-1541, 1992.

- [151] W. E and D. Serre, "Correctors for the homogenization of conservation laws with oscillatory forcing terms," *Asymptotic Anal.*, vol. 5, no. 4, pp. 311-316, 1992.
- [152] T.F. Chan, W. E and J. Sun, "Domain decomposition interface preconditioners for fourth-order elliptic problems," *Appl. Numer. Math.*, vol. 8, no 4-5, pp. 317-331, 1991.
- [153] W. E, "A class of homogenization problems in the calculus of variations," *Comm. Pure Appl. Math.*, vol. 44, no. 7, pp. 733-759, 1991.
- [154] W. E and R.V. Kohn, "The initial value problem for measure-valued solutions of a canonical  $2 \times 2$  system with linearly degenerate fields," *Comm. Pure Appl. Math.*, vol. 44, no. 8-9, pp. 981-1000, 1991.
- [155] W. E and H. Yang, "Numerical study of oscillatory solutions of the gas-dynamic equations," *Stud. Appl. Math.*, vol. 85, no. 1, pp. 29-52, 1991.
- [156] W. E and T.Y. Hou, "Homogenization and convergence of the vortex method for 2-D Euler equations with oscillatory vorticity fields," *Comm. Pure Appl. Math.*, vol. 43, no. 7, pp. 821-855, 1990.
- [157] W. E, M. Mu and H.C. Huang, "A posteriori error estimates in finite element methods," *Chinese Quart. J. Math.*, (Chinese) vol. 3, no. 1, pp. 97-107, 1988.
- [158] W. E, H.C. Huang and W. Han, "Error analysis of local refinements of polygonal domains," *J. Comput. Math.*, vol. 5, no. 1, pp. 89-94, 1987.
- [159] H.C. Huang and W. E, "A posteriori error estimates for finite element methods for one-dimensional boundary value problems," *Chinese Quart. J. Math.*, (Chinese) vol. 2, no. 1, pp. 43-47, 1987.
- [160] H.C. Huang, W. E and M. Mu, "Extrapolation combined with multigrid method for solving finite element equations," *J. Comput. Math.*, vol. 4, no. 4, pp. 362-367, 1986.
- [161] W. E. The optimal parameters of the AOR method and their effect. *Math. Numer. Sin.*, (Chinese) vol. 6, no. 3, 329-333, 1984.