

Publications of Felix Otto

Journal Articles

- [1] Arianna Giunti and Felix Otto. On the existence of the Green function for elliptic systems in divergence form. *Manuscripta Mathematica*, 2021.
- [2] Michael Goldman, Martin Huesmann, and Felix Otto. Quantitative linearization results for the Monge-Ampère equation. *Communications on Pure and Applied Mathematics*, 2021.
- [3] Jianfeng Lu and Felix Otto. Optimal artificial boundary condition for random elliptic media. *Foundations of Computational Mathematics*, 2021.
- [4] Tatsuya Miura and Felix Otto. Sharp boundary ε -regularity of optimal transport maps. *Advances in Mathematics*, 381:107603, 2021.
- [5] Felix Otto, Maxime Prod'homme, and Tobias Ried. Variational approach to regularity of optimal transport maps : general cost functions. *Annals of PDE*, 7(2):17, 2021.
- [6] Peter Bella, Arianna Giunti, and Felix Otto. Effective multipoles in random media. *Communications in Partial Differential Equations*, 45(6):561–640, 2020.
- [7] Mitia Duerinckx, Antoine Gloria, and Felix Otto. Robustness of the pathwise structure of fluctuations in stochastic homogenization. *Probability Theory and Related Fields*, 178(1/2):531–566, 2020.
- [8] Mitia Duerinckx, Antoine Gloria, and Felix Otto. The structure of fluctuations in stochastic homogenization. *Communications in Mathematical Physics*, 377(1):259–306, 2020.
- [9] Mitia Duerinckx and Felix Otto. Higher-order pathwise theory of fluctuations in stochastic homogenization. *Stochastics and Partial Differential Equations : Analysis and Computations*, 8(3):625–692, 2020.
- [10] Antoine Gloria, Stefan Neukamm, and Felix Otto. A regularity theory for random elliptic operators. *Milan Journal of Mathematics*, 88(1):99–170, 2020.
- [11] Michael Goldman and Felix Otto. A variational proof of partial regularity for optimal transportation maps. *Annales Scientifiques de L'Ecole Normale Supérieure*, 53(5):1209–1233, 2020.
- [12] Venera Khoromskaia, Boris N. Khoromskij, and Felix Otto. Numerical study in stochastic homogenization for elliptic partial differential equations : convergence rate in the size of representative volume elements. *Numerical Linear Algebra with Applications*, 27(3):e2296, 2020.

- [13] Tim Bastian Laux and Felix Otto. Brakke’s inequality for the thresholding scheme. *Calculus of Variations and Partial Differential Equations*, 59(1):39, 2020.
- [14] Felix Otto and Vladimír verák. Editorial. *Archive for Rational Mechanics and Analysis*, 235(1):1–2, 2020.
- [15] Olga Chugreeva, Felix Otto, and Maria G. Westdickenberg. Relaxation to a planar interface in the Mullins-Sekerka problem. *Interfaces and Free Boundaries*, 21(1):21–40, 2019.
- [16] Radu Ignat and Felix Otto. The magnetization ripple: a nonlocal stochastic PDE perspective. *Journal de Mathématiques Pures Et Appliquées*, 130:157–199, 2019.
- [17] Hans Knüpfer and Felix Otto. Nucleation barriers for the cubic-to-tetragonal phase transformation in the absence of self-accommodation. *Zeitschrift für Angewandte Mathematik und Mechanik*, 99(2):e201800179, 2019.
- [18] Felix Otto, Sebastian Scholtes, and Maria G. Westdickenberg. Optimal L^1 -type relaxation rates for the Cahn-Hilliard equation on the line. *SIAM Journal on Mathematical Analysis*, 51(6):4645–4682, 2019.
- [19] Felix Otto and Hendrik Weber. Quasilinear SPDEs via rough paths. *Archive for Rational Mechanics and Analysis*, 232(2):873–950, 2019.
- [20] Felix Otto and Hendrik Weber. Quasi-linear SPDEs in divergence form. *Stochastics and Partial Differential Equations: Analysis and Computations*, 7(1):64–85, 2019.
- [21] Peter Bella, Benjamin J. Fehrman, and Felix Otto. A Liouville theorem for elliptic systems with degenerate ergodic coefficients. *The Annals of Applied Probability*, 28(3):1379–1422, 2018.
- [22] Sergio Conti, Michael Goldman, Felix Otto, and Sylvia Serfaty. A branched transport limit of the Ginzburg-Landau functional. *Journal de L’Ecole Polytechnique : Mathématiques*, 5:317–375, 2018.
- [23] Xavier Lamy and Felix Otto. On the regularity of weak solutions to Burgers’ equation with finite entropy production. *Calculus of Variations and Partial Differential Equations*, 57(4):94, 2018.
- [24] Peter Bella, Benjamin J. Fehrman, Julian Fischer, and Felix Otto. Stochastic homogenization of linear elliptic equations: higher-order error estimates in weak norms via second-order correctors. *SIAM Journal on Mathematical Analysis*, 49(6):4658–4703, 2017.
- [25] Joseph G. Conlon, Arianna Giunti, and Felix Otto. Green’s function for elliptic systems: existence and Delmotte-Deuschel bounds. *Calculus of Variations and Partial Differential Equations*, 56(6):163, 2017.

- [26] Julian Fischer and Felix Otto. Sublinear growth of the corrector in stochastic homogenization: optimal stochastic estimates for slowly decaying correlations. *Stochastics and Partial Differential Equations: Analysis and Computations*, 5(2):220–255, 2017.
- [27] Antoine Gloria and Felix Otto. Quantitative results on the corrector equation in stochastic homogenization. *Journal of the European Mathematical Society*, 19(11):3489–3548, 2017.
- [28] Tim Bastian Laux and Felix Otto. Kornwachstum in Polykristallen: Algorithmen für den mittleren Krümmungsfluss. *Jahrbuch der Max-Planck-Gesellschaft*, 2017:Forschungsbericht – Max-Planck-Institut für Mathematik in den Naturwissenschaften, 2017.
- [29] Camilla Nobili and Felix Otto. Limitations of the background field method applied to Rayleigh-Bénard convection. *Journal of Mathematical Physics*, 58(9):093102, 2017.
- [30] Peter Bella and Felix Otto. Corrector estimates for elliptic systems with random periodic coefficients. *Multiscale Modeling and Simulation*, 14(4):1434–1462, 2016.
- [31] Björn Bringmann, Lorenzo Giacomelli, Hans Knüpfer, and Felix Otto. Corrigendum to ‘Smooth zero-contact-angle solutions to a thin-film equation around the steady state’ (J. Differential equations 245 (2008) 1454–1506). *Journal of Differential Equations*, 261(2):1622–1635, 2016.
- [32] Antoine Choffrut, Camilla Nobili, and Felix Otto. A maximal regularity estimate for the non-stationary Stokes equation in the strip. *Journal of Differential Equations*, 260(7):5589–5626, 2016.
- [33] Antoine Choffrut, Camilla Nobili, and Felix Otto. Upper bounds on Nusselt number at finite Prandtl number. *Journal of Differential Equations*, 260(4):3860–3880, 2016.
- [34] Eleonora Cinti and Felix Otto. Interpolation inequalities in pattern formation. *Journal of Functional Analysis*, 271(11):3348–3392, 2016.
- [35] Sergio Conti, Felix Otto, and Sylvia Serfaty. Branched microstructures in the Ginzburg-Landau model of type-I superconductors. *SIAM Journal on Mathematical Analysis*, 48(4):2994–3034, 2016.
- [36] Lukas Döring, Claudia Hengst, Felix Otto, and Rudolf Schäfer. Interacting tails of asymmetric domain walls: theory and experiments. *Physical Review / B*, 93(2):024414, 2016.
- [37] Julian Fischer and Felix Otto. A higher-order large-scale regularity theory for random elliptic operators. *Communications in Partial Differential Equations*, 41(7):1108–1148, 2016.

- [38] Lorenzo Giacomelli, Manuel V. Gnann, and Felix Otto. Rigorous asymptotics of traveling-wave solutions to the thin-film equation and Tanner’s law. *Nonlinearity*, 29(9):2497–2536, 2016.
- [39] Tim Bastian Laux and Felix Otto. Convergence of the thresholding scheme for multi-phase mean-curvature flow. *Calculus of Variations and Partial Differential Equations*, 55(5):129, 2016.
- [40] Jean-Christophe Mourrat and Felix Otto. Correlation structure of the corrector in stochastic homogenization. *The Annals of Probability*, 44(5):3207–3233, 2016.
- [41] Jean-Christophe Mourrat and Felix Otto. Anchored Nash inequalities and heat kernel bounds for static and dynamic degenerate environments. *Journal of Functional Analysis*, 270(1):201–228, 2016.
- [42] Selim Esedoglu and Felix Otto. Threshold dynamics for networks with arbitrary surface tensions. *Communications on Pure and Applied Mathematics*, 68(5):808–864, 2015.
- [43] Elias Esselborn, Nicola Gigli, and Felix Otto. Algebraic contraction rate for distance between entropy solutions of scalar conservation laws. *Journal of Mathematical Analysis and Applications*, 435(2):1525–1551, 2015.
- [44] Antoine Gloria, Stefan Neukamm, and Felix Otto. Quantification of ergodicity in stochastic homogenization: optimal bounds via spectral gap on Glauber dynamics. *Inventiones Mathematicae*, 199(2):455–515, 2015.
- [45] Antoine Gloria and Felix Otto. Quantitative estimates on the periodic approximation of the corrector in stochastic homogenization. *ESAIM / Proceedings*, 48:80–97, 2015.
- [46] Michael Goldman, Marc Josien, and Felix Otto. New bounds for the inhomogenous Burgers and the Kuramoto-Sivashinsky equations. *Communications in Partial Differential Equations*, 40(12):2237–2265, 2015.
- [47] Agnes Lamacz, Stefan Neukamm, and Felix Otto. Moment bounds for the corrector in stochastic homogenization of a percolation model. *Electronic Journal of Probability*, 20:106, 2015.
- [48] Daniel Marahrens and Felix Otto. On annealed elliptic Green’s function estimates. *Mathematica Bohemica*, 140(4):489–506, 2015.
- [49] Lukas Döring, Radu Ignat, and Felix Otto. A reduced model for domain walls in soft ferromagnetic films at the cross-over from symmetric to asymmetric wall types. *Journal of the European Mathematical Society*, 16(7):1377–1422, 2014.
- [50] Lorenzo Giacomelli, Manuel V. Gnann, Hans Knüpfer, and Felix Otto. Well-posedness for the Navier-Slip thin-film equation in the case of complete wetting. *Journal of Differential Equations*, 257(1):15–81, 2014.

- [51] Antoine Gloria, Stefan Neukamm, and Felix Otto. An optimal quantitative two-scale expansion in stochastic homogenization of discrete elliptic equations. *ESAIM / Mathematical Modelling and Numerical Analysis*, 48(2):325–346, 2014.
- [52] Jianfeng Lu and Felix Otto. Nonexistence of a minimizer for Thomas-Fermi-Dirac-von Weizsäcker model. *Communications on Pure and Applied Mathematics*, 67(10):1605–1617, 2014.
- [53] Daniel Marahrens and Felix Otto. Effektive Beschreibung von heterogenen Medien. *Jahrbuch der Max-Planck-Gesellschaft*, 2014:Forschungsbericht – Max-Planck-Institut für Mathematik in den Naturwissenschaften, 2014.
- [54] Daniel Marahrens and Felix Otto. Annealed estimates on the Green function. *Probability Theory and Related Fields*, 163(3-4):527–573, 2014.
- [55] Felix Otto, Hendrik Weber, and Maria G. Westdickenberg. Invariant measure of the stochastic Allen-Cahn equation : the regime of small noise and large system size. *Electronic Journal of Probability*, 19:23, 2014.
- [56] Felix Otto and Maria G. Westdickenberg. Relaxation to equilibrium in the one-dimensional Cahn-Hilliard equation. *SIAM Journal on Mathematical Analysis*, 46(1):720–756, 2014.
- [57] Lorenzo Giacomelli, Manuel V. Gnann, and Felix Otto. Regularity of source-type solutions to the thin-film equation with zero contact angle and mobility exponent between $3/2$ and 3 . *European Journal of Applied Mathematics*, 24(5):735–760, 2013.
- [58] Nicola Gigli and Felix Otto. Entropic Burgers’ equation via a minimizing movement scheme based on the Wasserstein metric. *Calculus of Variations and Partial Differential Equations*, 47(1-2):181–206, 2013.
- [59] Hans Knüpfer, Robert V. Kohn, and Felix Otto. Nucleation barriers for the cubic-to-tetragonal phase transformation. *Communications on Pure and Applied Mathematics*, 66(6):867–904, 2013.
- [60] Georg Menz and Felix Otto. Uniform logarithmic Sobolev inequalities for conservative spin systems with super-quadratic single-site potential. *The Annals of Probability*, 41(3B):2182–2224, 2013.
- [61] Felix Otto, Christian Seis, and Dejan Slepčev. Crossover of the coarsening rates in demixing of binary viscous liquids. *Communications in Mathematical Sciences*, 11(2):441–464, 2013.
- [62] Antonio Capella, Stefan Müller, and Felix Otto. A constrained model for MSMA. *Advanced Engineering Materials*, 14(8):594–600, 2012.

- [63] Antonio Capella and Felix Otto. A quantitative rigidity result for the cubic-to-tetragonal phase transition in the geometrically linear theory with interfacial energy. *Proceedings of the Royal Society of Edinburgh / A*, 142(2):273–327, 2012.
- [64] Antoine Gloria and Felix Otto. An optimal error estimate in stochastic homogenization of discrete elliptic equations. *The Annals of Applied Probability*, 22(1):1–28, 2012.
- [65] Jutta Steiner, Rudolf Schäfer, Holm Wiecek, Jeffrey McCord, and Felix Otto. Formation and coarsening of the concertina magnetization pattern in elongated thin-film elements. *Physical Review / B*, 85(10):104407, 2012.
- [66] Yann Brenier, Felix Otto, and Christian Seis. Upper bounds on coarsening rates in demixing binary viscous liquids. *SIAM Journal on Mathematical Analysis*, 43(1):114–134, 2011.
- [67] D. Chakraborty, Manuel V. Gnann, D. Rings, J. Glaser, Felix Otto, Frank Cichos, and Klaus Kroy. Generalised Einstein relation for hot Brownian motion. *Epl*, 96(6):60009, 2011.
- [68] Lukas Döring, Felix Otto, and Jutta Steiner. Domänen- und Wandmuster in ferromagnetischen Filmen. *Jahrbuch der Max-Planck-Gesellschaft*, 2011:Forschungsbericht – Max-Planck-Institut für Mathematik in den Naturwissenschaften, 2011.
- [69] Antoine Gloria and Felix Otto. An optimal variance estimate in stochastic homogenization of discrete elliptic equations. *The Annals of Probability*, 39(3):779–856, 2011.
- [70] Radu Ignat and Felix Otto. A compactness result for Landau state in thin-film micromagnetics. *Annales de L’Institut Henri Poincaré / C*, 28(2):247–282, 2011.
- [71] Felix Otto and Christian Seis. Rayleigh-Bénard convection: improved bounds on the Nusselt number. *Journal of Mathematical Physics*, 52(8):083702, 2011.
- [72] Felix Otto and Fabio Ramos. Universal bounds for the Littlewood-Paley first-order moments of the 3D Navier-Stokes equations. *Communications in Mathematical Physics*, 300(2):301–315, 2010.
- [73] Felix Otto and Jutta Steiner. The concertina pattern: from micromagnetics to domain theory. *Calculus of Variations and Partial Differential Equations*, 39(1-2):139–181, 2010.
- [74] Felix Otto and Thomas Viehmann. Domain branching in uniaxial ferromagnets: asymptotic behavior of the energy. *Calculus of Variations and Partial Differential Equations*, 38(1-2):135–181, 2010.

- [75] Giovanni Alberti, Rustum Choksi, and Felix Otto. Uniform energy distribution for an isoperimetric problem with long-range interactions. *Journal of the American Mathematical Society*, 22(2):569–605, 2009.
- [76] Antonio Capella and Felix Otto. A rigidity result for a perturbation of the geometrically linear three-well problem. *Communications on Pure and Applied Mathematics*, 62(12):1632–1669, 2009.
- [77] Karl Glasner, Felix Otto, Tobias Rump, and Dejan Slepcev. Ostwald ripening of droplets: the role of migration. *European Journal of Applied Mathematics*, 20(1):1–67, 2009.
- [78] Natalie Grunewald, Felix Otto, Cédric Villani, and Maria G. Westdickenberg. A two-scale approach to logarithmic Sobolev inequalities and the hydrodynamic limit. *Annales de L’Institut Henri Poincaré / B*, 45(2):302–351, 2009.
- [79] Felix Otto. Optimal bounds on the Kuramoto-Sivashinsky equation. *Journal of Functional Analysis*, 257(7):2188–2245, 2009.
- [80] Rustum Choksi, Sergio Conti, Robert V. Kohn, and Felix Otto. Ground state energy scaling laws during the onset and destruction of the intermediate state in a type I superconductor. *Communications on Pure and Applied Mathematics*, 61(5):595–626, 2008.
- [81] Lorenzo Giacomelli, Hans Knüpfer, and Felix Otto. Smooth zero-contact-angle solutions to a thin-film equation around the steady state. *Journal of Differential Equations*, 245(6):1454–1506, 2008.
- [82] Radu Ignat and Felix Otto. A compactness result in thin-film micromagnetics and the optimality of the Néel wall. *Journal of the European Mathematical Society*, 10(4):909–956, 2008.
- [83] Felix Otto and Athanasios Tzavaras. Continuity of velocity gradients in suspensions of rod-like molecules. *Communications in Mathematical Physics*, 277(3):729–758, 2008.
- [84] Rubén Cantero-Ivarez, Felix Otto, and Jutta Steiner. The concertina pattern: a bifurcation in ferromagnetic thin films. *Journal of Nonlinear Science*, 17(3):221–281, 2007.
- [85] Antonio Capella, Christof Melcher, and Felix Otto. Wave-type dynamics in ferromagnetic thin films and the motion of Néel walls. *Nonlinearity*, 20(11):2519–2537, 2007.
- [86] Antonio DeSimone, Natalie Grunewald, and Felix Otto. A new model for contact angle hysteresis. *Networks and Heterogeneous Media*, 2(2):211–225, 2007.

- [87] Robert V. Kohn, Felix Otto, Maria G. Westdickenberg, and Eric Vanden-Eijnden. Action minimization and sharp-interface limits for the stochastic Allen-Cahn equation. *Communications on Pure and Applied Mathematics*, 60(3):393–438, 2007.
- [88] Felix Otto and Maria G. Westdickenberg. A new criterion for the logarithmic Sobolev inequality and two applications. *Journal of Functional Analysis*, 243(1):121–157, 2007.
- [89] Felix Otto and Maria G. Westdickenberg. Slow motion of gradient flows. *Journal of Differential Equations*, 237(2):372–420, 2007.
- [90] Nils Wiese, Stephen McVitie, Antonio Capella, and Felix Otto. On the scaling behaviour of cross-tie domain wall structures in patterned NiFe elements. *Epl*, 80(5):57003, 2007.
- [91] Rubén Cantero-Ivarez and Felix Otto. Critical fields in ferromagnetic thin films: identification of four regimes. *Journal of Nonlinear Science*, 16(4):351–383, 2006.
- [92] Rubén Cantero-Ivarez and Felix Otto. Oscillatory buckling mode in thin-film nucleation. *Journal of Nonlinear Science*, 16(4):385–413, 2006.
- [93] Sergio Conti, Andreas Hömig, Barbara Niethammer, and Felix Otto. Nonuniversality in low-volume-fraction Ostwald ripening. *Journal of Statistical Physics*, 124(1):231–259, 2006.
- [94] Sergio Conti, Barbara Niethammer, and Felix Otto. Coarsening rates in off-critical mixtures. *SIAM Journal on Mathematical Analysis*, 37(6):1732–1741, 2006.
- [95] Antonio DeSimone, Hans Knüpfer, and Felix Otto. 2-d stability of the Néel wall. *Calculus of Variations and Partial Differential Equations*, 27(2):233–253, 2006.
- [96] Charles R. Doering, Felix Otto, and Maria G. Westdickenberg. Bounds on vertical heat transport for infinite-Prandtl-number Raleigh-Bénard convection. *Journal of Fluid Mechanics*, 560:229–241, 2006.
- [97] Christiane Helzel and Felix Otto. Multiscale simulations for suspensions of rod-like molecules. *Journal of Computational Physics*, 216(1):52–75, 2006.
- [98] Benjamin Jourdain, Claude Le Bris, Tony Lelièvre, and Felix Otto. Long-time asymptotics of a multiscale model for polymeric fluid flows. *Archive for Rational Mechanics and Analysis*, 181(1):97–148, 2006.
- [99] Govind Menon and Felix Otto. Diffusive slowdown in miscible viscous fingering. *Communications in Mathematical Sciences*, 4(1):267–273, 2006.

- [100] Felix Otto, Tobias Rump, and Dejan Slepcev. Coarsening rates for a droplet model: rigorous upper bounds. *SIAM Journal on Mathematical Analysis*, 38(2):503–529, 2006.
- [101] Felix Otto and Michael Westdickenberg. Eulerian calculus for the contraction in the Wasserstein distance. *SIAM Journal on Mathematical Analysis*, 37(4):1227–1255, 2006.
- [102] Lorenzo Giacomelli and Felix Otto. New bounds for the Kuramoto-Sivashinsky equation. *Communications on Pure and Applied Mathematics*, 58(3):297–318, 2005.
- [103] Andreas Hönl, Barbara Niethammer, and Felix Otto. On first-order corrections to the LSW theory. Pt. 2 Finite systems. *Journal of Statistical Physics*, 119(1/2):123–164, 2005.
- [104] Andreas Hönl, Barbara Niethammer, and Felix Otto. On first-order corrections to the LSW theory. Pt. 1 Infinite systems. *Journal of Statistical Physics*, 119(1/2):61–122, 2005.
- [105] Govind Menon and Felix Otto. Dynamic scaling in miscible viscous fingering. *Communications in Mathematical Physics*, 257(2):303–317, 2005.
- [106] Felix Otto and Michael Westdickenberg. Convergence of thin film approximation for a scalar conservation law. *Journal of Hyperbolic Differential Equations*, 2(1):183–199, 2005.
- [107] Rustum Choksi, Robert V. Kohn, and Felix Otto. Energy minimization and flux domain structure in the intermediate state of a type-I superconductor. *Journal of Nonlinear Science*, 14(2):119–171, 2004.
- [108] Camillo De Lellis, Felix Otto, and Michael Westdickenberg. Minimal entropy conditions for Burgers equation. *Quarterly of Applied Mathematics*, 62(4):687–700, 2004.
- [109] Pierre-Emmanuel Jabin and Felix Otto. Identification of the dilute regime in particle sedimentation. *Communications in Mathematical Physics*, 250(2):415–432, 2004.
- [110] Martin Kružík and Felix Otto. A phenomenological model for hysteresis in polycrystalline shape memory alloys. *Zeitschrift für Angewandte Mathematik und Mechanik*, 84(12):835–842, 2004.
- [111] Felix Otto, Patrick Penzler, Andreas Rätz, Tobias Rump, and Axel Voigt. A diffuse-interface approximation for step flow in epitaxial growth. *Nonlinearity*, 17(2):477–491, 2004.
- [112] Camillo De Lellis and Felix Otto. Structure of entropy solutions to the eikonal equation. *Journal of the European Mathematical Society*, 5(2):107–145, 2003.

- [113] Camillo De Lellis, Felix Otto, and Michael Westdickenberg. Structure of entropy solutions for multi-dimensional scalar conservation laws. *Archive for Rational Mechanics and Analysis*, 170(2):137–184, 2003.
- [114] Antonio DeSimone, Robert V. Kohn, Stefan Müller, and Felix Otto. Repulsive interaction of Néel walls, and the internal length scale of the cross-tie wall. *Multiscale Modeling and Simulation*, 1(1):57–104, 2003.
- [115] Lorenzo Giacomelli and Felix Otto. Rigorous lubrication approximation. *Interfaces and Free Boundaries*, 5(4):483–529, 2003.
- [116] Stephen J. Watson, Felix Otto, Boris Y. Rubinstein, and Stephen H. Davis. Coarsening dynamics for the convective Cahn-Hilliard equation. *Physica / D*, 178(3-4):127–148, 2003.
- [117] Antonio DeSimone, Robert V. Kohn, Stefan Müller, and Felix Otto. A reduced theory for thin-film micromagnetics. *Communications on Pure and Applied Mathematics*, 55(11):1408–1460, 2002.
- [118] Antonio DeSimone, Robert V. Kohn, Stefan Müller, Felix Otto, and Rudolf Schäfer. Low energy domain patterns in soft ferromagnetic films. *Journal of Magnetism and Magnetic Materials*, 242-245(2):1047–1051, 2002.
- [119] Lorenzo Giacomelli and Felix Otto. Droplet spreading: intermediate scaling law by PDE methods. *Communications on Pure and Applied Mathematics*, 55(2):217–254, 2002.
- [120] Pierre-Emmanuel Jabin, Felix Otto, and Benoît Perthame. Line-energy Ginzburg-Landau models: zero-energy states. *Annali della Scuola Normale Superiore di Pisa, Classe di Scienze*, 1(2):187–202, 2002.
- [121] Robert V. Kohn and Felix Otto. Upper bounds on coarsening rates. *Communications in Mathematical Physics*, 229(3):375–395, 2002.
- [122] Antonio DeSimone, Robert V. Kohn, Stefan Müller, Felix Otto, and Rudolf Schäfer. Two-dimensional modelling of soft ferromagnetic films. *Proceedings of the Royal Society of London / A*, 457(2016):2983–2991, 2001.
- [123] Antonio DeSimone, Stefan Müller, Robert V. Kohn, and Felix Otto. A compactness result in the gradient theory of phase transitions. *Proceedings of the Royal Society of Edinburgh / A*, 131(4):833–844, 2001.
- [124] Lorenzo Giacomelli and Felix Otto. Variational formulation for the lubrication approximation of the Hele-Shaw flow. *Calculus of Variations and Partial Differential Equations*, 13(3):377–403, 2001.
- [125] Barbara Niethammer and Felix Otto. Domain coarsening in thin films. *Communications on Pure and Applied Mathematics*, 54(3):361–384, 2001.

- [126] Barbara Niethammer and Felix Otto. Ostwald ripening: the screening length revisited. *Calculus of Variations and Partial Differential Equations*, 13(1):33–68, 2001.
- [127] Felix Otto. The geometry of dissipative evolution equations: the porous medium equation. *Communications in Partial Differential Equations*, 26(1-2):101–174, 2001.
- [128] Felix Otto and Cédric Villani. Comment on 'Hypercontractivity of Hamilton-Jacobi equations', by S. Bobkov, I. Gentil and M. Ledoux [J. Math. Pures Appl. (9) 80 (2001), no. 7, 669-696]. *Journal de Mathématiques Pures Et Appliquées*, 80(7):697–700, 2001.
- [129] Peter Knabner and Felix Otto. Solute transport in porous media with equilibrium and nonequilibrium multiple-site adsorption: uniqueness of weak solutions. *Nonlinear Analysis / A*, 42(3):381–403, 2000.
- [130] Felix Otto and Cédric Villani. Generalization of an inequality by Talagrand and links with the logarithmic Sobolev inequality. *Journal of Functional Analysis*, 173(2):361–400, 2000.
- [131] Rustum Choksi, Robert V. Kohn, and Felix Otto. Domain branching in uniaxial ferromagnets: a scaling law for the minimum energy. *Communications in Mathematical Physics*, 201(1):61–79, 1999.
- [132] Felix Otto. Evolution of microstructure in unstable porous media flow: a relaxational approach. *Communications on Pure and Applied Mathematics*, 52(7):873–915, 1999.
- [133] Richard Jordan, David Kinderlehrer, and Felix Otto. The variational formulation of the Fokker-Planck equation. *SIAM Journal on Mathematical Analysis*, 29(1):1–17, 1998.
- [134] Felix Otto. A regularizing effect of nonlinear transport equations. *Quarterly of Applied Mathematics*, 56(2):355–375, 1998.
- [135] Felix Otto. Dynamics of labyrinthine pattern formation in magnetic fluids: a mean-field theory. *Archive for Rational Mechanics and Analysis*, 141(1):63–103, 1998.
- [136] Felix Otto. Lubrication approximation with prescribed nonzero contact angle. *Communications in Partial Differential Equations*, 23(11/12):2077–2164, 1998.
- [137] Richard Jordan, David Kinderlehrer, and Felix Otto. Free energy and the Fokker-Planck equation. *Physica / D*, 107(2-4):265–271, 1997.
- [138] Robert V. Kohn and Felix Otto. Small surface energy, coarse-graining, and selection of microstructure. *Physica / D*, 107(2-4):272–289, 1997.

- [139] Felix Otto. L1-contraction and uniqueness for unstationary saturated-unsaturated porous media flow. *Advances in Mathematical Sciences and Applications*, 7(2):537–553, 1997.
- [140] Felix Otto. Viscous fingering: an optimal bound on the growth rate of the mixing zone. *SIAM Journal on Applied Mathematics*, 57(4):982–990, 1997.
- [141] Felix Otto and Weinan E. Thermodynamically driven incompressible fluid mixtures. *The Journal of Chemical Physics*, 107(23):10177–10184, 1997.
- [142] Felix Otto. Initial-boundary value problem for a scalar conservation law. *Comptes Rendus Mathematique*, 322(8):729–734, 1996.
- [143] Felix Otto. L1-contraction and uniqueness for quasilinear elliptic-parabolic equations. *Journal of Differential Equations*, 131(1):20–38, 1996.
- [144] Felix Otto. L1-contraction and uniqueness for quasilinear elliptic-parabolic equations. *Comptes Rendus Mathematique*, 321(8):1005–1010, 1995.

Publications in Books and Conference Proceedings

- [145] Tim Bastian Laux and Felix Otto. The thresholding scheme for mean curvature flow and De Giorgi’s ideas for minimizing movements. In Yoshikazu Giga, Nao Hamamuki, Hideo Kubo, Hirotoshi Kuroda, and Tohru Ozawa, editors, *The Role of Metrics in the Theory of Partial Differential Equations : Proceedings ; July 2-13, 2018 ; Hokkaido University, Sapporo*, volume 85 of *Advanced Studies in Pure Mathematics*, pages 63–93. Mathematical Society of Japan, Tokyo, 2020.
- [146] Felix Otto. Nonlinear partial differential equations and interfacial motions as gradient flow. In Yoshikazu Giga, Hideo Kubo, and Tohru Ozawa, editors, *The role of metrics in the theory of partial differential equations : [program and abstracts] ; July 2-13, 2018 ; Hokkaido University, Sapporo*, volume 174 of *Hokkaido University Technical Report Series in Mathematics*, pages 33–43. Hokkaido University, Sapporo, 2018.
- [147] John M. Ball, Eduard Feireisl, and Felix Otto. Preface to CIME lecture notes. In *Mathematical Thermodynamics of Complex Fluids : Cetraro, Italy, June 29 - July 3, 2015*, volume 2200 of *Lecture Notes in Mathematics*, pages v–vii. Springer, Cham, 2017.
- [148] Peter Bella, Arianna Giunti, and Felix Otto. Quantitative stochastic homogenization : local control of homogenization error through corrector. In Mark J. Bowick, David Kinderlehrer, Govind Menon, and 1945-. Radin Charles, editors, *Mathematics and Materials*, volume 23 of *IAS/Park City Mathematics Series ;*, pages 301–327. American mathematical society, Providence, RI, 2017.

- [149] Felix Otto, Steffen Pottel, and Camilla Nobili. Rigorous bounds on scaling laws in fluid dynamics. In *Mathematical Thermodynamics of Complex Fluids: Cetraro, Italy, June 29 - July 3, 2015*, volume 2200 of *Lecture Notes in Mathematics*, pages 101–145. Springer, Cham, 2017.
- [150] Lukas Döring, Elias Esselborn, Samuel Ferraz-Leite, and Felix Otto. Domain configurations in soft ferromagnetic films under external field. In *Proceedings of MATHMOD 2012 - 7th Vienna International Conference on Mathematical Modelling, Vienna, February 15 - 17, 2012*, pages 498–503, Vienna, 2012. International Federation of Automatic Control.
- [151] Gianluca Crippa, Felix Otto, and Michael Westdickenberg. Regularizing effect of nonlinearity in multidimensional scalar conservation laws. In Luigi Ambrosio, Gianluca Crippa, Camillo De Lellis, Felix Otto, and Michael Westdickenberg, editors, *Transport Equations and Multi-D Hyperbolic Conservation Laws*, volume 5 of *Lecture Notes of the Unione Matematica Italiana*, pages 77–128. Springer, Berlin, 2008.
- [152] Julia Dohmen, Natalie Grunewald, Felix Otto, and Martin Rumpf. Micro structures in thin coating layers: micro structure evolution and macroscopic contact angle. In Willi Jäger and Hans-Joachim Krebs, editors, *Mathematics - Key Technology for the Future: Joint Projects Between Universities and Industry, 2004 - 2007*, pages 75–97. Springer, Berlin [u. a.], 2008.
- [153] Frank Haußer, Felix Otto, Patrick Penzler, and Axel Voigt. Numerical methods for the simulation of epitaxial growth and their application in the study of a meander instability. In Willi Jäger and Hans-Joachim Krebs, editors, *Mathematics - Key Technology for the Future: Joint Projects Between Universities and Industry, 2004 - 2007*, pages 53–73. Springer, Berlin [u. a.], 2008.
- [154] Christiane Helzel, Jorrit Kirsten, and Felix Otto. Suspensions of rod-like molecules: a FV-ELLAM-type discretization of the Smoluchowski equation describing the orientation of rod-like molecules. In Robert Eymard and Jean-Marc Hérard, editors, *Finite Volumes for Complex Applications V: Proceedings of the 5th International Symposium Held in Aussois, June 2008*, pages 495–502. ISTE, London, 2008.
- [155] Antonio DeSimone, Robert V. Kohn, Stefan Müller, and Felix Otto. Recent analytical developments in micromagnetics. In Giorgio Bertotti and Isaak D. Mayergoyz, editors, *The Science of Hysteresis. Vol. 2 Physical Modeling, Micromagnetics, and Magnetization Dynamics*, pages 269–381. Elsevier [u. a.], Amsterdam, 2006.
- [156] Barbara Niethammer, Felix Otto, and Juan J. L. Velázquez. On the effect of correlations, fluctuations and collisions in Ostwald ripening. In Alexander Mielke, editor, *Analysis, Modeling and Simulation of Multiscale Problems*, pages 501–530. Springer, Berlin [u.a.], 2006.

- [157] Felix Otto, Patrick Penzler, and Tobias Rump. Discretisation and numerical tests of a diffuse-interface model with Ehrlich-Schwoebel barrier. In Axel Voigt, editor, *Multiscale Modeling in Epitaxial Growth: Mini-Workshop at Mathematisches Forschungsinstitut Oberwolfach, January 18 - 24, 2004*, volume 149 of *International Series of Numerical Mathematics*, pages 127–158. Birkhäuser, Basel [u. a.], 2005.
- [158] Reiner Henseler, Barbara Niethammer, and Felix Otto. A reduced model for simulating grain growth. In Pierluigi Colli, Claudio Verdi, and Augusto Visintin, editors, *Free Boundary Problems: Theory and Applications*, pages 177–187. Birkhäuser, Basel [u. a.], 2004.
- [159] Sergio Conti, Antonio DeSimone, Georg Dolzmann, Stefan Müller, and Felix Otto. Multiscale modeling of materials: the role of analysis. In Markus Kirkilionis, Susanne Krömker, Rolf Rannacher, and Friedrich Tomi, editors, *Trends in Nonlinear Analysis*, pages 375–408. Springer, Berlin [u. a.], 2003.
- [160] Felix Otto. Cross-over in scaling laws: a simple example from micromagnetics. In Li Tatsien, editor, *Proceedings of the International Congress of Mathematicians: Beijing, 2002, August 20 - 28. Pt. 3 Invited Lectures*, pages 829–838. Higher Education Press, Beijing, 2002.
- [161] Felix Otto. Evolution of microstructure: an example. In Bernd Fiedler, editor, *Ergodic Theory, Analysis, and Efficient Simulation of Dynamical Systems*, pages 501–522. Springer, Berlin [u. a.], 2001.
- [162] Antonio DeSimone, Robert V. Kohn, Stefan Müller, and Felix Otto. Magnetic microstructures: a paradigm of multiscale problems. In John M. Ball and Julian C. R. Hunt, editors, *ICIAM 99: Proceedings of the Fourth International Congress on Industrial and Applied Mathematics, Edinburgh*, pages 175–190. Oxford University Press, Oxford, 2000.
- [163] Richard Jordan, David Kinderlehrer, and Felix Otto. The route to stability through Fokker-Planck dynamics. In P. W. Bates, editor, *Differential Equations and Applications: Proceedings of the US-Chinese Conference, Held in Hangzhou, June 24 - 29, 1996 / Edited by P. W. Bates ...*, pages 108–126, Boston [u. a.], 1997. International Press.
- [164] Richard Jordan, David Kinderlehrer, and Felix Otto. Remarks about metastability. In Marie Odile Bristeau, editor, *Computational Science for the 21st Century: Dedicated to Prof. Roland Glowinski on the Occasion of His 60th Birthday; Symposium, Tours, France, May 5-7, 1997*, pages 3–12. Wiley, Chichester, 1997.
- [165] Josef Málek, Jindrich Necas, M. Rokyta, M. Ruzicka, and Felix Otto. Scalar conservation laws. In Josef Málek, Jindrich Necas, M. Rokyta, and M. Ruzicka, editors, *Weak and Measure-Valued Solutions to Evolutionary*

PDEs, volume 13 of *Applied Mathematics and Mathematical Computation*, pages 41–143. Chapman and Hall/CRS, London, 1996.

Preprints

- [166] Benjamin Gess, Rishabh S. Gvalani, Florian Kunick, and Felix Otto. Thermodynamically consistent and positivity-preserving discretization of the thin-film equation with thermal noise. Arxiv, 2021.
- [167] Pablo Linares, Markus Tempelmayr, and Felix Otto. The structure group for quasi-linear equations via universal enveloping algebras. Arxiv, 2021.
- [168] Jianfeng Lu, Felix Otto, and Lihan Wang. Optimal artificial boundary conditions based on second-order correctors for three dimensional random elliptic media. Arxiv, 2021.
- [169] Felix Otto, Jonas Sauer, Scott A. Smith, and Hendrik Weber. A priori bounds for quasi-linear SPDEs in the full sub-critical regime. Arxiv, 2021.
- [170] Matti Schneider, Marc Josien, and Felix Otto. Representative volume elements for matrix-inclusion composites: a computational study on periodizing the ensemble. Arxiv, 2021.
- [171] Katarína Bellová, Antoine Julia, and Felix Otto. Uniform energy distribution in a pattern-forming system of surface charges. Arxiv, 2020.
- [172] Radu Ignat, Felix Otto, Tobias Ried, and Pavlos Tsatsoulis. Variational methods for a singular SPDE yielding the universality of the magnetization ripple. Arxiv, 2020.
- [173] Marc Josien and Felix Otto. The annealed Calderon-Zygmund estimate as convenient tool in quantitative stochastic homogenization. Arxiv, 2020.
- [174] Antoine Gloria, Stefan Neukamm, and Felix Otto. Quantitative estimates in stochastic homogenization for correlated coefficient fields. Arxiv, 2019.
- [175] Deniz Dizdar, Georg Menz, Felix Otto, and Tianqi Wu. Toward a quantitative theory of the hydrodynamic limit. Arxiv, 2018.
- [176] Deniz Dizdar, Georg Menz, Felix Otto, and Tianqi Wu. The quantitative hydrodynamic limit of the Kawasaki dynamics. Arxiv, 2018.
- [177] Michael Goldman, Martin Huesmann, and Felix Otto. A large-scale regularity theory for the Monge-Ampere equation with rough data and application to the optimal matching problem. Arxiv, 2018.
- [178] Felix Otto, Jonas Sauer, Scott A. Smith, and Hendrik Weber. Parabolic equations with rough coefficients and singular forcing. Arxiv, 2018.
- [179] Peter Bella, Arianna Giunti, and Felix Otto. Liouville properties and error estimates for elliptic equations in exterior domains. Preprint, 2017.

- [180] Venera Khoromskaia, Boris N. Khoromskij, and Felix Otto. A numerical primer in 2D stochastic homogenization : CLT scaling in the representative volume element. Preprint, 2017.
- [181] Antoine Gloria and Felix Otto. The corrector in stochastic homogenization : optimal rates, stochastic integrability, and fluctuations. Arxiv, 2015.
- [182] Jianfeng Lu and Felix Otto. An isoperimetric problem with Coulomb repulsion and attraction to a background nucleus. Arxiv, 2015.
- [183] Felix Otto and Hendrik Weber. Hölder regularity for a non-linear parabolic equation driven by space-time white noise. Arxiv, 2015.
- [184] Antoine Gloria and Felix Otto. Quantitative theory in stochastic homogenization. Preprint, 2014.
- [185] Antoine Gloria, Stefan Neukamm, and Felix Otto. Quantification of ergodicity in stochastic homogenization : optimal bounds via spectral gap on Glauber dynamics - long version. Preprint, 2013.
- [186] Tony Lelièvre, Felix Otto, Mathias Rousset, and Gabriel Stoltz. Long-time convergence of an adaptive biasing force method. Arxiv, 2007.
- [187] Lorenzo Giacomelli, Hans Knüpfner, and Felix Otto. Maximal regularity for a degenerate operator of fourth order. Preprint, 2004.
- [188] Felix Otto. Doubly degenerate diffusion equations as steepest descent. Preprint, 1996.
- [189] Felix Otto. Stability investigation of planar solutions of the Buckley-Leverett equations. Preprint, 1994.

Books

- [190] John M. Ball, Eduard Feireisl, and Felix Otto. *Mathematical thermodynamics of complex fluids : Cetraro, Italy, June 29 - July 3, 2015*, volume 2200 of *Lecture Notes in Mathematics*. Springer, Cham, 2017.

Academic Theses

- [191] Felix Otto. *Ein Randwertproblem für skalare Erhaltungssätze*. Dissertation, Universität Bonn, 1992.

Miscellaneous

- [192] Felix Otto. The impact of the SIAM Journal on Mathematical Analysis' most popular paper, 2018.
- [193] Felix Otto. Eine Fields-Medaille für Cedric Villani, 2011.