David Kinderlehrer

List of Publications by Year
in descending order

82 papers	3,800 citations	147801 31 h-index	128289 60 g-index
89 all docs	89 docs citations	89 times ranked	1409 citing authors

#	Article	IF	Citations
1	The Variational Formulation of the Fokker--Planck Equation. SIAM Journal on Mathematical Analysis, 1998, 29, 1-17.	1.9	935
2	Existence and partial regularity of static liquid crystal configurations. Communications in Mathematical Physics, 1986, 105, 547-570.	2.2	248
3	Characterizations of young measures generated by gradients. Archive for Rational Mechanics and Analysis, 1991, 115, 329-365.	2.4	210
4	Equilibrium configurations of crystals. Archive for Rational Mechanics and Analysis, 1988, 103, 237-277.	2.4	200
5	Gradient Young measures generated by sequences in Sobolev spaces. Journal of Geometric Analysis, 1994, 4, 59-90.	1.0	173
6	Title is missing!. Indiana University Mathematics Journal, 1974, 23, 831.	0.9	128
7	Theory of magnetostriction with applications to $Tb_xDy_{1-x}Fe_2$. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1993, 68, 237-274.	0.6	113
8	Title is missing!. Indiana University Mathematics Journal, 1975, 24, 1005.	0.9	97
9	Regularity in elliptic free boundary problems I. Journal D'Analyse Mathematique, 1978, 34, 86-119.	0.8	96
10	Grain growth and the puzzle of its stagnation in thin films: The curious tale of a tail and an ear. Progress in Materials Science, 2013, 58, 987-1055.	32.8	96
11	Weak Convergence of Integrands and the Young Measure Representation. SIAM Journal on Mathematical Analysis, 1992, 23, 1-19.	1.9	82
12	Potential methods in variational inequalities. Journal D'Analyse Mathematique, 1980, 37, 285-295.	0.8	70
13	Numerical Approximation of the Solution of a Variational Problem with a Double Well Potential. SIAM Journal on Numerical Analysis, 1991, 28, 321-332.	2.3	68
14	Grain boundary energy and grain growth in Al films: Comparison of experiments and simulations. Scripta Materialia, 2006, 54, 1059-1063.	5.2	63
15	The smoothness of the free boundary in the one phase stefan problem. Communications on Pure and Applied Mathematics, 1978, 31, 257-282.	3.1	61
16	Extracting Grain Boundary and Surface Energy from Measurement of Triple Junction Geometry. Journal of Materials Science, 1999, 7, 321-337.	1.2	58
17	Smoothness of linear laminates. Archive for Rational Mechanics and Analysis, 1986, 96, 81-96.	2.4	57
18	EVOLUTION OF GRAIN BOUNDARIES. Mathematical Models and Methods in Applied Sciences, 2001, 11, 713-729.	3.3	57

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19	Theory of diffusionless phase transitions. , 1989, , 51-84.		52
20	Free energy and the Fokker-Planck equation. Physica D: Nonlinear Phenomena, 1997, 107, 265-271.	2.8	47
21	Extracting the relative grain boundary free energy and mobility functions from the geometry of microstructures. Scripta Materialia, 1998, 38, 531-536.	5.2	47
22	Numerical analysis of oscillations in multiple well problems. Numerische Mathematik, 1995, 70, 259-282.	1.9	46
23	Analyticity at the boundary of solutions of nonlinear second-order parabolic equations. Communications on Pure and Applied Mathematics, 1978, 31, 283-338.	3.1	44
24	A Variational Approach to Modeling and Simulation of Grain Growth. SIAM Journal of Scientific Computing, 2006, 28, 1694-1715.	2.8	44
25	Critical events, entropy, and the grain boundary character distribution. Physical Review B, 2011, 83, .	3.2	35
26	Energy functional depending on elastic strain and chemical composition. Calculus of Variations and Partial Differential Equations, 1994, 2, 283-313.	1.7	34
27	Elastic plastic deformation. Applied Mathematics and Optimization, 1983, 10, 203-246.	1.6	33
28	Existence, uniqueness, and regularity results for the two-body contact problem. Applied Mathematics and Optimization, 1987, 15, 251-277.	1.6	33
29	Approximation of Parabolic Equations Using the Wasserstein Metric. ESAIM: Mathematical Modelling and Numerical Analysis, 1999, 33, 837-852.	1.9	33
30	A hybrid variational principle for the Keller–Segel system in $â„‚$². ESAIM: Mathematical Modelling and Numerical Analysis, 2015, 49, 1553-1576.	1.9	33
31	Variational inequalities and free boundary problems. Bulletin of the American Mathematical Society, 1978, 84, 7-27.	3.9	32
32	Diffusion-Mediated Transport¶and the Flashing Ratchet. Archive for Rational Mechanics and Analysis, 2002, 161, 149-179.	2.4	31
33	The coincidence set of solutions of certain variational inequalities. Archive for Rational Mechanics and Analysis, 1971, 40, 231-250.	2.4	29
34	Theory of magnetostriction with application to Terfenol–D. Journal of Applied Physics, 1994, 76, 7012-7014.	2.5	28
35	Discrete and continuous ratchets: from coin toss to molecular motor. Discrete and Continuous Dynamical Systems - Series B, 2002, 2, 153-167.	0.9	22
36	How a minimal surface leaves an obstacle. Acta Mathematica, 1973, 130, 221-242.	3.9	20

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37	A Variational Principle for Molecular Motors. Meccanica, 2003, 38, 505-518.	2.0	20
38	Variational inequalities with lower dimensional obstacles. Israel Journal of Mathematics, 1971, 10, 339-348.	0.8	19
39	Towards a Statistical Theory of Texture Evolution in Polycrystals. SIAM Journal of Scientific Computing, 2008, 30, 3150-3169.	2.8	18
40	Computational hysteresis in modeling magnetic systems. IEEE Transactions on Magnetics, 1994, 30, 4380-4382.	2.1	17
41	A Wasserstein gradient flow approach to Poissonâ˘Nernstâ˘Planck equations. ESAIM - Control, Optimisation and Calculus of Variations, 2017, 23, 137-164.	1.3	17
42	Transport in a molecular motor system. ESAIM: Mathematical Modelling and Numerical Analysis, 2004, 38, 1011-1034.	1.9	15
43	Added dimensions to grain growth. Nature, 2007, 446, 995-996.	27.8	14
44	Grain Growth and the Puzzle of its Stagnation in Thin Films a Detailed Comparison of Experiments and Simulations. Materials Science Forum, 0, 715-716, 473-479.	0.3	14
45	An entropy based theory of the grain boundary character distribution. Discrete and Continuous Dynamical Systems, 2011, 30, 427-454.	0.9	14
46	Second variation of liquid crystal energy at $x / \mid x \mid$. Proceedings of the Royal Society A, 1992, 437, 475-487.	0.9	13
47	Title is missing!. Indiana University Mathematics Journal, 1976, 25, 195.	0.9	13
48	Some Regularity Results In Ferromagnetism. Communications in Partial Differential Equations, 1999, 25, 1235-1258.	2.2	12
49	Numerical Analysis of the Vertex Models for Simulating Grain Boundary Networks. SIAM Journal on Applied Mathematics, 2015, 75, 762-786.	1.8	12
50	A class of parabolic quasi-variational inequalities. Journal of Differential Equations, 1976, 21, 395-416.	2.2	9
51	Dynamics of the fokker-planck equation. Phase Transitions, 1999, 69, 271-288.	1.3	8
52	The Surface Energy of MgO: Multiscale Reconstruction from Thermal Groove Geometry. Journal of Materials Science, 2002, 10, 233-242.	1.2	8
53	The hysteretic event in the computation of magnetization. Journal of Nonlinear Science, 1997, 7, 101-128.	2.1	7
54	Estimates for the solution and its stability in Signorini's problem. Applied Mathematics and Optimization, 1982, 8, 159-188.	1.6	6

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55	A Relation between Semi-Inverse and Saint-Venant Solutions for Prisms. SIAM Journal on Mathematical Analysis, 1986, 17, 626-640.	1.9	6
56	A Remark about the Stability of Smooth Equilibrium Configurations of Static Liquid Crystals. Molecular Crystals and Liquid Crystals, 1986, 139, 189-194.	0.8	6
57	<title>Mathematical approaches to the study of smart materials</title>. , 1993, , .		6
58	Grain Boundary Properties and Grain Growth: Al Foils, Al Films. Materials Research Society Symposia Proceedings, 2004, 819, N6.6.1.	0.1	6
59	The regularity of minimal surfaces defined over slit domains. Pacific Journal of Mathematics, 1971, 37, 109-117.	0.5	6
60	The partially supported elastic beam. Journal of Elasticity, 1983, 13, 71-82.	1.9	5
61	The relaxation of functionals with surface energies. Asymptotic Analysis, 1989, 2, 279-298.	0.5	5
62	An Extended Variational Principle. , 2017, , 187-200.		5
63	An Approach to the Mesoscale Simulation of Grain Growth. Materials Research Society Symposia Proceedings, 2000, 652, 1.	0.1	4
64	Diffusion Mediated Transport in Multiple State Systems. SIAM Journal on Mathematical Analysis, 2008, 39, 1208-1230.	1.9	4
65	An Example of Frustration in a Ferromagnetic Material. , 1991, , 201-221.		4
66	DIFFUSION MEDIATED TRANSPORT WITH A LOOK AT MOTOR PROTEINS. , 2008, , .		4
67	The Janossy effect and hybrid variational principles. Discrete and Continuous Dynamical Systems - Series B, 2009, 11, 153-176.	0.9	4
68	Predictive Theory for the Grain Boundary Character Distribution. Materials Science Forum, 2012, 715-716, 279-285.	0.3	3
69	Comparison of simulated and measured grain volume changes during grain growth. Physical Review Materials, 2022, 6, .	2.4	3
70	<title>Metastability and hysteresis in active materials</title>. , 1997, , .		2
71	Variational Principles with Linear Growth. , 1989, , 633-659.		2
72	Some open questions about variational inequalities. Israel Journal of Mathematics, 1972, 13, 149-154.	0.8	1

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73	<title>Simulation of magnetoelastic systems</title>. , 1996, , .		1
74	The simulation of magnetoelastic configurations. Physica B: Condensed Matter, 1997, 233, 376-380.	2.7	1
75	Incoherence at heterogeneous interfaces. Journal of the Mechanics and Physics of Solids, 1999, 47, 1609-1632.	4.8	1
76	A Theory and Challenges for Coarsening in Microstructure. Springer INdAM Series, 2013, , 193-220.	0.5	1
77	Magnetoelastic Interactions. , 1996, , 177-189.		1
78	Microstructural Evolution and Metastability in Active Materials. Materials Research Society Symposia Proceedings, 1998, 529, 3.	0.1	0
79	Diffusion Mediated Transport and the Brownian Motor. , 2004, , 29-36.		0
80	Transport via mass transportation. Discrete and Continuous Dynamical Systems - Series B, 2005, 6, 311-338.	0.9	0
81	Aspects of Modeling Transport in Small Systems with a Look at Motor Proteins. , 2008, , 153-163.		0
82	Variational Principles with Linear Growth. , 1989, , 633-659.		0