GrÃ©goire Allaire

List of Publications by Year
in descending order

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104 papers	8,574 citations	101496 36 h-index	43868 91 g-index
106 all docs	106 docs citations	106 times ranked	3348 citing authors

#	Article	IF	Citations
1	Coupled optimization of macroscopic structures and lattice infill. International Journal for Numerical Methods in Engineering, 2022, 123, 2963-2985.	1.5	12
2	Crime pays; homogenized wave equations for long times. Asymptotic Analysis, 2022, 128, 295-336.	0.2	2
3	Topological sensitivity analysis with respect to a small idealized bolt. Engineering Computations, 2022, 39, 115-146.	0.7	4
4	Time Dependent Scanning Path Optimization for the Powder Bed Fusion Additive Manufacturing Process. CAD Computer Aided Design, 2022, 142, 103122.	1.4	10
5	Coupled topology optimization of structure and connections for bolted mechanical systems. European Journal of Mechanics, A/Solids, 2022, 93, 104499.	2.1	3
6	Topology optimization of structures undergoing brittle fracture. Journal of Computational Physics, 2022, 458, 111048.	1.9	14
7	Part and supports optimization in metal powder bed additive manufacturing using simplified process simulation. Computer Methods in Applied Mechanics and Engineering, 2022, 395, 114975.	3.4	7
8	Damping optimization of viscoelastic cantilever beams and plates under free vibration. Computers and Structures, 2022, 268, 106811.	2.4	2
9	Body-fitted topology optimization of 2D and 3D fluid-to-fluid heat exchangers. Computer Methods in Applied Mechanics and Engineering, 2021, 376, 113638.	3.4	55
10	Stress minimization for lattice structures. Part I: Micro-structure design. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200109.	1.6	5
11	Shape Optimization of an Imperfect Interface: Steady-State Heat Diffusion. Journal of Optimization Theory and Applications, 2021, 191, 169-201.	0.8	4
12	Shape and topology optimization. Handbook of Numerical Analysis, 2021, 22, 1-132.	0.9	44
13	3-d topology optimization of modulated and oriented periodic microstructures by the homogenization method. Journal of Computational Physics, 2020, 401, 108994.	1.9	77
14	Topology optimization of connections in mechanical systems. Structural and Multidisciplinary Optimization, 2020, 61, 2253-2269.	1.7	11
15	Additive manufacturing scanning paths optimization using shape optimization tools. Structural and Multidisciplinary Optimization, 2020, 61, 2437-2466.	1.7	17
16	Support optimization in additive manufacturing for geometric and thermo-mechanical constraints. Structural and Multidisciplinary Optimization, 2020, 61, 2377-2399.	1.7	33
17	A variational formulation for computing shape derivatives of geometric constraints along rays. ESAIM: Mathematical Modelling and Numerical Analysis, 2020, 54, 181-228.	0.8	6
18	Topology optimization of thermal fluidâ€“structure systems using body-fitted meshes and parallel computing. Journal of Computational Physics, 2020, 417, 109574.	1.9	42

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19	Null space gradient flows for constrained optimization with applications to shape optimization. ESAIM - Control, Optimisation and Calculus of Variations, 2020, 26, 90.	0.7	15
20	The Homogenization Method for Topology Optimization of Structures: Old and New. Interdisciplinary Information Sciences, 2019, 25, 75-146.	0.2	4
21	Topological Optimization with Interfaces. Springer Series in Materials Science, 2019, , 173-193.	0.4	1
22	Shape optimization of a coupled thermal fluidâ€“structure problem in a level set mesh evolution framework. SeMA Journal, 2019, 76, 413-458.	1.0	52
23	Topology optimization of modulated and oriented periodic microstructures by the homogenization method. Computers and Mathematics With Applications, 2019, 78, 2197-2229.	1.4	125
24	Structural optimization under internal porosity constraints using topological derivatives. Computer Methods in Applied Mechanics and Engineering, 2019, 345, 1-25.	3.4	16
25	Elasto-plastic Shape Optimization Using the Level Set Method. SIAM Journal on Control and Optimization, 2018, 56, 556-581.	1.1	20
26	Linearized Navierâ€“Stokes equations for aeroacoustics using stabilized finite elements: Boundary conditions and industrial application to aft-fan noise propagation. Computers and Fluids, 2018, 166, 32-45.	1.3	6
27	Modal basis approaches in shape and topology optimization of frequency response problems. International Journal for Numerical Methods in Engineering, 2018, 113, 1258-1299.	1.5	15
28	Optimizing supports for additive manufacturing. Structural and Multidisciplinary Optimization, 2018, 58, 2493-2515.	1.7	56
29	Optimization of dispersive coefficients in the homogenization of the wave equation in periodic structures. Numerische Mathematik, 2018, 140, 265-326.	0.9	13
30	Taking into account thermal residual stresses in topology optimization of structures built by additive manufacturing. Mathematical Models and Methods in Applied Sciences, 2018, 28, 2313-2366.	1.7	47
31	Optimization of Oriented and Parametric Cellular Structures by the Homogenization Method. , 2018, , 767-778.		0
32	Ion transport through deformable porous media: derivation of the macroscopic equations using upscaling. Computational and Applied Mathematics, 2017, 36, 1431-1462.	1.3	8
33	Geometric constraints for shape and topology optimization in architectural design. Computational Mechanics, 2017, 59, 933-965.	2.2	55
34	Shape optimization of a layer by layer mechanical constraint for additive manufacturing. Comptes Rendus Mathematique, 2017, 355, 699-717.	0.1	38
35	Instability of Dielectrics and Conductors in Electrostatic Fields. Archive for Rational Mechanics and Analysis, 2017, 224, 233-268.	1.1	0
36	On the asymptotic behaviour of the kernel of an adjoint convection-diffusion operator in a long cylinder. Revista Matematica Iberoamericana, 2017, 33, 1123-1148.	0.4	3

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37	Structural optimization under overhang constraints imposed by additive manufacturing technologies. Journal of Computational Physics, 2017, 351, 295-328.	1.9	148
38	Structural optimization under overhang constraints imposed by additive manufacturing processes: an overview of some recent results. Applied Mathematics and Nonlinear Sciences, 2017, 2, 385-402.	0.9	12
39	Molding Direction Constraints in Structural Optimization via a Level-Set Method. Springer Optimization and Its Applications, 2016, , 1-39.	0.6	10
40	Thickness control in structural optimization via a level set method. Structural and Multidisciplinary Optimization, 2016, 53, 1349-1382.	1.7	121
41	Stacking sequence and shape optimization of laminated composite plates via a level-set method. Journal of the Mechanics and Physics of Solids, 2016, 97, 168-196.	2.3	39
42	Second-order shape derivatives along normal trajectories, governed by Hamilton-Jacobi equations. Structural and Multidisciplinary Optimization, 2016, 54, 1245-1266.	1.7	6
43	A comparison between two-scale asymptotic expansions and Bloch wave expansions for the homogenization of periodic structures. SeMA Journal, 2016, 73, 237-259.	1.0	47
44	Upscaling nonlinear adsorption in periodic porous media â€“ homogenization approach. Applicable Analysis, 2016, 95, 2126-2161.	0.6	17
45	On the homogenization of multicomponent transport. Discrete and Continuous Dynamical Systems - Series B, 2015, 20, 2527-2551.	0.5	4
46	A linearized approach to worst-case design in parametric and geometric shape optimization. Mathematical Models and Methods in Applied Sciences, 2014, 24, 2199-2257.	1.7	31
47	Multi-phase structural optimizationviaa level set method. ESAIM - Control, Optimisation and Calculus of Variations, 2014, 20, 576-611.	0.7	95
48	Shape optimization with a level set based mesh evolution method. Computer Methods in Applied Mechanics and Engineering, 2014, 282, 22-53.	3.4	100
49	Material interface effects on the topology optimizationof multi-phase structures using a level set method. Structural and Multidisciplinary Optimization, 2014, 50, 623-644.	1.7	69
50	Role of non-ideality for the ion transport in porous media: Derivation of the macroscopic equations using upscaling. Physica D: Nonlinear Phenomena, 2014, 282, 39-60.	1.3	15
51	A mesh evolution algorithm based on the level set method for geometry and topology optimization. Structural and Multidisciplinary Optimization, 2013, 48, 711-715.	1.7	40
52	Ion transport in porous media: derivation of the macroscopic equations using upscaling and properties of the effective coefficients. Computational Geosciences, 2013, 17, 479-495.	1.2	31
53	Asymptotic analysis of the Poissonâ€“Boltzmann equation describing electrokinetics in porous media. Nonlinearity, 2013, 26, 881-910.	0.6	12
54	DIFFRACTION OF BLOCH WAVE PACKETS FOR MAXWELL'S EQUATIONS. Communications in Contemporary Mathematics, 2013, 15, 1350040.	0.6	5

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55	Homogenization of reactive flows in porous media and competition between bulk and surface diffusion. IMA Journal of Applied Mathematics, 2012, 77, 788-815.	0.8	16
56	Modelling and simulation of liquid-vapor phase transition in compressible flows based on thermodynamical equilibrium. ESAIM: Mathematical Modelling and Numerical Analysis, 2012, 46, 1029-1054.	0.8	29
57	Homogenization of a nonstationary convection-diffusion equation in a thin rod and in a layer. BoletÃn De La Sociedad EspaÃ‘ola De MatemÃ‡tica Aplicada, 2012, 58, 53-95.	0.9	4
58	Homogenization and concentration for a diffusion equation with large convection in a bounded domain. Journal of Functional Analysis, 2012, 262, 300-330.	0.7	15
59	Topology and geometry optimization of elastic structures by exact deformation of simplicial mesh. Comptes Rendus Mathematique, 2011, 349, 999-1003.	0.1	36
60	Diffractive Geometric Optics for Bloch Wave Packets. Archive for Rational Mechanics and Analysis, 2011, 202, 373-426.	1.1	21
61	Damage and fracture evolution in brittle materials by shape optimization methods. Journal of Computational Physics, 2011, 230, 5010-5044.	1.9	88
62	Homogenization of nonlinear reaction-diffusion equation with a large reaction term. Annali Dell'Universita Di Ferrara, 2010, 56, 141-161.	0.7	17
63	Two-scale expansion with drift approach to the Taylor dispersion for reactive transport through porous media. Chemical Engineering Science, 2010, 65, 2292-2300.	1.9	48
64	Approximation of liquidâ€“vapor phase transition for compressible fluids with tabulated EOS. Comptes Rendus Mathematique, 2010, 348, 473-478.	0.1	7
65	Homogenization of the linearized ionic transport equations in rigid periodic porous media. Journal of Mathematical Physics, 2010, 51, .	0.5	36
66	Localization of high-frequency waves propagating in a locally periodic medium. Proceedings of the Royal Society of Edinburgh Section A: Mathematics, 2010, 140, 897-926.	0.8	7
67	Homogenization Approach to the Dispersion Theory for Reactive Transport through Porous Media. SIAM Journal on Mathematical Analysis, 2010, 42, 125-144.	0.9	39
68	Two asymptotic models for arrays of underground waste containers. Applicable Analysis, 2009, 88, 1445-1467.	0.6	4
69	Diffractive behavior of the wave equation in periodic media: weak convergence analysis. Annali Di Matematica Pura Ed Applicata, 2009, 188, 561.	0.5	20
70	Minimum stress optimal design with the level set method. Engineering Analysis With Boundary Elements, 2008, 32, 909-918.	2.0	135
71	Shape and topology optimization of the robust complianceviathe level set method. ESAIM - Control, Optimisation and Calculus of Variations, 2008, 14, 43-70.	0.7	80
72	Periodic Homogenization and Effective Mass Theorems for the SchrÃ¶dinger Equation. Lecture Notes in Mathematics, 2008, , 1-44.	0.1	8

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73	Homogenization of periodic non self-adjoint problems with large drift and potential. ESAIM - Control, Optimisation and Calculus of Variations, 2007, 13, 735-749.	0.7	19
74	A strictly hyperbolic equilibrium phase transition model. Comptes Rendus Mathematique, 2007, 344, 135-140.	0.1	11
75	Homogenization of a convectionâ€“diffusion model with reaction in a porous medium. Comptes Rendus Mathematique, 2007, 344, 523-528.	0.1	51
76	Localization for the SchrÃ¶dinger Equation in a Locally Periodic Medium. SIAM Journal on Mathematical Analysis, 2006, 38, 127-142.	0.9	8
77	Structural optimization with $t{FreeFem++}$. Structural and Multidisciplinary Optimization, 2006, 32, 173-181.	1.7	77
78	Combining topological and shape derivatives in structural optimization. , 2006, , 644-644.		1
79	Coupling the Level Set Method and the Topological Gradient in Structural Optimization. , 2006, , 3-12.		21
80	A level-set method for vibration and multiple loads structural optimization. Computer Methods in Applied Mechanics and Engineering, 2005, 194, 3269-3290.	3.4	175
81	Homogenization of the SchrÃ¶dinger Equation and Effective Mass Theorems. Communications in Mathematical Physics, 2005, 258, 1-22.	1.0	85
82	On the band gap structure of Hill's equation. Journal of Mathematical Analysis and Applications, 2005, 306, 462-480.	0.5	5
83	Topology optimization for minimum stress design with the homogenization method. Structural and Multidisciplinary Optimization, 2004, 28, 87.	1.7	123
84	Homogenization of Periodic Systems with Large Potentials. Archive for Rational Mechanics and Analysis, 2004, 174, 179-220.	1.1	37
85	Structural optimization using sensitivity analysis and a level-set method. Journal of Computational Physics, 2004, 194, 363-393.	1.9	2,015
86	Topology Optimization with the Homogenization and the Level-Set Methods. , 2004, , 1-13.		2
87	Structural Optimization by the Level-Set Method. , 2003, , 1-15.		6
88	Dispersive limits in the homogenization of the wave equation. Annales De La FacultÃ© Des Sciences De Toulouse, 2003, 12, 415-431.	0.3	14
89	UNIFORM SPECTRAL ASYMPTOTICS FOR SINGULARLY PERTURBED LOCALLY PERIODIC OPERATORS. Communications in Partial Differential Equations, 2002, 27, 705-725.	1.0	20
90	A Five-Equation Model for the Simulation of Interfaces between Compressible Fluids. Journal of Computational Physics, 2002, 181, 577-616.	1.9	409

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91	Homogenization and localization for a 1-D eigenvalue problem in a periodic medium with an interface. Annali Di Matematica Pura Ed Applicata, 2002, 181, 247-282.	0.5	11
92	A level-set method for shape optimization. Comptes Rendus Mathematique, 2002, 334, 1125-1130.	0.1	426
93	Shape Optimization by the Homogenization Method. Applied Mathematical Sciences (Switzerland), 2002, , .	0.4	562
94	Homogenization of a spectral problem in neutronic multigroup diffusion. Computer Methods in Applied Mechanics and Engineering, 2000, 187, 91-117.	3.4	30
95	Boundary layer tails in periodic homogenization. ESAIM - Control, Optimisation and Calculus of Variations, 1999, 4, 209-243.	0.7	115
96	Bloch wave homogenization and spectral asymptotic analysis. Journal Des Mathematiques Pures Et Appliquees, 1998, 77, 153-208.	0.8	103
97	Boundary Layers in the Homogenization of a Spectral Problem in Fluid–Solid Structures. SIAM Journal on Mathematical Analysis, 1998, 29, 343-379.	0.9	30
98	Simulation numÃ©rique de l'endommagement Ã l'aide du modÃ¨le Francfort-Marigo. ESAIM: Proceedings and Surveys, 1998, 3, 1-9.	0.4	4
99	Shape optimization by the homogenization method. Numerische Mathematik, 1997, 76, 27-68.	0.9	213
100	The homogenization method for topology and shape optimization. Single and multiple loads case. Revue Europeenne Des Elements, 1996, 5, 649-672.	0.1	19
101	Homogenization and Two-Scale Convergence. SIAM Journal on Mathematical Analysis, 1992, 23, 1482-1518.	0.9	1,700
102	Topology optimization in quasi-static plasticity with hardening using a level-set method. Structural and Multidisciplinary Optimization, 0, , .	1.7	9
103	Crime pays; homogenization for long times. SÃ©minaire Laurent Schwartz â€” EDP Et Applications, 0, , 1-9.	0.0	1
104	Non-linear boundary condition for non-ideal electrokinetic equations in porous media. Applicable Analysis, 0, , 1-32.	0.6	0