

ANDREJ V. CHERKAEV
LIST of PUBLICATIONS ¹

References

- [1] K. Lurie, A. Cherkhaev. On applying Prager's theorem to the problems of optimal design of thin plates. *Mechanics of Solids (Izv. Acad. Sci. USSR, MTT)*, 1976, N.6, pp. 157-159.
- [2] A. Cherkhaev. On the problem of formulating the problem of optimal design of freely oscillating structures.- *PMM (J. Appl. Math.and Mech.)*, 1978, 42, N.1, pp. 194-197.
- [3] J.-L.Armand, K.Lurie, A. Cherkhaev. On solution of problems of optimization of eigenvalues in designing elastic constructions. *Mechanics of Solids (Izv. Acad. Sci. USSR, MTT)*, 1978.
- [4] K.Lurie, A.Cherkhaev. Nonhomogeneous bar of extremal torsional rigidity.- in: *Nonlinear problems of engineering mechanics. Optimization of constructions*, Kiev, 1978. pp. 80-89. (in Russian)
- [5] Yu.Bulatov, A.Cherkhaev. On the optimal form of an axis of an elastic curved bar. in: *Methods and facilities of mathematical modeling*, Alma-Ata, 1978. pp. 87-93. (in Russian)
- [6] A.Cherkhaev. Some problems of optimal design of elements of elastic structures.Ph.D. Thesis, Saint Petersburg Technical University. 1979. 130p. (in Russian)
- [7] N.Lavrov, K.Lurie, A.Cherkhaev. Non-homogeneous bar of extremal torsional rigidity. *Mechanics of Solids (Izv. Acad. Sci.)*, 1980, N.6.
- [8] K.Lurie, A.Fedorov, A.Cherkhaev. On limiting facilities of design of elastic plates. *Proceedings of XII All-Union Conference on theory plates and shells*, Yerevan, 1980, v. 3, pp. 25-30. (in Russian)
- [9] K.Lurie, A.Fedorov, A.Cherkhaev. Regularization of optimal problems of design of bars and plates. Report N. 667, *Phys.-Tech. Inst. Acad. Sci. USSR*, 1980, 60 pp. (in Russian)
- [10] K.Lurie, A.Fedorov, A.Cherkhaev. On existence of the solutions of some problems of optimal design of bars and plates.- Report N. 668, *Phys.-Tech. Inst. Acad. Sci. USSR.*, 1980, 43 pp. (in Russian)

¹The conference abstracts etc. minor publications are not included in the list.

- [11] K.Lurie, A.Fedorov, A.Cherkaev. Regularization of optimal problems of design of bars and plates and solving the contradictions in a system of necessary conditions of optimality. Part 1. J. Opt. Theory Appl. , 1982, v. 37, N. 4, pp. 499-522.
- [12] K.Lurie, A.Fedorov, A.Cherkaev. Regularization of optimal problems of design of bars and plates and solving the contradictions in a system of necessary conditions of optimality. Part 2. J. Opt. Theory Appl. , 1982, v. 37, N. 4, pp. 523-542 (part 2).
- [13] N.Olhoff, K.Lurie, A.Fedorov, A.Cherkaev. Sliding regimes and anisotropy in optimal design of vibrating axisymmetric plates. Report N. 192, The Technical University of Denmark, 1980, 34 pp.
- [14] N.Olhoff, K.Lurie, A.Fedorov, A.Cherkaev. Sliding regimes and anisotropy in optimal design of vibrating axisymmetric plates. Int. J. of Solids and Structures, 1981, 17, No. 10, pp. 931-948.
- [15] K.Lurie, A.Cherkaev. Editor's supplement to the Russian translation of the book by N.Olhoff "Optimal design of elastic construction elements (problems of vibration and loss of stability)" M. Mir, 1981. 16p. (in Russian)
- [16] K.Lurie, A.Cherkaev. Exact estimates of conductivity of mixtures composed of two materials taken in prescribed proportion (plane problem).- Doklady Akademii Nauk SSSR, 1982, 264, N.5, pp. 1128-1130.
- [17] K.Lurie, A.Cherkaev. Exact estimates of conductivity of mixtures composed of two isotropic media taken in prescribed proportion. Report 783, Phys.-Tech. Inst. Acad. Sci. USSR, 1982, 32p. (in Russian)
- [18] K.Lurie, A.Cherkaev. Exact estimates of conductivity of mixtures composed of two isotropic media taken in prescribed proportion. Proceed. Roy. Soc. Edinburgh.,sect. A, 1984, 99 (P1-2), pp. 71-87.
- [19] A.Fedorov, A.Cherkaev. Choosing of optimal orientation of axes of elastic symmetry of orthotropic plate. Mech. Solids, (Izv. Acad. Sci. USSR, MTT) ,1983, No.3, pp. 135-142.
- [20] K.Lurie, A.Cherkaev. G-closure of a set of conducting media (two-dimensional problem). Doklady Akademii Nauk SSSR, 1981, 259, N.2, pp. 238-241.
- [21] K.Lurie, A.Cherkaev. G-closure of a set of anisotropic conducting media in the two-dimensional case. J. Opt. Theory Appl. , 1984, 42, N.2, pp. 283-304.

- [22] K.Lurie, A.Chерkaev. G-closure of some particular sets of admissible material characteristics for the problem of bending of the thin elastic plates. *J. Opt. Theory Appl.* , 1984, 42, N.2, pp. 305-316.
- The preliminary version of the last paper has been published as:
- [23] K.Lurie, A.Chерkaev. Report N. 213, The Technical University of Denmark, 1981, 18 pp.; *J. Opt. Theory Appl.* , 1984, 42, N.2, pp. 305-316.
- [24] J.-L.Armand, K.A.Lurie, A.Chерkaev. Optimal control theory and structural design. In: *New directions in optimal structural design*, H.Atreck, R.H.Gallagher, O.C.Zienkewicz eds., Wiley, 1984, pp. 211-229.
- [25] L.Gibiansky. A.Chерkaev. Optimal design of composite plates.- *Proceedings of All-Union Conference "Problems of reduction of specific consumption of materials of load-bearing units"*. Gorkij, 1984, pp. 27-28. (in Russian)
- [26] K.Lurie, A.Chерkaev. Exact estimates of conductivity of a binary mixture of isotropic compounds.Report N.894, *Phys.-Tech. Inst. Acad. Sci. USSR*, 1984, 26 pp.
- [27] K.Lurie, A.Chерkaev. Exact estimates of conductivity of a binary mixture of isotropic compounds. *Proceedings R. Soc. Edinburgh, sect. A*, 1986, 104 (P1-2), pp. 21-38.
- [28] K.Lurie, A.Chерkaev. The problem of formation of an optimal isotropic multicomponent composite. Report No. 895, *Phys.-Tech. Inst. Acad. Sci. USSR*, 1984, 32 pp. (in Russian)
- [29] K.Lurie, A.Chерkaev. Optimal design of elastic bodies and the problem of regularization. *Dynamics and strength of mechanisms*, 1984, No. 40/80, pp. 25-31. (in Russian)
- [30] K.Lurie, A.Chерkaev. Effective characteristics of composites and problems of optimal design. *Advances of mathematical sciences*, 1984, v.39, N.4(238), pp. 122. (in Russian).
- [31] K.Lurie, A.Chерkaev. Effective characteristics of composites and problems of optimal design. *Advances of mathematical sciences*, English translation in: *Chapter: Topics in the mathematical modelling of composite materials*, A.Chерkaev. and R.Kohn editors Birkhausen, NY, 1994.
- [32] L.Gibiansky, A.Chерkaev. Design of composite plates of extremal rigidity. Report 914. *Phys.-Tech. Inst. Acad. Sci. USSR, Leningrad*,1984, 60 pp. (in Russian).
- [33] L.Gibiansky, A.Chерkaev. Design of composite plates of extremal rigidity. English translation in: *Chapter: Topics in the mathematical modelling of composite materials*, A.Chерkaev. and R.Kohn editors, Birkhausen, NY, 1994.

- [34] L.Gibiansky, A.Cherkaev. Exact estimates of energy of deformation of elastic composite plates; application to the problems of optimal design. Proceedings of II All-Union "Strength, rigidity and adaptability to manufacture structures from composite materials", Yerevan, 1984, v.1, pp. 171-176. (in Russian)
- [35] K.Lurie, A.Cherkaev. Method of deriving the exact estimates of effective constants of composites.- Problems of nonlinear mechanics of continuous medium, 1985, Tallinn, pp. 63-72. (in Russian)
- [36] S.B.Vigdergauz, A.Cherkaev. A hole in a plate, optimal for its biaxial extension compression.- PMM J. Appl.Math.and Mech., 1986, v.50, N.3, pp. 401-404.
- [37] K.Lurie, A.Cherkaev. Optimization of properties of multicomponent isotropic composites. J. Optim. Theory and Applic., 1985, 46, N.4, pp. 571-580.
- [38] L.Gibiansky, K.Lurie, A.Cherkaev. Optimum focusing of heat flux by means of a non-homogeneous heat conducting medium. Report 305, The Technical University of Denmark, 1985. 11 pp.
- [39] A.Cherkaev. Relaxation of non-convex multidimensional problems by means of constructing quasi-convex envelopes.- Advances of mathematical sciences, 1986, v. 41, No. 4 (250). (in Russian)
- [40] K. A. Lurie and A. V. Cherkaev. Effective characteristics of composite materials and the optimal design of structural elements. Uspekhi Mekhaniki = Advances in Mechanics, 9(2):3781, 1986.
- [41] L.Gibiansky, A.Cherkaev. Microstructures of composites of extremal rigidity and exact estimates of provided energy density. Report 1115. Phys.-Tech. Inst. Acad. Sci. USSR, Leningrad, 1987. (in Russian) .
- [42] L.Gibiansky, A.Cherkaev. Microstructures of composites of extremal rigidity and exact estimates of provided energy density. English translation in: Topics in the mathematical modelling of composite materials, A.Cherkaev. and R.Kohn editors, Birkhausen, NY, 1994.
- [43] L.Gibiansky, Ju. Malinin, A.Cherkaev. Optimal Distribution of Viscoelastic Materials in Axisymmetric Constructions. Report N.1116, Phys.-Tech. Inst. Acad. Sci. USSR, Leningrad, 1987, 41 pp.(in Russian)
- [44] K. A. Lurie and A. V. Cherkaev. On g-closure (erratum). Journal of Optimization Theory and Applications, 53(2): 319-339, May 1987.

- [45] T.Romanova, I.Poljakova, A.Mjagy, A.Cherkaev. Dynamic head of loud-speaker.- Author's certificate N1304177 of 12.15.1986. (in Russian)
- [46] L.Gibiansky, A.Cherkaev. Optimal design of nonlinear-elastic and plastic-elastic bars under torsion. Mechanics of solids (Izv. Acad. Sci. USSR, MTT), 1988, N. 5, pp. 168-174.
- [47] K.Lurie, L.Gibiansky, A.Cherkaev. Optimal focusing of heat flow by heterogeneous heat-conducting media (thermo-lens problem). J. Techn. Phys. (Zh. Tech. Fiz.) Acad. Sci. USSR, 1988, 58, N.1, pp. 67-74.
- [48] M.Avellaneda, A.Cherkaev, K.Lurie, G.Milton On the effective conductivity of polycrystals and a 3-dimensional phase-interchange inequality.- J. Appl. Phys., 1988, 63, N.10, pp. 4989-5003.
- [49] L.Gibiansky, A.Cherkaev. The set of tensor pairs of dielectric and magnetic permeabilities of two-phase composites.- Report N. 1286, Phys.-Tech. Inst. Acad. Sci. USSR, 1988, 51 pp. (in Russian)
- [50] A.Cherkaev. Optimization the structure of inhomogeneous bodies by variational methods. Dissertation for degree "Doctor of Physics and Mathematics". Leningrad State University, 1988. 330 pp. (in Russian)
- [51] K.Lurie, A.Cherkaev. On a certain variational problem of phase equilibrium. In: Material Instabilities in Continuum Mechanics and Related Mathematical Problems, ed. by J. Ball, Clarendon Press, Oxford, 1988, pp.257-268.
- [52] M.Avellaneda, A.Cherkaev, K.Lurie, G.Milton Conductivity of polycrystals and a phase interchange inequality.- Physica A, 1989, 157, N.1, pp. 148-153.
- [53] L.Gibiansky, V.Serikov N. Serikova, Yu Malinin, A.Cherkaev. Membrane-surface forms during local change of surface-energy applications to endocytosis processes.- Biologicheskie membrany, 7, No. 3, 1990 pp. 326-334. (in Russian)
- [54] A.Cherkaev. On the optimization of rigidity of an elastic construction. Proceedings of Leningrad Shipbuilding Inst. Seria "Applied Mathematics". 1990, pp.25-34. (in Russian)
- [55] L.Gibiansky, A.Cherkaev. Improving the Hashin-Strickman estimates by means of the translation method. Proceedings of SIAM workshop in micromechanics. Leesburgh, Virginia, 1991.
- [56] L.Gibiansky, A.Cherkaev. The exact coupled bounds for effective tensors of electrical and magnetic properties of two-component two-dimensional composites. 42 pp. Proceed. of Royal Soc. of Edinburgh, v, 122A, pp. 93-125. 1992.

- [57] L.Gibiansky, A.Cherkaev. Coupled estimates for the bulk and shear moduli of a two-dimensional isotropic elastic composite. *J.Mech. Phys. Solids* 41 (5), 937-980, 1993.
- [58] G.W.Milton, A.Cherkaev, K.A.Lurie Invariant properties of the stress in plane elasticity and equivalence classes of composites. *Proc R.Soc. Lond. A* (1992), v. 438, pp. 519-529.
- [59] A.Cherkaev. Stability of optimal structures of elastic composites. In: *Topology Design of Structures*. M.Bendsoe and C.A.Mota Soares editors. p. 547-558, Kluwer, 1992.
- [60] A.Cherkaev. Conducting and Elastic Composites of Optimal Structures. In: *Structural Optimization 93*, J.Herskovits ed., vol. 1, pp. 377- 385. ABCM, Brazil, 1993.
- [61] G. W. Milton and A. V. Cherkaev. Materials with elastic tensors that range over the entire set compatible with thermodynamics. Abstracts of the Joint ASCE-ASME-SES Meeting, June, 1993, 679, 1993.
- [62] L.Gibiansky, A.Cherkaev. Variational principles for complex conductivity, viscoelasticity and similar problems in media with complex moduli. *J. of Math. Physics* 35 (1), pp. 1-19, 1994.
- [63] A.Cherkaev. Relaxation of problems of optimal structural design. *Int. J. of Solids and Structures* 31, N0 16, pp 2251-2280, 1984.
- [64] A.Cherkaev. Reducing of optimal design problems to the minimal variational problem. 34 pp. Submitted to: *Proceedings of the second Workshop on Composite Media and Homogenization in Trieste*. Dal Maso- editor.
- [65] A.Cherkaev, L.Gibiansky. Extremal structures of multiphase composites. *International Journal of Solids and Structures* July 1996
- [66] A.Cherkaev, L. Slepian. Waiting element structures and stability under extension. *J. of Appl. Mechanics*, 1995 / 01 Vol. 4; Iss. 1
- [67] A.Cherkaev, R.Palais. Optimal design of Three-Dimensional Axisymmetric Structures. *Int. J. of Structural optimization*, v. 12, pp. 35-45 (1996)
- [68] A.Cherkaev, and R. Palais (1998). Optimal design of three-dimensional axisymmetric elastic structures, in C. T. Leondes (ed.), *Structural Dynamical Systems: Computational Technologies and Optimization*, Gordon and Breach Science Publ., pp. 237-267.
- [69] M. Avellaneda, A. Cherkaev, L.Gibiansky, G.W.Milton, M. Rudelson. Complete characterization of possible isotropic effective tensors of polycrystals in planar elasticity (orthotropic monocrystal). *Journal of Mechanics and Physics of Solids* 44(7) 1179-1218.

- [70] E.Cherkaeva and A.Cherkaev. Bounds for delectability of material damage by noisy electrical measurements, Structural and Multidisciplinary Optimization, WCSMO-1 First World Congress of Structural and Multidisciplinary Optimization. N.Olhoff and G.I.N.Rozvany eds., Pergamon 1995. pp. 543-548.
- [71] A. Cherkaev, R.Palais. Optimal Design of three-dimensional Elastic Structures. WCSMO-1 First World Congress of Structural and Multidisciplinary Optimization N.Olhoff and G.I.N.Rozvany eds., Pergamon 1995. pp. 201-206.
- [72] A. Cherkaev. What Structures are Optimal for a General Problem of Structural Design? WCSMO-1 First World Congress of Structural and Multidisciplinary Optimization N.Olhoff and G.I.N.Rozvany Des, Pergamon 1995. pp. 219-224.
- [73] G.W.Milton, A.Cherkaev. Which elasticity tensors are realizable? J of Eng. Mat. and Technology, 117, 1995. pp 483-493.
- [74] E. Cherkaeva and A. Cherkaev. Bounds for detectability of material damage by noisy electrical measurements. In: Structural and multidisciplinary optimization, N. Olhoff and G.I.N.Rozvany eds, Pergamon, 1995, pp. 543-548.
- [75] E. Cherkaeva and A. V. Cherkaev. Design versus loading: min-max approach. In: Proceedings of the World Congress of Structural and Multidisciplinary Optimization (WCSMO-3 99), 1995.
- [76] A. Cherkaev, R.Palais. NIST-CTCMS International Workshop on Optimal Design for Materials and Structures. Structural Optimization 13 (1) 1997. pp 1-4.
- [77] T. Burns A. Cherkaev. Optimal distribution of multimaterial composites for torsion beams. Structural Optimization 13 (1) 1997. pp 1-4.
- [78] Topics in the mathematical modeling of composite materials, A.Cherkaev and R. Kohn editors, Birkhausen, NY, 1997.
- [79] A. Cherkaev, R. Kohn. Introduction (to topics in the mathematical modeling of composite materials). In: Topics in the Mathematical Modeling of Composite Materials, A.Cherkaev and R. Kohn eds., Birkhauser, 1997.
- [80] A.Cherkaev, Y. Grabovsky, A.B.Movchan, and S.K.Serkov. Optimality of dilute composites under shear load, in "IUTAM Symposium on Transformation Problems in Composite and Active Materials" Proceedings of the IUTAM Symposium held in Cairo, Egypt, 9-12 March 1997 G. M. L. Gladwell, Yehia A., Y. A. Bahei-el-Din and G. J. Dvorak, eds., pp. 285-300, Springer Netherlands, 2002.

- [81] A. Cherkaev, Y. Grabovsky, A. B.Movchan, S. K. Serkov. The cavity of the optimal shape under shear stresses, *Int. J. Solids Struct.*, 35, No. 33, pp. 4391-4410, 1998.
- [82] Lars A. Krog, Andrej V. Cherkaev, and Ismail Kuchuk. Stable optimal design of two-dimensional elastic structures. Report, Institute of Mechanical Engineering, Aalborg University, Denmark and Department of Mathematics, University of Utah, Aalborg, Denmark and Salt Lake City, UT, USA, February 1998.
- [83] E.Cherkaeva and A.Cherkaev. Optimal design for uncertain loading conditions. In: *Homogenization*, V.Berdichevsky, V.Jikov, and G.Papanicolaou, eds., World Scientific, 1999, 193-213.
- [84] A. Cherkaev. L. Krog and I. Kucuk. Stable Optimal design of two-dimensional structures made from optimal composites. *Control and Cybernetics*, v.27, n.2, 1998, pp. 265-282,
- [85] E.Cherkaeva, A.Cherkaev. Structural optimization and biological "designs". In: *Proceedings of IUTAM Symposium: Synthesis in bio solid mechanics*. M.Bendsoe and P.Pedersen eds., Kluwer, 1998.
- [86] Lars A. Krog, Andrej V. Cherkaev, and Ismail Kucuk. Stable optimal design of two-dimensional elastic structures. Report, Institute of Mechanical Engineering, Aalborg University, Denmark and Department of Mathematics, University of Utah, Aalborg, Denmark and Salt Lake City, UT, USA, February 1998.
- [87] A. Cherkaev, R.Palais. Optimization of Elastic Structures. Axisymmetric Problem. In: *Structural Dynamic Systems. Computational Techniques and Optimization. Optimization Techniques*. C.T. Leondes- ed, Gorgon and Breach Sc. Publ. 1999, pp. 237- 267.
- [88] A. Cherkaev. *Variational methods for structural optimization*. Springer Verlag NY 2000.
- [89] A.Cherkaev. (2000). Relaxation of One-Dimensional Variational Problems. In: *Variational Methods for Structural Optimization*. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_1
- [90] A.Cherkaev (2000). Conducting Composites. In: *Variational Methods for Structural Optimization*. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_2
- [91] A.Cherkaev. (2000). Bounds and G-Closures. In: *Variational Methods for Structural Optimization*. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_3

- [92] A.Cherkaev. (2000). Domains of Extremal Conductivity. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_4
- [93] A.Cherkaev. (2000). Optimal Conducting Structures. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_5
- [94] A.Cherkaev. (2000). Quasiconvexity. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_6
- [95] A.Cherkaev. (2000). Optimal Structures and Laminates. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_7
- [96] A.Cherkaev. (2000). Lower Bound: Translation Method. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_8
- [97] A.Cherkaev. (2000). Necessary Conditions and Minimal Extensions. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_9
- [98] A.Cherkaev. (2000). Obtaining G-Closures. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_10
- [99] A.Cherkaev. (2000). Examples of G-Closures. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_11
- [100] A.Cherkaev. (2000). Multimaterial Composites. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_12
- [101] A.Cherkaev. (2000). Supplement: Variational Principles for Dissipative Media. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_13
- [102] Andrej Cherkaev, Vladimir Vinogradov, Seubpong Leelavanishkul. The waves of damage in elastic-plastic lattices with waiting links: design and simulation. *Mechanics of Materials* 38, 748-756, 2000.

- [103] A.Cherkaev. (2000). Elasticity of Inhomogeneous Media. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_14
- [104] A.Cherkaev. (2000). Elastic Composites of Extremal Energy. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_15
- [105] A.Cherkaev. (2000). Bounds on Effective Properties. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_16
- [106] A.Cherkaev, (2000). Some Problems of Structural Optimization. In: Variational Methods for Structural Optimization. Applied Mathematical Sciences, vol 140. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-1188-4_17
- [107] A.Cherkaev and I. Kucuk. Equally stressed structures: Two-dimensional perspective. In: Topology Optimization of Structures and Composite Continua, G.I.N.Rozvany and N.Olhoff eds. Kluwer 2000, 251-266.
- [108] A. Balk, A. Cherkaev, and L. Slepyan Dynamics of solids with non-monotone stress-strain relations. I. Model and numerical experiments. J. Mech. Phys. Solids, 49 (2001) 131-148.
- [109] A.Cherkaev. 2001. An Introduction to Homogenization by Doina Cioranescu. SIAM Review 43(4):713-715
- [110] A. Balk, A. Cherkaev, and L. Slepyan Dynamics of solids with non-monotone stress-strain relations. II. Nonlinear waves and waves of phase transition. J. Mech. Phys. Solids. 49 (2001) 149-172.
- [111] E. Cherkaev and A. Cherkaev, Principal compliance and robust optimal design, The Rational Spirit in Modern Continuum Mechanics, Essays and Papers Dedicated to the Memory of Clifford Ambrose Truesdell III, 2003, Also in: Journal of Elasticity, 2003, 72, 71-98.
- [112] Andrej Cherkaev, Ismail Kucuk Detecting stress fields in an Optimal Structure I: Two-dimensional Case and Analyzer Int.J Struct. Opt. January 2004 pp 1-15
- [113] A.Cherkaev, I.Kucuk. Detecting stress fields in an Optimal Structure II: Three-dimensional Case, Int. J Struct. Opt. January 2004, pp 15-24.

- [114] A.Cherkaev, L.Zhornitskaya Dynamics of damage in two-dimensional structures with waiting links In: Asymptotics, Singularities and Homogenisation in Problems of Mechanics, A.B.Movchan editor, Kluwer 2004. pp 273-284,
- [115] Leonid Slepyan, Andrej Cherkaev, Elena Cherkaev, and Vladimir Vinogradov. Transition waves in controllable cellular structures with high structural resistance. In: Proceedings of XXI International Congress of Theoretical and Applied Mechanics. SM24-12170. Warsaw, Poland, 2004
- [116] A.Cherkaev. Approaches to nonconvex variational problems of mechanics. In: Nonlinear homogenization and its applications to composites, polycrystals and smart materials. P.Ponte Castaneda, J.J.Telega and B. Gamblin eds., Kluwer 2004. pp. 65-106. (NATO Science Series, Mathematics, Physics and Chemistry v. 170)
- [117] Seubpong Leelavanishkul and Andrej Cherkaev. Why grains in the tree's trunk spiral: mechanical perspective Structural and Multidisciplinary Optimization, 28, 2-3, 2004, pp. 127-135.
- [118] Andrej Cherkaev and Vladimir Vinogradov. Bounds for expansion coefficients of composites. In: Proceedings of ICTAM-2004, 2004.
- [119] A. Cherkaev, E. Cherkaev, and L. Slepyan, Transition waves in bistable structures I: Delocalization of damage, J. Mech. Phys. Solids, Vol 53/2 pp 383-405, 2005.
- [120] L. Slepyan, A. Cherkaev, and E. Cherkaev, Transition waves in bistable structures II: Analytical solution, wave speed, and energy dissipation, J. Mech. Phys. Solids, Vol 53/2 pp 407-436, 2005.
- [121] A.Cherkaev and L.Zhornitskaya. Protective Structures with waiting links and their damage evolution. Multibody System Dynamics Journal. Multibody System Dynamics Journal. Volume 13, Number 4 May, 2005
- [122] Zachary L. Whitman, Valeria La Saponara, Daniel O. Adams, Seubpong Leelavanichkul, Andrej Cherkaev, Elena Cherkaev, and Vladimir Vinogradov. Advancements in fail safe response with bistable composite structures. In: ASME 2005 International Mechanical Engineering Congress and Exposition, pages 451-456, 2005. American Society of Mechanical Engineers.
- [123] Z.L. Whitman, V. La Saponara, D.O. Adams, S. Leelavanichkul, A. Cherkaev, E. Cherkaev, V.Vinogradov. Improvement in energy absorption through use of bistable structures. IMECE 2005-80627

- [124] N. Albin, A. Cherkaev. Optimality conditions on fields in microstructures and controllable differential schemes (2006) Optimality conditions on fields in microstructures and controllable differential schemes. In: Habib Ammari and Hyeonbae Kang editors. Series: Contemporary Mathematics, number 408, pp 137-150.
- [125] N. Albin, A. Cherkaev, and V. Nesi. A class of optimal two-dimensional multimaterial conducting laminates- pdf In: IUTAM Symposium on Topological Design Optimization of Structures, Machines and Materials Status and Perspectives, SERIES = Solid Mechanics and Its Applications, AMS 2006. VOLUME = 137,
- [126] Andrej Cherkaev and Elena Cherkaev. Optimal design for the worst case scenario. In: III European Conference on Computational Mechanics, pages 380-380, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 2006. Springer-Verlag.
- [127] A.Cherkaev, V.Vinogradov, S.Leelavanichkul. 2006: The waves of damage in elastic-plastic lattices with waiting links: Design and simulation. Mechanics of Materials 38, pp. 748 – 756
- [128] Andrej Cherkaev, Elena Cherkaev and Leonid Slepyan. Dynamics of Structures with Bistable Links. In: Vibration Problems ICOVP 2005. Springer, 2007, Volume 111, 111-122,
- [129] N. Albin, A. Cherkaev and V. Nesi Optimal structures of multimaterial composites. Journal of the Mechanics and Physics of Solids Volume 55, Issue 7, July 2007, Pages 1513-1553
- [130] Elena Cherkaev, Andrej Cherkaev. Minimax optimization problem of structural design. Computers and Structures 86 (2008) 1426-1435
- [131] A. Cherkaev, Y. Zhang Optimal structures of multiphase elastic composites 8th World Congress on Structural and Multidisciplinary Optimization June 1-5, 2009, Lisbon, Portugal
- [132] A. Cherkaev, E. Cherkaev, S. Leelavanichkul Principles of optimization of structures against an impact. 8th World Congress on Structural and Multidisciplinary Optimization June 1-5, 2009, Lisbon, Portugal
- [133] A.Cherkaev, A, Kouznetsov, A.Panchenko. 2009. Still states of bistable lattices, compatibility, and phase transition. Continuum Mechanics and Thermodynamics 22, 6-8, 421-444,
- [134] S.Leelavanichkul, A.Cherkaev. 2009: Elastic Cylinder with Helicoidal Orthotropy: Theory and Applications. International Journal of Engineering Science. 47(1), pp 1-20.

- [135] A.Cherkaev. 2009. Bounds for effective properties of multimaterial two-dimensional conducting composites and fields in optimal composites. *Mechanics of Materials* 41, 411-433.
- [136] S.Leelavanichkul, A.Cherkaev, D.Adams, F.Solzbacher. 2009. Energy Absorption of a Helicoidal Bistable Structure. In: *Journal of Mechanics of Materials and Structures*, 5(2), pp. 305-321.
- [137] A.Movchan, A.Cherkaev, J.Dempsey, M.Ayzenberg-Stepanenko, and E.Sher. 2009. Preface to the special issue in honour of Leonid Slepyan *Continuum Mechanics and Thermodynamics* Volume 22, Numbers 6-8, 413-419.
- [138] Andrej Cherkaev and Yuan Zhang. Optimal structures of multiphase elastic composites. In: *Proceedings of the 8th World Congress on Structural and Multidisciplinary Optimization*, Lisbon, 2009.
- [139] M.A. Antimonov, A. V. Cherkaev, and A.B. Freidin. On transformation surfaces construction for phase transitions in deformable solids. In: *Proceedings of XXXVIII International Summer School-Conference Advanced Problems in Mechanics (APM-2010)*. IPME, St.Petersburg, RAS, pages 23-29, 2010.
- [140] A.Cherkaev, E.Cherkaev, S.Leelavanichkul. 2011: Principle of Optimization of Structures Against an Impact. In: *Journal of Physics: Conference Series* 319(1), pp. 116
- [141] A.Cherkaev, Y.Zhang. 2011. Optimal anisotropic three-phase conducting composites: Plane problem. *International Journal of Solids and Structures* 48 (20), pp. 2800-2813
- [142] A.Cherkaev. Optimal Three-Material Wheel Assemblage of Conducting and Elastic Composites. *International Journal of Engineering Science*, Volume 59, October 2012, Pages 27-39.
- [143] A. Cherkaev, S.Leelavanichkul. 2012. Approaches to description of damageable lattices dynamics. *International Journal of Engineering Science* 58: 35-44.
- [144] A..Cherkaev, S.Leelavanichkul. 2012. An Impact Protective Structure with Bistable Links. *International Journal of Damage Mechanics* vol. 21 no. 5, 697-711.
- [145] A.Cherkaev, A.D.Pruss. 2012. Effective Conductivity of Spiral and other Radial Symmetric Assemblages. *Mechanics of Materials*. v. 65, Pages 103-109.
- [146] Grzegorz Dzierzanowski, Andrej Cherkaev. Three-phase plane composites of minimal elastic stress energy. In: *Proceedings of the 10th World Congress on Structural and Multidisciplinary Optimization*, May 19-24, 2013, Orlando, Florida, USA, pages 1-10, 2013.

- [147] A.Cherkaev, G.Dzierzanowski. 2013. Three-phase plane composites of minimal elastic stress energy: High-porosity structures. *Int. J. Solids and Structures*. Volume 50, Issues 25-26, December 2013, Pages 4145-4160.
- [148] Grzegorz Dzierzanowski, Andrej Cherkaev. Three-phase plane composites of minimal elastic stress energy. In: *Proceedings of the 10th World Congress on Structural and Multidisciplinary Optimization*, May 19?24, 2013, Orlando, Florida, USA, pages 1?10, 2013.
- [149] A.Cherkaev, E.Cherkaev. 2013. Mathematical humor collected by Andrej and Elena Cherkaev <https://www.researchgate.net/publication/259298021>.
- [150] N. Briggs, A.Cherkaev, G. Dzierzanowski. 2015. A Note on Optimal Design of Multiphase Elastic Structures, *Structural and Multidisciplinary Optimization*, v. 51, pp. 749-755.
- [151] M.A.Antimonov, A.Cherkaev, A.B.Freidin. 2017. Phase transformations surfaces and exact energy lower bounds *International Journal of Engineering Science* 98, 153-182.
- [152] A.Cherkaev, M.Kadic, G.W.Milton, M.Wegener. 2019. Pentamode materials: From underwater cloaking to cushioned sneakers *News. Soc. Ind. Appl. Math* 52 (4).
- [153] A.Cherkaev, M.Ryvkin. 2019. Damage propagation in 2d beam lattices: 1. Uncertainty and assumptions *Archive of Applied Mechanics* 89 (3), 485-501.
- [154] A.Cherkaev, M.Ryvkin. 2019. Damage propagation in 2d beam lattices: 2. Design of an isotropic fault-tolerant lattice *Archive of Applied Mechanics* 89 (3), 503-519.
- [155] A.Cherkaev, K.C.Le. 2019. Introduction to the Special Issue in honor of Konstantin Lurie. *Archive of Applied Mechanics* 89 (3), 403-407.
- [156] D.Wang, A.Cherkaev, B.Osting. 2019. Dynamics and stationary configurations of heterogeneous foams. *Plos one* 14(4), e0215836.
- [157] C.Blake, A.Cherkaev. 2020. Dynamic Homogenization of a Chain with Bistable Springs. *Statistical Approach. Nonlinear Wave Dynamics of Materials and Structures*, 77-96.
- [158] M.Ryvkin, V.Slesarenko, A.Cherkaev, S.Rudykh. 2020. Fault-tolerant elastic-plastic lattice material *Philosophical Transactions of the Royal Society A*, 378 (2162), 20190107.
- [159] A.Treibergs, A.Cherkaev, P.Krtolica. 2020. Compatibility conditions for discrete planar structures. *International Journal of Solids and Structures* 184, 248-278.
- [160] A.B.Freidin, L.L.Sharipova, A.Cherkaev. 2021. On equilibrium two-phase microstructures at plane strain *Acta Mechanica* 232 (5), 2005-2021.

- [161] M.Ryvkin, A.Cherkaev. 2021. Analysis of randomly damaged triangular beam lattice: elastic field and effective properties. *Mathematics and Mechanics of Solids* 26 (8), 1219-1237.
- [162] A.Cherkaev, V.Mityushev. 2022. Hashin-Shtrikman assemblage of inhomogeneous spheres. *Mechanics and Physics of Structured Media Asymptotic and Integral Equations Methods.* of Leonid Filshinsky. Academic Press 2022, Pages 99-108.
- [163] A.Cherkaev, V.Mityushev, N.Rylko, P.Kurtyka. 2022. The generalized Hashin-Shtrikman approach to Al/nano-TiC composite. *Proceedings of the Royal Society A* 478, article id.20220164.