Mark Kachanov

List of Publications by Citations

85 papers	4,826 citations	35 h-index	69 g-index
89 ext. papers	5,266 ext. citations	3.8 avg, IF	6 L-index

#	Paper	IF	Citations
85	Effective Elastic Properties of Cracked Solids: Critical Review of Some Basic Concepts. *Applied Mechanics Reviews*, **1992**, 45, 304-335	8.6	647
84	Elastic Solids with Many Cracks and Related Problems. *Advances in Applied Mechanics*, **1993**, 259-445	10	518
83	Elastic solids with many cracks: A simple method of analysis. *International Journal of Solids and Structures*, **1987**, 23, 23-43	3.1	396
82	Continuum Model of Medium with Cracks. *Journal of the Engineering Mechanics Division*, **1980**, 106, 1039-1051		272
81	On quantitative characterization of microstructures and effective properties. *International Journal of Solids and Structures*, **2005**, 42, 309-336	3.1	212
80	Nanoelectromechanics of piezoresponse force microscopy. *Physical Review B*, **2004**, 70,	3.3	206
79	Effect of interphase layers on the overall elastic and conductive properties of matrix composites. Applications to nanosize inclusion. *International Journal of Solids and Structures*, **2007**, 44, 1304-1315	3.1	156
78	Handbook of Elasticity Solutions **2003**,		122
77	Effective elasticity of rocks with closely spaced and intersecting cracks. *Geophysics*, **2006**, 71, D85-D91	3.1	113
76	Effective elasticity of fractured rocks: A snapshot of the work in progress. *Geophysics*, **2006**, 71, W45-W58	3.1	109
75	Three-dimensional problems of strongly interacting arbitrarily located penny-shaped cracks. *International Journal of Fracture*, **1989**, 41, 289-313	2.3	103
74	Interaction of a crack with certain microcrack arrays. *Engineering Fracture Mechanics*, **1986**, 25, 625-636	4.2	96
73	Anisotropic effective conductivity of materials with nonrandomly oriented inclusions of diverse ellipsoidal shapes. *Journal of Applied Physics*, **2000**, 87, 8561-8569	2.5	94
72	Compliance Tensors of Ellipsoidal Inclusions. *International Journal of Fracture*, **1999**, 96, 3-7	2.3	88
71	Modeling elastic properties of siliciclastic rocks. *Geophysics*, **2010**, 75, E171-E182	3.1	84
70	Plasma-sprayed ceramic coatings: anisotropic elastic and conductive properties in relation to the microstructure; cross-property correlations. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2001**, 297, 235-243	5.3	78
69	Impact of the porous microstructure on the overall elastic properties of the osteonal cortical bone. *Journal of Biomechanics*, **2000**, 33, 881-8	2.9	76

68	Interaction of a crack with a field of microcracks. *International Journal of Engineering Science*, **1983**, 21, 1009-1018	5.7	57
67	On crack-microcrack interactions. *International Journal of Fracture*, **1986**, 30, R65-R72	2.3	56
66	On the Concept of Damage in Creep and in the Brittle-Elastic Range. *International Journal of Damage Mechanics*, **1994**, 3, 329-337	3	55
65	The influence of crack shape on the effective elasticity of fractured rocks. *Geophysics*, **2006**, 71, D153-D160	3.1	52
64	Relations between compliances of inhomogeneities having the same shape but different elastic constants. *International Journal of Engineering Science*, **2007**, 45, 797-806	5.7	50
63	Connections between Elastic and Conductive Properties of Heterogeneous Materials. *Advances in Applied Mechanics*, **2009**, 42, 69-252	10	48
62	On modelling of "winged" cracks forming under compression. *International Journal of Fracture*, **1996**, 77, R69-R75	2.3	47
61	Seismic characterization of multiple fracture sets: Does orthotropy suffice?. *Geophysics*, **2006**, 71, D93-D105	3.1	46
60	On approximate symmetries of the elastic properties and elliptic orthotropy. *International Journal of Engineering Science*, **2008**, 46, 211-223	5.7	43
59	On some controversial issues in effective field approaches to the problem of the overall elastic properties. *Mechanics of Materials*, **2014**, 69, 93-105	3.3	41
58	Elastic fields generated by inhomogeneities: Far-field asymptotics, its shape dependence and relation to the effective elastic properties. *International Journal of Solids and Structures*, **2011**, 48, 2340-2348	3.1	41
57	Rice's Internal Variables Formalism and Its Implications for the Elastic and Conductive Properties of Cracked Materials, and for the Attempts to Relate Strength to Stiffness. *Journal of Applied Mechanics, Transactions ASME*, **2012**, 79,	2.7	40
56	Elastic compliances of non-flat cracks. *International Journal of Solids and Structures*, **2007**, 44, 6412-6427	3.1	40
55	Normal and tangential compliances of interface of rough surfaces with contacts of elliptic shape. *International Journal of Solids and Structures*, **2008**, 45, 2723-2736	3.1	39
54	Effective Elastic Properties of Cracked Rocks – An Overview. *CISM International Centre for Mechanical Sciences, Courses and Lectures*, **2011**, 73-125	0.6	38
53	Indentation of spherical and conical punches into piezoelectric half-space with frictional sliding: Applications to scanning probe microscopy. *Physical Review B*, **2007**, 76,	3.3	38
52	On the problems of crack interactions and crack coalescence. *International Journal of Fracture*, **2003**, 120, 537-543	2.3	36
51	Solids with cracks and non-spherical pores: proper parameters of defect density and effective elastic properties. *International Journal of Fracture*, **1999**, 97, 1-32	2.3	35

50	Elastic and Conductive Properties of Plasma-Sprayed Ceramic Coatings in Relation to Their Microstructure: An Overview. *Journal of Thermal Spray Technology*, **2009**, 18, 822-834	2.5	34
49	Effective properties of heterogeneous materials: Proper application of the non-interaction and the dilute limit approximations. *International Journal of Engineering Science*, **2012**, 58, 124-128	5.7	33
48	A simple technique for constructing the full stress and displacement fields in elastic plates with multiple cracks. *Engineering Fracture Mechanics*, **2000**, 66, 51-63	4.2	32
47	Contact of rough surfaces: A simple model for elasticity, conductivity and cross-property connections. *Journal of the Mechanics and Physics of Solids*, **2008**, 56, 1380-1400	5	31
46	Homogenization of a Nanoparticle with Graded Interface. *International Journal of Fracture*, **2006**, 139, 121-127	2.3	30
45	Piezoelectric indentation of a flat circular punch accompanied by frictional sliding and applications to scanning probe microscopy. *International Journal of Engineering Science*, **2009**, 47, 221-239	5.7	29
44	Anisotropic thermal conductivities of plasma-sprayed thermal barrier coatings in relation to the microstructure. *Journal of Thermal Spray Technology*, **2000**, 9, 478-482	2.5	29
43	Porous microcracked ceramics under compression: Micromechanical model of non-linear behavior. *Journal of the European Ceramic Society*, **2013**, 33, 2073-2085	6	27
42	Stiffness relations for piezoelectric indentation of flat and non-flat punches of arbitrary planform: Applications to probing nanoelectromechanical properties of materials. *Journal of the Mechanics and Physics of Solids*, **2009**, 57, 673-688	5	27
41	Microstructure–Property Connections for Porous Ceramics: The Possibilities Offered by Micromechanics. *Journal of the American Ceramic Society*, **2016**, 99, 3829-3852	3.8	24
40	Incremental linear-elastic response of rocks containing multiple rough fractures: Similarities and differences with traction-free cracks. *Geophysics*, **2010**, 75, D1-D11	3.1	22
39	Explicit elasticity–conductivity connections for composites with anisotropic inhomogeneities. *Journal of the Mechanics and Physics of Solids*, **2007**, 55, 2181-2205	5	20
38	Connection between elastic and conductive properties of microstructures with Hertzian contacts. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2004**, 460, 1529-1534	2.4	20
37	Is the concept of "average shape" legitimate, for a mixture of inclusions of diverse shapes?. *International Journal of Solids and Structures*, **2012**, 49, 3242-3254	3.1	19
36	On Absence of Quantitative Correlations Between Strength and Stiffness in Microcracking Materials. *International Journal of Fracture*, **2010**, 164, 155-158	2.3	17
35	On the Effective Elastic Properties of Cracked Solids (Editor's Comments. *International Journal of Fracture*, **2007**, 146, 295-299	2.3	15
34	On the isotropic and anisotropic viscosity of suspensions containing particles of diverse shapes and orientations. *International Journal of Engineering Science*, **2015**, 94, 71-85	5.7	14
33	Local Minima and Gradients of Stiffness and Conductivity as Indicators of Strength Reduction of Brittle-Elastic Materials. *International Journal of Fracture*, **2010**, 164, 147-154	2.3	14

32	Sliding on cracks with non-uniform frictional characteristics. *International Journal of Solids and Structures*, **2001**, 38, 7501-7524	3.1	14
31	Effect of a partial contact between the crack faces on its contribution to overall material compliance and resistivity. *International Journal of Solids and Structures*, **2017**, 108, 289-297	3.1	13
30	Incremental compliance and resistance of contacts and contact clusters: Implications of the cross-property connection. *International Journal of Engineering Science*, **2009**, 47, 974-989	5.7	13
29	Connection between elastic moduli and thermal conductivities of anisotropic short fiber reinforced thermoplastics: theory and experimental verification. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2003**, 360, 339-344	5.3	13
28	On modeling of microstresses and microcracking generated by cooling of polycrystalline porous ceramics. *Journal of the European Ceramic Society*, **2013**, 33, 1995-2005	6	11
27	Non-interaction Approximation in the Problem of Effective Properties. *Solid Mechanics and Its Applications*, **2013**, 1-95	0.4	10
26	On the effective properties of polycrystals with intergranular cracks. *International Journal of Solids and Structures*, **2019**, 156-157, 243-250	3.1	10
25	On the possibility to represent effective properties of a material with inhomogeneities in terms of concentration parameters. *International Journal of Solids and Structures*, **2015**, 52, 197-204	3.1	9
24	On microstructural mechanisms causing non-linear stress-strain behavior of porous ceramics under tension. *International Journal of Fracture*, **2013**, 183, 283-288	2.3	9
23	On some controversial issues in rock physics. *The Leading Edge*, **2012**, 31, 636-642	1	9
22	Elasticity□onductivity connections for contacting rough surfaces: An overview. *Mechanics of Materials*, **2009**, 41, 375-384	3.3	9
21	On the Relationship Between Microstructure of the Cortical Bone and its Overall Elastic Properties. *International Journal of Fracture*, **1998**, 92, 1-8	2.3	9
20	Micromechanical modeling of non-linear stress-strain behavior of polycrystalline microcracked materials under tension. *Acta Materialia*, **2019**, 164, 50-59	8.4	9
19	Plastic yield surfaces of anisotropic porous materials in terms of effective electric conductivities. *Mechanics of Materials*, **2006**, 38, 908-923	3.3	8
18	On the anisotropy of cracked solids. *International Journal of Engineering Science*, **2018**, 124, 16-23	5.7	7
17	Non-uniform frictional sliding under cyclic loading with frictional characteristics changing in the process of sliding. *International Journal of Solids and Structures*, **2002**, 39, 89-104	3.1	7
16	On the effect of interactions of inhomogeneities on the overall elastic and conductive properties. *International Journal of Solids and Structures*, **2014**, 51, 4531-4543	3.1	6
15	Contacts and cracks of complex shapes: Crack-contact dualities and relations between normal and shear compliances. *International Journal of Engineering Science*, **2012**, 50, 233-255	5.7	6

14	Contact of rough surfaces: Conductance–stiffness connection for contacting transversely isotropic half-spaces. *International Journal of Engineering Science*, **2015**, 97, 1-5	5.7	5
13	Resistances of non-flat cracks and their relation to crack compliances. *International Journal of Engineering Science*, **2009**, 47, 754-766	5.7	5
12	Microcracking in Piezoelectrics Weakens the Electromechanical Coupling and Changes Its Directionality. *International Journal of Fracture*, **2000**, 101, 1-8	2.3	5
11	Multiple fractures in rocks: effective orthotropy and seismic characterization **2005**,		4
10	Anisotropic Material with Arbitrarily Oriented Cracks and Elliptical Holes: Effective Elastic Moduli. *International Journal of Fracture*, **1998**, 92, 9-14	2.3	3
9	Contacting Rough Surfaces: Hertzian Contacts Versus Welded Areas. *International Journal of Fracture*, **2007**, 145, 223-228	2.3	3
8	Rough contacting surfaces with elevated contact areas. *International Journal of Engineering Science*, **2019**, 145, 103171	5.7	2
7	Rough contacting surfaces: Similarities and differences with traction-free cracks **2009**,		1
6	Symmetric arrangements of cracks with perturbed symmetry: Extremal properties of perturbed configurations. *International Journal of Engineering Science*, **2022**, 171, 103617	5.7	1
5	Effective elasticity of rocks with irregularly shaped and intersecting cracks **2006**,		1
4	On the Relationship between Fracturing of a Microcracking Solid and Its Effective Elastic Constants **1991**, 373-378		1
3	Longwave Speeds in Materials with Cracks and Cavities of Various Shapes **1995**, 1955-1962		1
2	On low cycle fatigue of austenitic steel. Part II: Extraction of information on microcrack density from a combination of the acoustic and eddy current data. *International Journal of Engineering Science*, **2021**, 169, 103569	5.7	0
1	Compliance of star-like cracks: non-equivalence to holes, and the effect of random shape irregularities. *International Journal of Fracture*, **2011**, 170, 207-210	2.3	