

# Swantje Bargmann

## List of Publications by Year in descending order

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126  
papers

2,496  
citations

218677

26  
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243625

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127  
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127  
docs citations

127  
times ranked

1730  
citing authors

#	ARTICLE	IF	CITATIONS
1	Generation of 3D representative volume elements for heterogeneous materials: A review. <i>Progress in Materials Science</i> , 2018, 96, 322-384.	32.8	308
2	3D stochastic bicontinuous microstructures: Generation, topology and elasticity. <i>Acta Materialia</i> , 2018, 149, 326-340.	7.9	146
3	Structure-property relationships in nanoporous metallic glasses. <i>Acta Materialia</i> , 2016, 106, 199-207.	7.9	101
4	A novel hybrid-honeycomb structure: Enhanced stiffness, tunable auxeticity and negative thermal expansion. <i>International Journal of Mechanical Sciences</i> , 2021, 190, 106021.	6.7	96
5	On the continuum thermodynamic rate variational formulation of models for extended crystal plasticity at large deformation. <i>Journal of the Mechanics and Physics of Solids</i> , 2010, 58, 1253-1271.	4.8	75
6	Modeling of polycrystals with gradient crystal plasticity: A comparison of strategies. <i>Philosophical Magazine</i> , 2010, 90, 1263-1288.	1.6	63
7	Elastic and plastic Poisson's ratios of nanoporous gold. <i>Scripta Materialia</i> , 2016, 110, 65-69.	5.2	61
8	Influence of grain boundary conditions on modeling of size-dependence in polycrystals. <i>Acta Mechanica</i> , 2011, 218, 103-113.	2.1	52
9	Geometrically nonlinear continuum thermomechanics with surface energies coupled to diffusion. <i>Journal of the Mechanics and Physics of Solids</i> , 2011, 59, 2116-2133.	4.8	51
10	Tunable auxeticity and elastomechanical symmetry in a class of very low density core-shell cubic crystals. <i>Acta Materialia</i> , 2019, 177, 280-292.	7.9	49
11	Nature's design solutions in dental enamel: Uniting high strength and extreme damage resistance. <i>Acta Biomaterialia</i> , 2020, 107, 1-24.	8.3	48
12	Micro-to-macro transitions for heterogeneous material layers accounting for in-plane stretch. <i>Journal of the Mechanics and Physics of Solids</i> , 2012, 60, 1221-1239.	4.8	46
13	Theoretical and computational aspects of non-classical thermoelasticity. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2006, 196, 516-527.	6.6	43
14	An extended crystal plasticity model for latent hardening in polycrystals. <i>Computational Mechanics</i> , 2011, 48, 631-645.	4.0	41
15	Automatic three-dimensional geometry and mesh generation of periodic representative volume elements for matrix-inclusion composites. <i>Advances in Engineering Software</i> , 2016, 99, 177-188.	3.8	41
16	Materials by design: An experimental and computational investigation on the microanatomy arrangement of porous metallic glasses. <i>Acta Materialia</i> , 2014, 77, 411-422.	7.9	38
17	Thermoelastic modelling of the skin at finite deformations. <i>Journal of Thermal Biology</i> , 2016, 62, 201-209.	2.5	33
18	Phase contrast mediated switch of auxetic mechanism in composites of infilled re-entrant honeycomb microstructures. <i>Extreme Mechanics Letters</i> , 2020, 35, 100641.	4.1	33

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19	Surface excess elasticity of gold: Ab initio coefficients and impact on the effective elastic response of nanowires. <i>Acta Materialia</i> , 2017, 124, 468-477.	7.9	32
20	Determining tensile yield stresses from Small Punch tests: A numerical-based scheme. <i>Materials and Design</i> , 2019, 182, 107974.	7.0	31
21	On the propagation of second-sound in linear and nonlinear media: Results from Greenâ€™Naghdi theory. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2008, 372, 4418-4424.	2.1	30
22	Towards bio-inspired engineering materials: Modeling and simulation of the mechanical behavior of hierarchical bovine dental structure. <i>Computational Materials Science</i> , 2013, 79, 390-401.	3.0	30
23	A computational study of a model of single-crystal strain-gradient viscoplasticity with an interactive hardening relation. <i>International Journal of Solids and Structures</i> , 2014, 51, 2754-2764.	2.7	29
24	Closed-form formulas for the effective properties of random particulate nanocomposites with complete Gurtinâ€™Murdoch model of material surfaces. <i>Continuum Mechanics and Thermodynamics</i> , 2017, 29, 77-96.	2.2	28
25	Tunable auxeticity and isotropic negative thermal expansion in three-dimensional lattice structures of cubic symmetry. <i>Extreme Mechanics Letters</i> , 2021, 43, 101201.	4.1	28
26	Damage modeling of small-scale experiments on dental enamel with hierarchical microstructure. <i>Acta Biomaterialia</i> , 2015, 15, 244-253.	8.3	27
27	Modeling of fracture in small punch tests for small- and large-scale yielding conditions at various temperatures. <i>International Journal of Mechanical Sciences</i> , 2016, 106, 266-285.	6.7	27
28	Modeling and simulation of first and second sound in solids. <i>International Journal of Solids and Structures</i> , 2008, 45, 6067-6073.	2.7	25
29	Classical results for a non-classical theory: remarks on thermodynamic relations in Greenâ€™Naghdi thermo-hyperelasticity. <i>Continuum Mechanics and Thermodynamics</i> , 2007, 19, 59-66.	2.2	24
30	Energy-equivalent inhomogeneity approach to analysis of effective properties of nanomaterials with stochastic structure. <i>International Journal of Solids and Structures</i> , 2015, 59, 183-197.	2.7	24
31	Elastic behaviour at the nanoscale of innovative composites of nanoporous gold and polymer. <i>Extreme Mechanics Letters</i> , 2017, 17, 16-23.	4.1	24
32	Computational modelling of submicron-sized metallic glasses. <i>Philosophical Magazine</i> , 2014, 94, 1-19.	1.6	22
33	Size affected dislocation activity in crystals: Advanced surface and grain boundary conditions. <i>Extreme Mechanics Letters</i> , 2017, 13, 36-41.	4.1	21
34	A deformational and configurational framework for geometrically non-linear continuum thermomechanics coupled to diffusion. <i>International Journal of Non-Linear Mechanics</i> , 2012, 47, 215-227.	2.6	20
35	Computational modeling of intrinsically induced strain gradients during compression of c-axis-oriented magnesium single crystal. <i>Acta Materialia</i> , 2014, 71, 206-219.	7.9	20
36	Effective elastic properties of 3D stochastic bicontinuous composites. <i>Mechanics of Materials</i> , 2019, 137, 103098.	3.2	20

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37	Models of Solvent Penetration in Glassy Polymers With an Emphasis on Case II Diffusion. A Comparative Review. Applied Mechanics Reviews, 2011, 64, .	10.1	19
38	Microscopic temperature field prediction during adiabatic loading using gradient extended crystal plasticity. International Journal of Solids and Structures, 2013, 50, 899-906.	2.7	19
39	Lurie solution for spherical particle and spring layer model of interphases: Its application in analysis of effective properties of composites. Mechanics of Materials, 2016, 96, 39-52.	3.2	19
40	Continuum damage modeling and simulation of hierarchical dental enamel. Modelling and Simulation in Materials Science and Engineering, 2016, 24, 045014.	2.0	19
41	Influence of interfaces on effective properties of nanomaterials with stochastically distributed spherical inclusions. International Journal of Solids and Structures, 2014, 51, 954-966.	2.7	18
42	Fully periodic RVEs for technological relevant composites: not worth the effort!. Journal of Mechanics of Materials and Structures, 2017, 12, 471-484.	0.6	18
43	The Role of Geometrically Necessary Dislocations in Cantilever Beam Bending Experiments of Single Crystals. Materials, 2017, 10, 289.	2.9	18
44	Phenomenological modeling of anisotropy induced by evolution of the dislocation structure on the macroscopic and microscopic scale. International Journal of Material Forming, 2011, 4, 141-154.	2.0	17
45	Experimental characterization of microstructure development during loading path changes in bcc sheet steels. Journal of Materials Science, 2013, 48, 674-689.	3.7	17
46	Continuum mechanical modeling of laser-pulsed heating in polycrystals: A multi-physics problem of coupling diffusion, mechanics, and thermal waves. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2014, 94, 487-498.	1.6	17
47	Property optimization of porous metallic glasses via structural design. Materials Letters, 2014, 134, 306-310.	2.6	17
48	Anomalous compliance of interpenetrating-phase composite of Ti and Mg synthesized by liquid metal dealloying. Scripta Materialia, 2021, 194, 113660.	5.2	17
49	Variants of Lemaitre's damage model and their use in formability prediction of metallic materials. Mechanics of Materials, 2016, 92, 58-79.	3.2	16
50	Two models for gradient inelasticity based on non-convex energy. Computational Materials Science, 2012, 64, 96-100.	3.0	15
51	A Revised Exposition of the Green-Naghdi Theory of Heat Propagation. Journal of Elasticity, 2014, 114, 143-154.	1.9	15
52	Structural optimization by simultaneous equilibration of spatial and material forces. Communications in Numerical Methods in Engineering, 2005, 21, 433-442.	1.3	14
53	Materials based design of structures: Computational modeling of the mechanical behavior of gold-polymer nanocomposites. Mechanics of Materials, 2016, 94, 53-65.	3.2	14
54	A Thermomechanically Consistent Constitutive Theory for Modeling Micro-Void and/or Micro-Crack Driven Failure in Metals at Finite Strains. International Journal of Applied Mechanics, 2016, 08, 1650009.	2.2	14

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55	Skeletonization-based beam finite element models for stochastic bicontinuous materials: Application to simulations of nanoporous gold. <i>Journal of Materials Research</i> , 2018, 33, 3371-3382.	2.6	14
56	Modeling of polycrystals using a gradient crystal plasticity theory that includes dissipative micro-stresses. <i>European Journal of Mechanics, A/Solids</i> , 2011, 30, 719-730.	3.7	13
57	Computationally modelling the mechanical behaviour of turtle shell sutures – A natural interlocking structure. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2020, 110, 103973.	3.1	13
58	An incremental variational formulation of dissipative and non-dissipative coupled thermoelasticity for solids. <i>Heat and Mass Transfer</i> , 2008, 45, 107-116.	2.1	12
59	Anisotropic constitutive model incorporating multiple damage mechanisms for multiscale simulation of dental enamel. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2016, 62, 515-533.	3.1	12
60	Interface elasticity effects in polymer-filled nanoporous metals. <i>Journal of the Mechanics and Physics of Solids</i> , 2017, 99, 163-177.	4.8	12
61	Accessing Colony Boundary Strengthening of Fully Lamellar TiAl Alloys via Micromechanical Modeling. <i>Materials</i> , 2017, 10, 896.	2.9	12
62	A continuum mechanical model for the description of solvent induced swelling in polymeric glasses: Thermomechanics coupled with diffusion. <i>European Journal of Mechanics, A/Solids</i> , 2015, 53, 10-18.	3.7	11
63	Effect of Surface Elasticity on the Elastic Response of Nanoporous Gold. <i>Journal of Nanomechanics &amp; Micromechanics</i> , 2017, 7, .	1.4	11
64	Work hardening and recovery in fully lamellar TiAl: relative activity of deformation systems. <i>Philosophical Magazine</i> , 2019, 99, 148-180.	1.6	11
65	Nanoporous metal based composites: Giving polymers strength and making metals move. <i>Journal of the Mechanics and Physics of Solids</i> , 2020, 137, 103848.	4.8	11
66	On energy and entropy influxes in the Green – Naghdi Type III theory of heat conduction. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2013, 469, 20120705.	2.1	10
67	Remarks on the Green – Naghdi theory of heat conduction. <i>Journal of Non-Equilibrium Thermodynamics</i> , 2013, 38, .	4.2	10
68	Crashworthiness of Magnesium Sheet Structures. <i>Materials Science Forum</i> , 0, 765, 590-594.	0.3	10
69	Simulation of non-classical diffusion in polymers. <i>Heat and Mass Transfer</i> , 2014, 50, 1543-1552.	2.1	10
70	A computational investigation of a model of single-crystal gradient thermoplasticity that accounts for the stored energy of cold work and thermal annealing. <i>Computational Mechanics</i> , 2015, 55, 755-769.	4.0	10
71	Modeling of surface effects in crystalline materials within the framework of gradient crystal plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2018, 112, 508-522.	4.8	10
72	Dynamic mechanical behaviour of suture interfaces as inspiration for architected hierarchical interlocking composites. <i>Journal of the Mechanics and Physics of Solids</i> , 2021, 157, 104620.	4.8	10

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73	Tunable tensionâ€“compression asymmetry and auxeticity in lattice structures by harnessing unilateral contact. <i>Composite Structures</i> , 2021, 278, 114708.	5.8	10
74	Computational modeling of flowâ€“induced anisotropy of polar ice for the EDML deep drilling site, Antarctica: The effect of rotation recrystallization and grain boundary migration. <i>International Journal for Numerical and Analytical Methods in Geomechanics</i> , 2012, 36, 892-917.	3.3	9
75	Thermomechanical modelling of polysynthetically twinned TiAl crystals. <i>Philosophical Magazine</i> , 2015, 95, 2607-2626.	1.6	9
76	Experimental and Computational Study of Ductile Fracture in Small Punch Tests. <i>Materials</i> , 2017, 10, 1185.	2.9	9
77	Hierarchical Microstructure of Tooth Enameloid in Two Lamniform Shark Species, <i>Carcharias taurus</i> and <i>Isurus oxyrinchus</i> . <i>Nanomaterials</i> , 2021, 11, 969.	4.1	9
78	Orientation-dependent micromechanical behavior of nacre: In situ TEM experiments and finite element simulations. <i>Acta Biomaterialia</i> , 2022, 147, 120-128.	8.3	8
79	Inherent and induced anisotropic finite visco-plasticity with applications to the forming of DC06 sheets. <i>International Journal of Mechanical Sciences</i> , 2014, 89, 101-111.	6.7	7
80	The effect of yield surface curvature change by cross hardening on forming limit diagrams of sheets. <i>International Journal of Mechanical Sciences</i> , 2016, 117, 53-66.	6.7	7
81	Finite element damage analysis of an underwater gliderâ€“ship collision. <i>Journal of Marine Science and Technology</i> , 2016, 21, 261-270.	2.9	7
82	Finite element simulation of pole vaulting. <i>Sports Engineering</i> , 2018, 21, 85-93.	1.1	7
83	Ultrastrong nanocomposites with interphases: Nonlocal deformation and damage behavior. <i>European Journal of Mechanics, A/Solids</i> , 2019, 75, 93-108.	3.7	7
84	Modeling twinning-induced lattice reorientation and slip-in-twin deformation. <i>Journal of the Mechanics and Physics of Solids</i> , 2019, 122, 315-339.	4.8	7
85	Skeletal muscle: Modeling the mechanical behavior by taking the hierarchical microstructure into account. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2021, 122, 104670.	3.1	7
86	Material Forces in Non-Classical Thermo-Hyperelasticity. <i>Journal of Thermal Stresses</i> , 2009, 32, 361-393.	2.0	6
87	Modeling and simulation of size effects in metallic glasses with a nonlocal continuum mechanics theory. <i>Journal of the Mechanical Behavior of Materials</i> , 2013, 22, 51-66.	1.8	6
88	The plastic yield and flow behavior in metallic glasses. <i>Applied Physics Letters</i> , 2015, 106, 051903.	3.3	6
89	A second-sound based, hyperbolic SIR model for high-diffusivity spread. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2011, 375, 898-907.	2.1	5
90	Analysis and comparison of two finite element algorithms for dislocation density based crystal plasticity. <i>GAMM Mitteilungen</i> , 2013, 36, 219-238.	5.5	5

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91	A Class of Rate-Independent Lower-Order Gradient Plasticity Theories: Implementation and Application to Disc Torsion Problem. <i>Materials</i> , 2018, 11, 1425.	2.9	5
92	Geometrically Nonlinear Continuum Thermomechanics Coupled to Diffusion: A Framework for Case-All Diffusion. <i>Lecture Notes in Applied and Computational Mechanics</i> , 2011, , 89-107.	2.2	5
93	How suture networks improve the protective function of natural structures: A multiscale investigation. <i>Acta Biomaterialia</i> , 2022, 145, 283-296.	8.3	5
94	Characterization of the Microstructure Evolution in IF-Steel and AA6016 during Plane-Strain Tension and Simple Shear. <i>Materials</i> , 2015, 8, 285-301.	2.9	4
95	Fourth-order strain-gradient phase mixture model for nanocrystalline fcc materials. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2016, 24, 085016.	2.0	4
96	Functionalisation of metal-polymer-nanocomposites: Chemoelectromechanical coupling and charge carrier transport. <i>Extreme Mechanics Letters</i> , 2018, 21, 57-64.	4.1	4
97	Gradient Crystal Plasticity: A Grain Boundary Model for Slip Transmission. <i>Materials</i> , 2019, 12, 3761.	2.9	4
98	A design method for metamaterials: 3D transversely isotropic lattice structures with tunable auxeticity. <i>Smart Materials and Structures</i> , 2022, 31, 025011.	3.5	4
99	THEORETICAL AND ALGORITHMIC FORMULATION OF MODELS FOR ENERGETIC GND-BASED HARDENING IN SINGLE CRYSTALS. <i>International Journal for Multiscale Computational Engineering</i> , 2012, 10, 551-565.	1.2	3
100	Gradient enhanced physically based plasticity: Implementation and application to a problem pertaining size effect. <i>AIP Conference Proceedings</i> , 2016, , .	0.4	3
101	Thermomechanical formulation of ductile damage coupled to nonlinear isotropic hardening and multiplicative viscoplasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2016, 91, 334-358.	4.8	3
102	Implementation and application of a gradient enhanced crystal plasticity model. <i>AIP Conference Proceedings</i> , 2017, , .	0.4	3
103	Automatic generation and discretization of fully periodic representative volume elements of plain woven composites. <i>Journal of Composite Materials</i> , 2018, 52, 4061-4073.	2.4	3
104	Computational modeling of amorphous polymers: A Lagrangian logarithmic strain space formulation of a glass-rubber constitutive model. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2019, 344, 887-909.	6.6	3
105	Insights into fracture mechanisms in nanoporous gold and polymer impregnated nanoporous gold. <i>Extreme Mechanics Letters</i> , 2020, 39, 100815.	4.1	3
106	Strain relief by controlled cracking in highly stretchable multi-layer composites. <i>Extreme Mechanics Letters</i> , 2022, 54, 101724.	4.1	3
107	A directional modification of the Levkovitch-Svendsen cross-hardening model based on the stress deviator. <i>Mechanics of Materials</i> , 2015, 86, 21-30.	3.2	2
108	Multiscale Experimental and Computational Investigation of Nature's Design Principle of Hierarchies in Dental Enamel. <i>Lecture Notes in Applied and Computational Mechanics</i> , 2018, , 273-291.	2.2	2

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109	Second Sound Waves in Solids. , 2014, , 4273-4275.		2
110	Influence of the microstructure on effective mechanical properties of carbon nanotube composites. Coupled Systems Mechanics, 2017, 6, 1-15.	0.4	2
111	Geometrically Nonlinear Continuum Thermomechanics with Surface Energies Coupled to Diffusion. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 483-484.	0.2	1
112	Modeling of anisotropy induced by evolution of dislocation microstructures on different scales. , 2011, , .		1
113	Non-linear deformation properties of materials with stochastically distributed anisotropic inclusions. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 253-254.	0.2	1
114	Multiscale simulation of fracture of coated silica nanoparticles reinforced composites. Proceedings in Applied Mathematics and Mechanics, 2017, 17, 257-258.	0.2	1
115	On Configurational Forces within Greenâ€™Naghdi Thermo-Hyperelasticity. IUTAM Symposium on Cellular, Molecular and Tissue Mechanics, 2009, , 205-214.	0.2	1
116	A framework for geometrically non-linear gradient extended crystal plasticity coupled to heat conduction and damage. Multiscale and Multiphysics Mechanics, 2016, 1, 171-188.	0.3	1
117	Modeling and numerical simulation of multiscale behavior in polycrystals via extended crystal plasticity. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 531-532.	0.2	0
118	Computational mechanics-based modeling of size-dependent hardening in polycrystals. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 943-946.	0.2	0
119	Two model formulations for gradient crystal plasticity. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 815-818.	0.2	0
120	Determination of average dislocation densities in metals by analysis of digitally processed transmission-electron microscopy images. Materialwissenschaft Und Werkstofftechnik, 2013, 44, 541-546.	0.9	0
121	Dual-mixed finite element analysis of crystalline sub-micron gold. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 329-330.	0.2	0
122	Effective bulk moduli of materials containing stochastically distributed nano-inhomogeneities with surface stresses. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 537-538.	0.2	0
123	Non-local modeling of size effects in amorphous metals. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 529-530.	0.2	0
124	Application of a Gradient Crystal Plasticity Model to Numerical Analysis of Metal Part of Nanoporous Metal â€™ Polymer Composites. Procedia Engineering, 2014, 81, 1348-1353.	1.2	0
125	Lode Parameter Dependence and Quasi-Unilateral Effects in Continuum Damage Mechanics: Models and Applications in Metal Forming. Key Engineering Materials, 2015, 651-653, 187-192.	0.4	0
126	An Enhanced Method to Evaluate Tensile Yield Stress by Small Punch Tests Using Deflection Curves. Materials, 2020, 13, 2840.	2.9	0