

Amit Acharya

List of Publications by Year in descending order

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88
papers

2,763
citations

236925

25
h-index

182427

51
g-index

88
all docs

88
docs citations

88
times ranked

925
citing authors

#	ARTICLE	IF	CITATIONS
1	An action for nonlinear dislocation dynamics. Journal of the Mechanics and Physics of Solids, 2022, 161, 104811.	4.8	6
2	Computing with non-orientable defects: Nematics, smectics and natural patterns. Physica D: Nonlinear Phenomena, 2021, 417, 132828.	2.8	9
3	Analysis of a model of field crack mechanics for brittle materials. Computer Methods in Applied Mechanics and Engineering, 2021, 386, 114061.	6.6	5
4	Dislocation pattern formation in finite deformation crystal plasticity. International Journal of Solids and Structures, 2020, 184, 114-135.	2.7	26
5	Field dislocation mechanics and phase field crystal models. Physical Review B, 2020, 102, .	3.2	9
6	A unification of finite deformation J2 Von-Mises plasticity and quantitative dislocation mechanics. Journal of the Mechanics and Physics of Solids, 2020, 143, 104050.	4.8	18
7	Plasticity without phenomenology: A first step. Journal of the Mechanics and Physics of Solids, 2020, 143, 104059.	4.8	3
8	Finite element approximation of finite deformation dislocation mechanics. Computer Methods in Applied Mechanics and Engineering, 2020, 367, 113076.	6.6	22
9	Mechanics of moving defects in growing sheets: 3-d, small deformation theory. Materials Theory, 2020, 4, .	4.3	3
10	A possible link between brittle and ductile failure by viewing fracture as a topological defect. , 2020, 348, 275-284.		2
11	Some preliminary observations on a defect Navier-Stokes system. Comptes Rendus - Mecanique, 2019, 347, 677-684.	2.1	3
12	Stress of a Spatially Uniform Dislocation Density Field. Journal of Elasticity, 2019, 137, 151-155.	1.9	3
13	On the structure of linear dislocation field theory. Journal of the Mechanics and Physics of Solids, 2019, 130, 216-244.	4.8	7
14	On Weingarten-Volterra Defects. Journal of Elasticity, 2019, 134, 79-101.	1.9	7
15	A Design Principle for Actuation of Nematic Glass Sheets. Journal of Elasticity, 2019, 136, 237-249.	1.9	5
16	Computational modelling of tactoid dynamics in chromonic liquid crystals. Liquid Crystals, 2018, 45, 1084-1100.	2.2	6
17	Fracture and Singularities of the Mass-Density Gradient Field. Journal of Elasticity, 2018, 132, 243-260.	1.9	4
18	Finite element approximation of the fields of bulk and interfacial line defects. Journal of the Mechanics and Physics of Solids, 2018, 114, 258-302.	4.8	14

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19	Computing singularly perturbed differential equations. <i>Journal of Computational Physics</i> , 2018, 354, 417-446.	3.8	3
20	On the relevance of generalized disclinations in defect mechanics. <i>Journal of the Mechanics and Physics of Solids</i> , 2018, 119, 188-223.	4.8	18
21	A non-traditional view on the modeling of nematic disclination dynamics. <i>Quarterly of Applied Mathematics</i> , 2017, 75, 309-357.	0.7	9
22	A microscopic continuum model for defect dynamics in metallic glasses. <i>Journal of the Mechanics and Physics of Solids</i> , 2017, 104, 1-11.	4.8	5
23	Fluids, Elasticity, Geometry, and the Existence of Wrinkled Solutions. <i>Archive for Rational Mechanics and Analysis</i> , 2017, 226, 1009-1060.	2.4	4
24	The metric-restricted inverse design problem. <i>Nonlinearity</i> , 2016, 29, 1769-1797.	1.4	5
25	Microstructure in plasticity without nonconvexity. <i>Computational Mechanics</i> , 2016, 57, 387-403.	4.0	8
26	A single theory for some quasi-static, supersonic, atomic, and tectonic scale applications of dislocations. <i>Journal of the Mechanics and Physics of Solids</i> , 2015, 84, 145-195.	4.8	48
27	From dislocation motion to an additive velocity gradient decomposition, and some simple models of dislocation dynamics. <i>Chinese Annals of Mathematics Series B</i> , 2015, 36, 645-658.	0.4	11
28	Continuum Mechanics of the Interaction of Phase Boundaries and Dislocations in Solids. <i>Springer Proceedings in Mathematics and Statistics</i> , 2015, , 123-165.	0.2	14
29	A fundamental improvement to Ericksen-Leslie kinematics. <i>Quarterly of Applied Mathematics</i> , 2015, 73, 435-466.	0.7	6
30	A study of conditions for dislocation nucleation in coarser-than-atomistic scale models. <i>Journal of the Mechanics and Physics of Solids</i> , 2015, 75, 76-92.	4.8	22
31	Continuum mechanics of line defects in liquid crystals and liquid crystal elastomers. <i>Quarterly of Applied Mathematics</i> , 2014, 72, 33-64.	0.7	8
32	An Observation on the Experimental Measurement of Dislocation Density. <i>Journal of Elasticity</i> , 2014, 114, 275-279.	1.9	5
33	Modeling of slow time-scale behavior of fast molecular dynamic systems. <i>Journal of the Mechanics and Physics of Solids</i> , 2014, 64, 24-43.	4.8	9
34	Numerical implementation of static Field Dislocation Mechanics theory for periodic media. <i>Philosophical Magazine</i> , 2014, 94, 1764-1787.	1.6	40
35	Coarse variables of autonomous ODE systems and their evolution. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2013, 253, 199-218.	6.6	7
36	Dislocation motion and instability. <i>Journal of the Mechanics and Physics of Solids</i> , 2013, 61, 1835-1853.	4.8	9

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37	Can equations of equilibrium predict all physical equilibria? A case study from Field Dislocation Mechanics. <i>Mathematics and Mechanics of Solids</i> , 2013, 18, 803-822.	2.4	7
38	On the three-dimensional Filon construct for dislocations. <i>International Journal of Engineering Science</i> , 2012, 59, 6-26.	5.0	1
39	Coupled phase transformations and plasticity as a field theory of deformation incompatibility. <i>International Journal of Fracture</i> , 2012, 174, 87-94.	2.2	33
40	Elementary observations on the averaging of dislocation mechanics: Dislocation origin of aspects of anisotropic yield and plastic spin. <i>Procedia IUTAM</i> , 2012, 3, 301-313.	1.2	8
41	Time-averaged coarse variables for multi-scale dynamics. <i>Quarterly of Applied Mathematics</i> , 2012, 70, 793-803.	0.7	8
42	Mechanical response of polycrystalline thin films in mesoscale field dislocation mechanics. <i>Journal of the Mechanics and Physics of Solids</i> , 2011, 59, 2400-2417.	4.8	43
43	Microcanonical Entropy and Mesoscale Dislocation Mechanics and Plasticity. <i>Journal of Elasticity</i> , 2011, 104, 23-44.	1.9	43
44	Controlling Plastic Flow across Grain Boundaries in a Continuum Model. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2011, 42, 669-675.	2.2	11
45	Dislocation Mediated Continuum Plasticity: Case Studies on Modeling Scale Dependence, Scale-Invariance, and Directionality of Sharp Yield-Point. , 2011, , 277-309.		4
46	Microcanonical Entropy and Mesoscale Dislocation Mechanics and Plasticity. , 2011, , 23-44.		1
47	Coupled phase transformations and plasticity as a field theory of deformation incompatibility. , 2011, , 87-94.		0
48	Continuity in the plastic strain rate and its influence on texture evolution. <i>Journal of the Mechanics and Physics of Solids</i> , 2010, 58, 105-128.	4.8	27
49	New inroads in an old subject: Plasticity, from around the atomic to the macroscopic scale. <i>Journal of the Mechanics and Physics of Solids</i> , 2010, 58, 766-778.	4.8	34
50	Travelling wave solutions for a quasilinear model of field dislocation mechanics. <i>Journal of the Mechanics and Physics of Solids</i> , 2010, 58, 2043-2053.	4.8	13
51	Coarse-Graining Autonomous ODE Systems by Inducing a Separation of Scales: Practical Strategies and Mathematical Questions. <i>Mathematics and Mechanics of Solids</i> , 2010, 15, 342-352.	2.4	8
52	Use of Thermodynamic Formalism in Generalized Continuum Theories and a Model for Damage Evolution. <i>Journal of Engineering Mechanics - ASCE</i> , 2009, 135, 171-177.	2.9	2
53	Arbitrary Lagrangian-Eulerian methods for analysis of regressing solid domains and interface tracking. <i>Computers and Structures</i> , 2009, 87, 355-367.	4.4	6
54	Modeling dislocation sources and size effects at initial yield in continuum plasticity. <i>Journal of Mechanics of Materials and Structures</i> , 2009, 4, 1603-1618.	0.6	14

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55	New Perspectives in Plasticity Theory: Dislocation Nucleation, Waves, and Partial Continuity of Plastic Strain Rate. <i>Mathematics and Mechanics of Solids</i> , 2008, 13, 292-315.	2.4	62
56	A Counterpoint to Cermelli and Gurtin's Criteria for Choosing the "Correct" Geometric Dislocation Tensor in Finite Plasticity. <i>IUTAM Symposium on Cellular, Molecular and Tissue Mechanics</i> , 2008, , 99-105.	0.2	4
57	Jump condition for GND evolution as a constraint on slip transmission at grain boundaries. <i>Philosophical Magazine</i> , 2007, 87, 1349-1359.	1.6	51
58	Phenomenological mesoscopic field dislocation mechanics, lower-order gradient plasticity, and transport of mean excess dislocation density. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2007, 15, S167-S180.	2.0	21
59	On the Choice of Coarse Variables for Dynamics. <i>International Journal for Multiscale Computational Engineering</i> , 2007, 5, 483-489.	1.2	5
60	Dislocation transport using an explicit Galerkin/least-squares formulation. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2006, 14, 1245-1270.	2.0	60
61	Model reduction via parametrized locally invariant manifolds: Some examples. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2006, 195, 6287-6311.	6.6	8
62	Size effects and idealized dislocation microstructure at small scales: Predictions of a Phenomenological model of Mesoscopic Field Dislocation Mechanics: Part II. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 1711-1743.	4.8	78
63	On a computational approach for the approximate dynamics of averaged variables in nonlinear ODE systems: Toward the derivation of constitutive laws of the rate type. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 2183-2213.	4.8	21
64	Size effects and idealized dislocation microstructure at small scales: Predictions of a Phenomenological model of Mesoscopic Field Dislocation Mechanics: Part I. <i>Journal of the Mechanics and Physics of Solids</i> , 2006, 54, 1687-1710.	4.8	138
65	Continuum theory and methods for coarse-grained, mesoscopic plasticity. <i>Scripta Materialia</i> , 2006, 54, 705-710.	5.2	25
66	Finite element approximation of field dislocation mechanics. <i>Journal of the Mechanics and Physics of Solids</i> , 2005, 53, 143-170.	4.8	108
67	Parametrized invariant manifolds: a recipe for multiscale modeling?. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2005, 194, 3067-3089.	6.6	10
68	Directional dependence of crack growth along the interface of a bicrystal with symmetric tilt boundary in the presence of gradient effects. <i>Mechanics of Materials</i> , 2005, 37, 593-606.	3.2	11
69	Constitutive analysis of finite deformation field dislocation mechanics. <i>Journal of the Mechanics and Physics of Solids</i> , 2004, 52, 301-316.	4.8	92
70	A stress-gradient based criterion for dislocation nucleation in crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2004, 52, 1507-1525.	4.8	56
71	On boundary conditions and plastic strain-gradient discontinuity in lower-order gradient plasticity. <i>Journal of the Mechanics and Physics of Solids</i> , 2004, 52, 1793-1826.	4.8	35
72	Effects of lattice incompatibility-induced hardening on the fracture behavior of ductile single crystals. <i>Journal of the Mechanics and Physics of Solids</i> , 2004, 52, 2841-2867.	4.8	14

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73	Geometrically necessary dislocations, hardening, and a simple gradient theory of crystal plasticity. Scripta Materialia, 2003, 48, 167-172.	5.2	52
74	Driving forces and boundary conditions in continuum dislocation mechanics. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2003, 459, 1343-1363.	2.1	85
75	A model of crystal plasticity based on the theory of continuously distributed dislocations. Journal of the Mechanics and Physics of Solids, 2001, 49, 761-784.	4.8	280
76	A model for rate-dependent flow of metal polycrystals based on the slip plane lattice incompatibility. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2001, 309-310, 411-415.	5.6	37
77	A distinct element approach to ball mill mechanics. Communications in Numerical Methods in Engineering, 2000, 16, 743-753.	1.3	8
78	A nonlinear generalization of the Koiter's Sanders' Budiansky bending strain measure. International Journal of Solids and Structures, 2000, 37, 5517-5528.	2.7	10
79	Grain-size effect in viscoplastic polycrystals at moderate strains. Journal of the Mechanics and Physics of Solids, 2000, 48, 2213-2230.	4.8	262
80	Lattice incompatibility and a gradient theory of crystal plasticity. Journal of the Mechanics and Physics of Solids, 2000, 48, 1565-1595.	4.8	401
81	Consideration of grain-size effect and kinetics in the plastic deformation of metal polycrystals. Acta Materialia, 2000, 48, 3409-3423.	7.9	105
82	A Space-Time Discontinuous Galerkin Method for Elastodynamic Analysis. Lecture Notes in Computational Science and Engineering, 2000, , 459-464.	0.3	13
83	A distinct element approach to ball mill mechanics. Communications in Numerical Methods in Engineering, 2000, 16, 743-753.	1.3	0
84	On Compatibility Conditions for the Left Cauchy's Green Deformation Field in Three Dimensions. , 1999, 56, 95-105.		9
85	A new proposal in gradient plasticity: theory and application in 1D quasi-statics and dynamics. International Journal for Numerical and Analytical Methods in Geomechanics, 1999, 4, 153-170.	0.8	6
86	The Clausius-Duhem Inequality and the structure of rate-independent plasticity. International Journal of Plasticity, 1996, 12, 229-238.	8.8	16
87	Thermodynamic restrictions on constitutive equations for second-deformation-gradient inelastic behavior. Journal of the Mechanics and Physics of Solids, 1995, 43, 1751-1772.	4.8	34
88	Rotations with Constant $\mathbf{\text{curl}}$ are Constant. Archive for Rational Mechanics and Analysis, 0, , .	2.4	0