Vivek B Shenoy

List of Publications by Citations

96	7,571	44	86
papers	citations	h-index	g-index
105	10,241	12.3	6.5
ext. papers	ext. citations	avg, IF	L-index

#	Paper	IF	Citations
96	Janus Monolayer Transition-Metal Dichalcogenides. *ACS Nano*, **2017**, 11, 8192-8198	16.7	584
95	The role of electronic coupling between substrate and 2D MoS2 nanosheets in electrocatalytic production of hydrogen. *Nature Materials*, **2016**, 15, 1003-9	27	549
94	Synthesis of two-dimensional titanium nitride Ti4N3 (MXene). *Nanoscale*, **2016**, 8, 11385-91	7.7	487
93	Effects of extracellular matrix viscoelasticity on cellular behaviour. *Nature*, **2020**, 584, 535-546	50.4	362
92	Cell-mediated fibre recruitment drives extracellular matrix mechanosensing in engineered fibrillar microenvironments. *Nature Materials*, **2015**, 14, 1262-8	27	356
91	Large In-Plane and Vertical Piezoelectricity in Janus Transition Metal Dichalchogenides. *ACS Nano*, **2017**, 11, 8242-8248	16.7	348
90	Defect-induced plating of lithium metal within porous graphene networks. *Nature Communications*, **2014**, 5, 3710	17.4	329
89	Synthesis of MoVAlC MAX Phase and Two-Dimensional MoVC MXene with Five Atomic Layers of Transition Metals. *ACS Nano*, **2020**, 14, 204-217	16.7	198
88	Tunable Magnetism and Transport Properties in Nitride MXenes. *ACS Nano*, **2017**, 11, 7648-7655	16.7	190
87	Long-range force transmission in fibrous matrices enabled by tension-driven alignment of fibers. *Biophysical Journal*, **2014**, 107, 2592-603	2.9	190
86	Fibrous nonlinear elasticity enables positive mechanical feedback between cells and ECMs. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 14043-14048	11.5	181
85	Prediction of Enhanced Catalytic Activity for Hydrogen Evolution Reaction in Janus Transition Metal Dichalcogenides. *Nano Letters*, **2018**, 18, 3943-3949	11.5	180
84	Detyrosinated microtubules buckle and bear load in contracting cardiomyocytes. *Science*, **2016**, 352, aaf0659	33.3	172
83	Surface Termination Dependent Work Function and Electronic Properties of Ti3C2Tx MXene. *Chemistry of Materials*, **2019**, 31, 6590-6597	9.6	169
82	Giant Phononic Anisotropy and Unusual Anharmonicity of Phosphorene: Interlayer Coupling and Strain Engineering. *Advanced Functional Materials*, **2015**, 25, 2230-2236	15.6	169
81	Remodeling of the Collagen Matrix in Aging Skin Promotes Melanoma Metastasis and Affects Immune Cell Motility. *Cancer Discovery*, **2019**, 9, 64-81	24.4	128
80	Rational Design of Two-Dimensional Metallic and Semiconducting Spintronic Materials Based on Ordered Double-Transition-Metal MXenes. *Journal of Physical Chemistry Letters*, **2017**, 8, 422-428	6.4	115

79	Matching material and cellular timescales maximizes cell spreading on viscoelastic substrates. *Proceedings of the National Academy of Sciences of the United States of America*, **2018**, 115, E2686-E2695	11.5	113
78	Remodeling of fibrous extracellular matrices by contractile cells: predictions from discrete fiber network simulations. *Biophysical Journal*, **2014**, 107, 1829-1840	2.9	112
77	Modeling the two-way feedback between contractility and matrix realignment reveals a nonlinear mode of cancer cell invasion. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, E1617-E1626	11.5	105
76	Viscoelasticity of tau proteins leads to strain rate-dependent breaking of microtubules during axonal stretch injury: predictions from a mathematical model. *Biophysical Journal*, **2014**, 106, 1123-33	2.9	103
75	Evidence and Model for Strain-Driven Release of Metal Nanocatalysts from Perovskites during Exsolution. *Journal of Physical Chemistry Letters*, **2015**, 6, 5106-10	6.4	103
74	Prediction of Synthesis of 2D Metal Carbides and Nitrides (MXenes) and Their Precursors with Positive and Unlabeled Machine Learning. *ACS Nano*, **2019**, 13, 3031-3041	16.7	95
73	A Chemomechanical Model for Nuclear Morphology and Stresses during Cell Transendothelial Migration. *Biophysical Journal*, **2016**, 111, 1541-1552	2.9	82
72	Regulation of nuclear architecture, mechanics, and nucleocytoplasmic shuttling of epigenetic factors by cell geometric constraints. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 13200-13209	11.5	81
71	Fundamental Mechanisms of Solvent Decomposition Involved in Solid-Electrolyte Interphase Formation in Sodium Ion Batteries. *Chemistry of Materials*, **2016**, 28, 8930-8941	9.6	81
70	Dynamic fibroblast contractions attract remote macrophages in fibrillar collagen matrix. *Nature Communications*, **2019**, 10, 1850	17.4	76
69	Surface-Engineered MXenes: Electric Field Control of Magnetism and Enhanced Magnetic Anisotropy. *ACS Nano*, **2019**, 13, 2831-2839	16.7	75
68	Tuning Noncollinear Spin Structure and Anisotropy in Ferromagnetic Nitride MXenes. *ACS Nano*, **2018**, 12, 6319-6325	16.7	73
67	Normal and Fibrotic Rat Livers Demonstrate Shear Strain Softening and Compression Stiffening: A Model for Soft Tissue Mechanics. *PLoS ONE*, **2016**, 11, e0146588	3.7	68
66	Newfound sex differences in axonal structure underlie differential outcomes from in vitro traumatic axonal injury. *Experimental Neurology*, **2018**, 300, 121-134	5.7	66
65	Compressive force induces reversible chromatin condensation and cell geometry-dependent transcriptional response. *Molecular Biology of the Cell*, **2018**, 29, 3039-3051	3.5	66
64	Elastic Deformations in 2D van der waals Heterostructures and their Impact on Optoelectronic Properties: Predictions from a Multiscale Computational Approach. *Scientific Reports*, **2015**, 5, 10872	4.9	65
63	Mechanisms of Plastic Deformation in Collagen Networks Induced by Cellular Forces. *Biophysical Journal*, **2018**, 114, 450-461	2.9	65
62	Two-Dimensional π-Conjugated Covalent-Organic Frameworks as Quantum Anomalous Hall Topological Insulators. *Physical Review Letters*, **2016**, 116, 096601	7.4	65

61	Emergence of tissue-like mechanics from fibrous networks confined by close-packed cells. *Nature*, **2019**, 573, 96-101	50.4	63
60	Multiscale model predicts increasing focal adhesion size with decreasing stiffness in fibrous matrices. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, E4549-E4555	11.5	60
59	In Situ Dealloying of Bulk Mg2Sn in Mg-Ion Half Cell as an Effective Route to Nanostructured Sn for High Performance Mg-Ion Battery Anodes. *Chemistry of Materials*, **2018**, 30, 1815-1824	9.6	60
58	Collagen microarchitecture mechanically controls myofibroblast differentiation. *Proceedings of the National Academy of Sciences of the United States of America*, **2020**, 117, 11387-11398	11.5	58
57	Toward a Mechanistic Understanding of Vertical Growth of van der Waals Stacked 2D Materials: A Multiscale Model and Experiments. *ACS Nano*, **2017**, 11, 12780-12788	16.7	58
56	Tailoring Electronic and Optical Properties of MXenes through Forming Solid Solutions. *Journal of the American Chemical Society*, **2020**, 142, 19110-19118	16.4	58
55	Multiscale reverse engineering of the human ocular surface. *Nature Medicine*, **2019**, 25, 1310-1318	50.5	53
54	Defective Graphene and Graphene Allotropes as High-Capacity Anode Materials for Mg Ion Batteries. *ACS Energy Letters*, **2016**, 1, 638-645	20.1	50
53	Mechanical Effects of Dynamic Binding between Tau Proteins on Microtubules during Axonal Injury. *Biophysical Journal*, **2015**, 109, 2328-37	2.9	46
52	Strong triaxial coupling and anomalous Poisson effect in collagen networks. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 6790-6799	11.5	41
51	A chemo-mechanical free-energy-based approach to model durotaxis and extracellular stiffness-dependent contraction and polarization of cells. *Interface Focus*, **2016**, 6, 20150067	3.9	41
50	Micromechanical poroelastic finite element and shear-lag models of tendon predict large strain dependent Poisson's ratios and fluid expulsion under tensile loading. *Acta Biomaterialia*, **2015**, 22, 83-91	10.8	39
49	Enhanced Cycling Stability of Macroporous Bulk Antimony-Based Sodium-Ion Battery Anodes Enabled through Active/Inactive Composites. *Advanced Energy Materials*, **2018**, 8, 1801781	21.8	39
48	Necking and failure of constrained 3D microtissues induced by cellular tension. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 20923-8	11.5	38
47	Limits of Coherency and Strain Transfer in Flexible 2D van der Waals Heterostructures: Formation of Strain Solitons and Interlayer Debonding. *Scientific Reports*, **2016**, 6, 21516	4.9	37
46	A Chemomechanical Model of Matrix and Nuclear Rigidity Regulation of Focal Adhesion Size. *Biophysical Journal*, **2015**, 109, 1807-17	2.9	32
45	Dynamic Loading and Tendon Healing Affect Multiscale Tendon Properties and ECM Stress Transmission. *Scientific Reports*, **2018**, 8, 10854	4.9	32
44	Matrix viscoplasticity and its shielding by active mechanics in microtissue models: experiments and mathematical modeling. *Scientific Reports*, **2016**, 6, 33919	4.9	29

43	High-Rate and Long Cycle-Life Alloy-Type Magnesium-Ion Battery Anode Enabled Through (De)magnesiation-Induced Near-Room-Temperature Solid□liquid Phase Transformation. *Advanced Energy Materials*, **2019**, 9, 1902086	21.8	28
42	Machine Learning-Enabled Design of Point Defects in 2D Materials for Quantum and Neuromorphic Information Processing. *ACS Nano*, **2020**, 14, 13406-13417	16.7	28
41	Harnessing cellular-derived forces in self-assembled microtissues to control the synthesis and alignment of ECM. *Biomaterials*, **2016**, 77, 120-9	15.6	26
40	Engineering Magnetic Phases in Two-Dimensional Non-van der Waals Transition-Metal Oxides. *Nano Letters*, **2019**, 19, 7793-7800	11.5	26
39	Interplay of Platelet Contractility and Elasticity of Fibrin/Erythrocytes in Blood Clot Retraction. *Biophysical Journal*, **2017**, 112, 714-723	2.9	25
38	Nuclear Mechanics within Intact Cells Is Regulated by Cytoskeletal Network and Internal Nanostructures. *Small*, **2020**, 16, e1907688	11	24
37	Controlled Growth of Large-Area Bilayer Tungsten Diselenides with Lateral P-N Junctions. *ACS Nano*, **2019**, 13, 10490-10498	16.7	24
36	Phase-field modeling of two-dimensional crystal growth with anisotropic diffusion. *Physical Review E*, **2013**, 88, 052409	2.4	24
35	Balance of mechanical forces drives endothelial gap formation and may facilitate cancer and immune-cell extravasation. *PLoS Computational Biology*, **2019**, 15, e1006395	5	23
34	Mechanochemical Adhesion and Plasticity in Multifiber Hydrogel Networks. *Advanced Materials*, **2020**, 32, e1905719	24	23
33	Enhanced substrate stress relaxation promotes filopodia-mediated cell migration. *Nature Materials*, **2021**, 20, 1290-1299	27	22
32	Maturation State and Matrix Microstructure Regulate Interstitial Cell Migration in Dense Connective Tissues. *Scientific Reports*, **2018**, 8, 3295	4.9	20
31	Engineering Zero-Dimensional Quantum Confinement in Transition-Metal Dichalcogenide Heterostructures. *ACS Nano*, **2019**, 13, 8303-8311	16.7	19
30	Tunable strain soliton networks confine electrons in van der Waals materials. *Nature Physics*, **2020**, 16, 1097-1102	16.2	19
29	Direct visualization of out-of-equilibrium structural transformations in atomically thin chalcogenides. *Npj 2D Materials and Applications*, **2020**, 4,	8.8	17
28	Nuclear softening expedites interstitial cell migration in fibrous networks and dense connective tissues. *Science Advances*, **2020**, 6, eaax5083	14.3	17
27	The Balance between Actomyosin Contractility and Microtubule Polymerization Regulates Hierarchical Protrusions That Govern Efficient Fibroblast-Collagen Interactions. *ACS Nano*, **2020**, 14, 7868-7879	16.7	17
26	High-throughput search for magnetic and topological order in transition metal oxides. *Science Advances*, **2020**, 6,	14.3	14

25	Equilibrium shape of graphene domains on Ni(111). *Physical Review B*, **2013**, 88,	3.3	13
24	Surface-directed engineering of tissue anisotropy in microphysiological models of musculoskeletal tissue. *Science Advances*, **2021**, 7,	14.3	12
23	Spatially-resolved mapping of history-dependent coupled electrochemical and electronical behaviors of electroresistive NiO. *Scientific Reports*, **2014**, 4, 6725	4.9	10
22	Programmable and contractile materials through cell encapsulation in fibrous hydrogel assemblies. *Science Advances*, **2021**, 7, eabi8157	14.3	10
21	Gap junctions amplify spatial variations in cell volume in proliferating tumor spheroids. *Nature Communications*, **2020**, 11, 6148	17.4	10
20	Direct Optoelectronic Imaging of 2D Semiconductor-3D Metal Buried Interfaces. *ACS Nano*, **2021**, 15, 5618-5630	16.7	10
19	The nuclear piston activates mechanosensitive ion channels to generate cell migration paths in confining microenvironments. *Science Advances*, **2021**, 7,	14.3	10
18	Tension- and Adhesion-Regulated Retraction of Injured Axons. *Biophysical Journal*, **2019**, 117, 193-202	2.9	9
17	Phosphorene: Giant Phononic Anisotropy and Unusual Anharmonicity of Phosphorene: Interlayer Coupling and Strain Engineering (Adv. Funct. Mater. 15/2015). *Advanced Functional Materials*, **2015**, 25, 2343-2343	15.6	8
16	Long-range mechanical signaling in biological systems. *Soft Matter*, **2021**, 17, 241-253	3.6	7
15	Interfacial Electromechanics Predicts Phase Behavior of 2D Hybrid Halide Perovskites. *ACS Nano*, **2020**, 14, 3353-3364	16.7	5
14	Integrated Multiscale Biomaterials Experiment and Modeling. *ACS Biomaterials Science and Engineering*, **2017**, 3, 2628-2632	5.5	5
13	Prediction of optimal structural water concentration for maximized performance in tunnel manganese oxide electrodes. *Physical Chemistry Chemical Physics*, **2018**, 20, 9480-9487	3.6	4
12	Soft robotic constrictor for in vitro modeling of dynamic tissue compression. *Scientific Reports*, **2021**, 11, 16478	4.9	4
11	Dynamic self-reinforcement of gene expression determines acquisition of cellular mechanical memory. *Biophysical Journal*, **2021**, 120, 5074-5089	2.9	3
10	Mechanisms of Local Stress Amplification in Axons near the Gray-White Matter Interface. *Biophysical Journal*, **2020**, 119, 1290-1300	2.9	3
9	Mechanosensitive smooth muscle cell phenotypic plasticity emerging from a null state and the balance between Rac and Rho. *Cell Reports*, **2021**, 35, 109019	10.6	3
8	Glycosaminoglycans modulate long-range mechanical communication between cells in collagen networks.. *Proceedings of the National Academy of Sciences of the United States of America*, **2022**, 119, e2116718119	11.5	3

7	Recursive feedback between matrix dissipation and chemo-mechanical signaling drives oscillatory growth of cancer cell invadopodia. *Cell Reports*, **2021**, 35, 109047	10.6	2
6	Magnesium-Ion Batteries: High-Rate and Long Cycle-Life Alloy-Type Magnesium-Ion Battery Anode Enabled Through (De)magnesiation-Induced Near-Room-Temperature Solid–Liquid Phase Transformation (Adv. Energy Mater. 45/2019). *Advanced Energy Materials*, **2019**, 9, 1970180	21.8	2
5	Elastic interaction of hydrogen atoms on graphene: A multiscale approach from first principles to continuum elasticity. *Physical Review B*, **2016**, 94,	3.3	1
4	Yielding and bifurcated aging in nanofibrillar networks. *Physical Review Materials*, **2020**, 4,	3.2	1
3	Programmable and Contractile Materials Through Cell Encapsulation in Fibrous Hydrogel Assemblies		1
2	Nuclear Mechanics: Nuclear Mechanics within Intact Cells Is Regulated by Cytoskeletal Network and Internal Nanostructures (Small 18/2020). *Small*, **2020**, 16, 2070098	11	
1	Hydrogels: Mechanochemical Adhesion and Plasticity in Multifiber Hydrogel Networks (Adv. Mater. 8/2020). *Advanced Materials*, **2020**, 32, 2070061	24	