

# Itai Cohen

## List of Publications by Year in descending order

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112  
papers

6,944  
citations

71004

43  
h-index

68831

81  
g-index

116  
all docs

116  
docs citations

116  
times ranked

8533  
citing authors

#	ARTICLE	IF	CITATIONS
1	Re-entrant transition as a bridge of broken ergodicity in confined monolayers of hexagonal prisms and cylinders. <i>Journal of Colloid and Interface Science</i> , 2022, 607, 1478-1490.	5.0	1
2	Rigidity and fracture of biopolymer double networks. <i>Soft Matter</i> , 2022, 18, 322-327.	1.2	7
3	Structural origins of cartilage shear mechanics. <i>Science Advances</i> , 2022, 8, eabk2805.	4.7	8
4	Cilia metasurfaces for electronically programmable microfluidic manipulation. <i>Nature</i> , 2022, 605, 681-686.	13.7	50
5	Cartilage articulation exacerbates chondrocyte damage and death after impact injury. <i>Journal of Orthopaedic Research</i> , 2021, 39, 2130-2140.	1.2	13
6	Micrometer-sized electrically programmable shape-memory actuators for low-power microrobotics. <i>Science Robotics</i> , 2021, 6, .	9.9	62
7	The influence of chondrocyte source on the manufacturing reproducibility of human tissue engineered cartilage. <i>Acta Biomaterialia</i> , 2021, 131, 276-285.	4.1	0
8	Multivalued Inverse Design: Multiple Surface Geometries from One Flat Sheet. <i>Physical Review Letters</i> , 2021, 127, 128001.	2.9	7
9	Microscale strain mapping demonstrates the importance of interface slope in the mechanics of cartilage repair. <i>Journal of Biomechanics</i> , 2021, 114, 110159.	0.9	6
10	Depth-dependent patterns in shear modulus of temporomandibular joint cartilage correspond to tissue structure and anatomic location. <i>Journal of Biomechanics</i> , 2021, 129, 110815.	0.9	0
11	Mitoprotective therapy prevents rapid, strain-dependent mitochondrial dysfunction after articular cartilage injury. <i>Journal of Orthopaedic Research</i> , 2020, 38, 1257-1267.	1.2	31
12	Electronically integrated, mass-manufactured, microscopic robots. <i>Nature</i> , 2020, 584, 557-561.	13.7	192
13	Tunable solidification of cornstarch under impact: How to make someone walking on cornstarch sink. <i>Science Advances</i> , 2020, 6, eaay6661.	4.7	9
14	Bidirectional Self-Folding with Atomic Layer Deposition Nanofilms for Microscale Origami. <i>Nano Letters</i> , 2020, 20, 4850-4856.	4.5	15
15	Stress decomposition in LAOS of dense colloidal suspensions. <i>Journal of Rheology</i> , 2020, 64, 343-351.	1.3	18
16	Multiscale mechanics of tissue-engineered cartilage grown from human chondrocytes and human-induced pluripotent stem cells. <i>Journal of Orthopaedic Research</i> , 2020, 38, 1965-1973.	1.2	12
17	Distinct tribological endotypes of pathological human synovial fluid reveal characteristic biomarkers and variation in efficacy of viscosupplementation at reducing local strains in articular cartilage. <i>Osteoarthritis and Cartilage</i> , 2020, 28, 492-501.	0.6	8
18	Embedding orthogonal memories in a colloidal gel through oscillatory shear. <i>Soft Matter</i> , 2020, 16, 3746-3752.	1.2	10

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19	Heterogeneous matrix deposition in human tissue engineered cartilage changes the local shear modulus and resistance to local construct buckling. <i>Journal of Biomechanics</i> , 2020, 105, 109760.	0.9	11
20	Capillary Origami with Atomically Thin Membranes. <i>Nano Letters</i> , 2019, 19, 6221-6226.	4.5	33
21	Micromechanical Systems: Atomic Layer Deposition for Membranes, Metamaterials, and Mechanisms (Adv. Mater. 29/2019). <i>Advanced Materials</i> , 2019, 31, 1970212.	11.1	0
22	Understanding the Stiff-to-Compliant Transition of the Meniscal Attachments by Spatial Correlation of Composition, Structure, and Mechanics. <i>ACS Applied Materials &amp; Interfaces</i> , 2019, 11, 26559-26570.	4.0	27
23	The clot thickens: Autologous and allogeneic fibrin sealants are mechanically equivalent in an ex vivo model of cartilage repair. <i>PLoS ONE</i> , 2019, 14, e0224756.	1.1	21
24	Using Acoustic Perturbations to Dynamically Tune Shear Thickening in Colloidal Suspensions. <i>Physical Review Letters</i> , 2019, 123, 128001.	2.9	17
25	Fluid dynamics and control of insect flight. <i>Nature Reviews Physics</i> , 2019, 1, 638-639.	11.9	1
26	Kirigami Mechanics as Stress Relief by Elastic Charges. <i>Physical Review Letters</i> , 2019, 122, 048001.	2.9	24
27	Nonlinear mechanics of thin frames. <i>Physical Review E</i> , 2019, 99, 013002.	0.8	14
28	Atomic Layer Deposition for Membranes, Metamaterials, and Mechanisms. <i>Advanced Materials</i> , 2019, 31, e1901944.	11.1	24
29	Audio cues enhance mirroring of arm motion when visual cues are scarce. <i>Journal of the Royal Society Interface</i> , 2019, 16, 20180903.	1.5	0
30	Magnetic handshake materials as a scale-invariant platform for programmed self-assembly. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 24402-24407.	3.3	28
31	Automated home cage training of mice in a hold-still center-out reach task. <i>Journal of Neurophysiology</i> , 2019, 121, 500-512.	0.9	28
32	Flight of the fruit fly. <i>Physical Review Fluids</i> , 2019, 4, .	1.0	1
33	Measuring and Manipulating the Adhesion of Graphene. <i>Nano Letters</i> , 2018, 18, 449-454.	4.5	25
34	Graphene-based bimorphs for micron-sized, autonomous origami machines. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 466-470.	3.3	144
35	Microscale frictional strains determine chondrocyte fate in loaded cartilage. <i>Journal of Biomechanics</i> , 2018, 74, 72-78.	0.9	47
36	Local and global measurements show that damage initiation in articular cartilage is inhibited by the surface layer and has significant rate dependence. <i>Journal of Biomechanics</i> , 2018, 72, 63-70.	0.9	15

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37	Quantitative light microscopy of dense suspensions: Colloid science at the next decimal place. <i>Current Opinion in Colloid and Interface Science</i> , 2018, 34, 32-46.	3.4	12
38	Fiber Embroidery of Self-Sensing Soft Actuators. <i>Biomimetics</i> , 2018, 3, 24.	1.5	22
39	Density-functional fluctuation theory of crowds. <i>Nature Communications</i> , 2018, 9, 3538.	5.8	20
40	Topological kinematics of origami metamaterials. <i>Nature Physics</i> , 2018, 14, 811-815.	6.5	74
41	Facilitated recruitment of mesenchymal stromal cells by bone marrow concentrate and platelet rich plasma. <i>PLoS ONE</i> , 2018, 13, e0194567.	1.1	18
42	Multiscale Strain as a Predictor of Impact-Induced Fissuring in Articular Cartilage. <i>Journal of Biomechanical Engineering</i> , 2017, 139, .	0.6	14
43	Mechanical properties and structure–function relationships of human chondrocyte–seeded cartilage constructs after in vitro culture. <i>Journal of Orthopaedic Research</i> , 2017, 35, 2298-2306.	1.2	20
44	Three-dimensional microscale flow of polymer coatings on glass during indentation. <i>MRS Communications</i> , 2017, 7, 896-903.	0.8	0
45	In vitro culture increases mechanical stability of human tissue engineered cartilage constructs by prevention of microscale scaffold buckling. <i>Journal of Biomechanics</i> , 2017, 64, 77-84.	0.9	14
46	Determining Quiescent Colloidal Suspension Viscosities Using the Green-Kubo Relation and Image-Based Stress Measurements. <i>Physical Review Letters</i> , 2017, 119, 138001.	2.9	6
47	Stretchable surfaces with programmable 3D texture morphing for synthetic camouflaging skins. <i>Science</i> , 2017, 358, 210-214.	6.0	210
48	How Confinement-Induced Structures Alter the Contribution of Hydrodynamic and Short-Ranged Repulsion Forces to the Viscosity of Colloidal Suspensions. <i>Physical Review X</i> , 2017, 7, .	2.8	11
49	Controlling the alignment of rodlike colloidal particles with time-dependent shear flows. <i>Journal of Rheology</i> , 2017, 61, 979-996.	1.3	7
50	Walking like an ant: a quantitative and experimental approach to understanding locomotor mimicry in the jumping spider <i>Myrmarchne formicaria</i> . <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2017, 284, 20170308.	1.2	40
51	Topological Mechanics of Origami and Kirigami. <i>Physical Review Letters</i> , 2016, 116, 135501.	2.9	156
52	Chondrocyte death and mitochondrial dysfunction are mediated by cartilage friction and shear strain. <i>Osteoarthritis and Cartilage</i> , 2016, 24, S46.	0.6	9
53	Measuring nonlinear stresses generated by defects in 3D colloidal crystals. <i>Nature Materials</i> , 2016, 15, 1172-1176.	13.3	31
54	Human talar and femoral cartilage have distinct mechanical properties near the articular surface. <i>Journal of Biomechanics</i> , 2016, 49, 3320-3327.	0.9	26

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55	Relating microstructure and particle-level stress in colloidal crystals under increased confinement. <i>Soft Matter</i> , 2016, 12, 9058-9067.	1.2	4
56	Tunable shear thickening in suspensions. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 10774-10778.	3.3	74
57	Airborne Acoustic Perception by a Jumping Spider. <i>Current Biology</i> , 2016, 26, 2913-2920.	1.8	55
58	Wing-pitch modulation in maneuvering fruit flies is explained by an interplay between aerodynamics and a torsional spring. <i>Physical Review E</i> , 2015, 92, 022712.	0.8	43
59	Visualization, coarsening, and flow dynamics of focal conic domains in simulated smectic-A liquid crystals. <i>Physical Review E</i> , 2015, 92, 062511.	0.8	9
60	Elastoviscous Transitions of Articular Cartilage Reveal a Mechanism of Synergy between Lubricin and Hyaluronic Acid. <i>PLoS ONE</i> , 2015, 10, e0143415.	1.1	105
61	Hydrodynamic and Contact Contributions to Continuous Shear Thickening in Colloidal Suspensions. <i>Physical Review Letters</i> , 2015, 115, 228304.	2.9	267
62	Measuring microscale strain fields in articular cartilage during rapid impact reveals thresholds for chondrocyte death and a protective role for the superficial layer. <i>Journal of Biomechanics</i> , 2015, 48, 3440-3446.	0.9	64
63	Mechanical characterization of matrix-induced autologous chondrocyte implantation (MACI <sup>®</sup> ) grafts in an equine model at 53 weeks. <i>Journal of Biomechanics</i> , 2015, 48, 1944-1949.	0.9	46
64	Origami structures with a critical transition to bistability arising from hidden degrees of freedom. <i>Nature Materials</i> , 2015, 14, 389-393.	13.3	382
65	The effect of shear flow on the rotational diffusion of a single axisymmetric particle. <i>Journal of Fluid Mechanics</i> , 2015, 772, 42-79.	1.4	21
66	Controlling roll perturbations in fruit flies. <i>Journal of the Royal Society Interface</i> , 2015, 12, 20150075.	1.5	89
67	Pitch perfect: how fruit flies control their body pitch angle. <i>Journal of Experimental Biology</i> , 2015, 218, 3508-19.	0.8	33
68	How grow-and-switch gravitropism generates root coiling and root waving growth responses in <i>Medicago truncatula</i> . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 12938-12943.	3.3	13
69	Geometrically controlled snapping transitions in shells with curved creases. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 11175-11180.	3.3	67
70	Effects of enzymatic treatments on the depth-dependent viscoelastic shear properties of articular cartilage. <i>Journal of Orthopaedic Research</i> , 2014, 32, 1652-1657.	1.2	53
71	A multi-axis confocal rheoscope for studying shear flow of structured fluids. <i>Review of Scientific Instruments</i> , 2014, 85, 033905.	0.6	36
72	Wall Slip of Bidisperse Linear Polymer Melts. <i>Macromolecules</i> , 2014, 47, 3154-3160.	2.2	27

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73	Wall Slip of Tridisperse Polymer Melts and the Effect of Unentangled versus Weakly Entangled Chains. <i>Macromolecules</i> , 2014, 47, 8033-8040.	2.2	11
74	Biaxial shear of confined colloidal hard spheres: the structure and rheology of the vorticity-aligned string phase. <i>Soft Matter</i> , 2014, 10, 1969.	1.2	17
75	Using origami design principles to fold reprogrammable mechanical metamaterials. <i>Science</i> , 2014, 345, 647-650.	6.0	714
76	Structure-Function Relations and Rigidity Percolation in the Shear Properties of Articular Cartilage. <i>Biophysical Journal</i> , 2014, 107, 1721-1730.	0.2	68
77	Anatomic variation of depth-dependent mechanical properties in neonatal bovine articular cartilage. <i>Journal of Orthopaedic Research</i> , 2013, 31, 686-691.	1.2	31
78	Spatial periodicity in growth plate shear mechanical properties is disrupted by vitamin D deficiency. <i>Journal of Biomechanics</i> , 2013, 46, 1597-1603.	0.9	12
79	Collective Motion of Humans in Mosh and Circle Pits at Heavy Metal Concerts. <i>Physical Review Letters</i> , 2013, 110, 228701.	2.9	131
80	Enhancing Rotational Diffusion Using Oscillatory Shear. <i>Physical Review Letters</i> , 2013, 110, 228301.	2.9	16
81	Localization of Viscous Behavior and Shear Energy Dissipation in Articular Cartilage Under Dynamic Shear Loading. <i>Journal of Biomechanical Engineering</i> , 2013, 135, 31002.	0.6	46
82	Active and passive stabilization of body pitch in insect flight. <i>Journal of the Royal Society Interface</i> , 2013, 10, 20130237.	1.5	132
83	Far-from-equilibrium sheared colloidal liquids: Disentangling relaxation, advection, and shear-induced diffusion. <i>Physical Review E</i> , 2013, 88, 062309.	0.8	17
84	Entropy-driven crystal formation on highly strained substrates. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 9301-9304.	3.3	22
85	3D imaging and mechanical modeling of helical buckling in <i>Medicago truncatula</i> plant roots. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 16794-16799.	3.3	67
86	Assembly of vorticity-aligned hard-sphere colloidal strings in a simple shear flow. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 63-67.	3.3	72
87	Implanted adipose progenitor cells as physicochemical regulators of breast cancer. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 9786-9791.	3.3	134
88	Insights into interstitial flow, shear stress, and mass transport effects on ECM heterogeneity in bioreactor-cultivated engineered cartilage hydrogels. <i>Biomechanics and Modeling in Mechanobiology</i> , 2012, 11, 689-702.	1.4	40
89	Imaging the Microscopic Structure of Shear Thinning and Thickening Colloidal Suspensions. <i>Science</i> , 2011, 333, 1276-1279.	6.0	414
90	Paddling Mode of Forward Flight in Insects. <i>Physical Review Letters</i> , 2011, 106, 178103.	2.9	54

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91	Micelles in a crystal. <i>Nature Materials</i> , 2011, 10, 810-811.	13.3	21
92	High-resolution spatial mapping of shear properties in cartilage. <i>Journal of Biomechanics</i> , 2010, 43, 796-800.	0.9	68
93	Fruit Flies Modulate Passive Wing Pitching to Generate In-Flight Turns. <i>Physical Review Letters</i> , 2010, 104, 148101.	2.9	137
94	Direct Measurements of Island Growth and Step-Edge Barriers in Colloidal Epitaxy. <i>Science</i> , 2010, 327, 445-448.	6.0	99
95	Discovering the flight autostabilizer of fruit flies by inducing aerial stumbles. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 4820-4824.	3.3	183
96	Constitutive Curve and Velocity Profile in Entangled Polymers during Start-Up of Steady Shear Flow. <i>Macromolecules</i> , 2010, 43, 4412-4417.	2.2	18
97	The effects of needle puncture injury on microscale shear strain in the intervertebral disc annulus fibrosus. <i>Spine Journal</i> , 2010, 10, 1098-1105.	0.6	78
98	Partial universality: pinch-off dynamics in fluids with smectic liquid crystalline order. <i>Soft Matter</i> , 2010, 6, 892.	1.2	30
99	Automated hull reconstruction motion tracking (HRMT) applied to sideways maneuvers of free-flying insects. <i>Journal of Experimental Biology</i> , 2009, 212, 1324-1335.	0.8	98
100	Measurement of local strains in intervertebral disc anulus fibrosus tissue under dynamic shear: Contributions of matrix fiber orientation and elastin content. <i>Journal of Biomechanics</i> , 2009, 42, 2279-2285.	0.9	122
101	Mapping the depth dependence of shear properties in articular cartilage. <i>Journal of Biomechanics</i> , 2008, 41, 2430-2437.	0.9	131
102	Synthesis and assembly of nonspherical hollow silica colloids under confinement. <i>Journal of Materials Chemistry</i> , 2008, 18, 4912.	6.7	52
103	Nonlinear Rheology of Entangled Polymer Solutions in Narrow Gaps Probed by Confocal Microscopy. <i>AIP Conference Proceedings</i> , 2008, , .	0.3	1
104	High Resolution Shear Profile Measurements in Entangled Polymers. <i>Physical Review Letters</i> , 2008, 101, 218301.	2.9	23
105	Liquid interfaces in viscous straining flows: numerical studies of the selective withdrawal transition. <i>Journal of Fluid Mechanics</i> , 2008, 613, 171-203.	1.4	21
106	Visualizing dislocation nucleation by indenting colloidal crystals. <i>Nature</i> , 2006, 440, 319-323.	18.7	193
107	Slip, Yield, and Bands in Colloidal Crystals under Oscillatory Shear. <i>Physical Review Letters</i> , 2006, 97, 215502.	2.9	59
108	Visualization of Dislocation Dynamics in Colloidal Crystals. <i>Science</i> , 2004, 305, 1944-1948.	6.0	196

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109	Persistence of Memory in Drop Breakup: The Breakdown of Universality. Science, 2003, 302, 1185-1188.	6.0	135
110	Using Selective Withdrawal to Coat Microparticles. Science, 2001, 292, 265-267.	6.0	142
111	Two Fluid Drop Snap-Off Problem: Experiments and Theory. Physical Review Letters, 1999, 83, 1147-1150.	2.9	148
112	The Role of Buckling Instabilities in the Global and Local Mechanical Response in Porous Collagen Scaffolds. Experimental Mechanics, 0, , .	1.1	2