

Itai Cohen

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

109
papers

5,316
citations

40
h-index

71
g-index

116
ext. papers

6,200
ext. citations

9.7
avg, IF

5.78
L-index

#	Paper	IF	Citations
109	Structural origins of cartilage shear mechanics.. <i>Science Advances</i> , 2022 , 8, eabk2805	14.3	1
108	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	9.3	0
107	Cilia metasurfaces for electronically programmable microfluidic manipulation. <i>Nature</i> , 2022 , 605, 681-686	50.4	10
106	Rigidity and fracture of biopolymer double networks. <i>Soft Matter</i> , 2021 ,	3.6	2
105	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	2.9	
104	Cartilage articulation exacerbates chondrocyte damage and death after impact injury. <i>Journal of Orthopaedic Research</i> , 2021 , 39, 2130-2140	3.8	2
103	Micrometer-sized electrically programmable shape-memory actuators for low-power microrobotics. <i>Science Robotics</i> , 2021 , 6,	18.6	19
102	The influence of chondrocyte source on the manufacturing reproducibility of human tissue engineered cartilage. <i>Acta Biomaterialia</i> , 2021 , 131, 276-285	10.8	
101	Multivalued Inverse Design: Multiple Surface Geometries from One Flat Sheet. <i>Physical Review Letters</i> , 2021 , 127, 128001	7.4	4
100	Microscale strain mapping demonstrates the importance of interface slope in the mechanics of cartilage repair. <i>Journal of Biomechanics</i> , 2021 , 114, 110159	2.9	4
99	Tunable solidification of cornstarch under impact: How to make someone walking on cornstarch sink. <i>Science Advances</i> , 2020 , 6, eaay6661	14.3	3
98	Bidirectional Self-Folding with Atomic Layer Deposition Nanofilms for Microscale Origami. <i>Nano Letters</i> , 2020 , 20, 4850-4856	11.5	12
97	Stress decomposition in LAOS of dense colloidal suspensions. <i>Journal of Rheology</i> , 2020 , 64, 343-351	4.1	13
96	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	3.8	5
95	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	6.2	5
94	Embedding orthogonal memories in a colloidal gel through oscillatory shear. <i>Soft Matter</i> , 2020 , 16, 3746-3752	3.7	4
93	Mitoprotective therapy prevents rapid, strain-dependent mitochondrial dysfunction after articular cartilage injury. <i>Journal of Orthopaedic Research</i> , 2020 , 38, 1257-1267	3.8	11

92	Electronically integrated, mass-manufactured, microscopic robots. <i>Nature</i> , 2020 , 584, 557-561	50.4	77
91	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	2.9	6
90	Using Acoustic Perturbations to Dynamically Tune Shear Thickening in Colloidal Suspensions. <i>Physical Review Letters</i> , 2019 , 123, 128001	7.4	7
89	Kirigami Mechanics as Stress Relief by Elastic Charges. <i>Physical Review Letters</i> , 2019 , 122, 048001	7.4	18
88	Nonlinear mechanics of thin frames. <i>Physical Review E</i> , 2019 , 99, 013002	2.4	12
87	Atomic Layer Deposition for Membranes, Metamaterials, and Mechanisms. <i>Advanced Materials</i> , 2019 , 31, e1901944	24	15
86	Audio cues enhance mirroring of arm motion when visual cues are scarce. <i>Journal of the Royal Society Interface</i> , 2019 , 16, 20180903	4.1	
85	Capillary Origami with Atomically Thin Membranes. <i>Nano Letters</i> , 2019 , 19, 6221-6226	11.5	21
84	Micromechanical Systems: Atomic Layer Deposition for Membranes, Metamaterials, and Mechanisms (Adv. Mater. 29/2019). <i>Advanced Materials</i> , 2019 , 31, 1970212	24	
83	Understanding the Stiff-to-Compliant Transition of the Meniscal Attachments by Spatial Correlation of Composition, Structure, and Mechanics. <i>ACS Applied Materials & Interfaces</i> , 2019 , 11, 26559-26570	9.5	16
82	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	3.7	13
81	Shaping the Dramatic Arc 2019 , 19-32		
80	Flight of the fruit fly. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	1
79	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	11.5	12
78	Automated home cage training of mice in a hold-still center-out reach task. <i>Journal of Neurophysiology</i> , 2019 , 121, 500-512	3.2	15
77	Measuring and Manipulating the Adhesion of Graphene. <i>Nano Letters</i> , 2018 , 18, 449-454	11.5	20
76	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	11.5	113
75	Microscale frictional strains determine chondrocyte fate in loaded cartilage. <i>Journal of Biomechanics</i> , 2018 , 74, 72-78	2.9	31

74	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	2.9	11
73	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	7.6	8
72	Facilitated recruitment of mesenchymal stromal cells by bone marrow concentrate and platelet rich plasma. <i>PLoS ONE</i> , 2018 , 13, e0194567	3.7	11
71	Fiber Embroidery of Self-Sensing Soft Actuators. <i>Biomimetics</i> , 2018 , 3,	3.7	16
70	Density-functional fluctuation theory of crowds. <i>Nature Communications</i> , 2018 , 9, 3538	17.4	12
69	Topological kinematics of origami metamaterials. <i>Nature Physics</i> , 2018 , 14, 811-815	16.2	45
68	Multiscale Strain as a Predictor of Impact-Induced Fissuring in Articular Cartilage. <i>Journal of Biomechanical Engineering</i> , 2017 , 139,	2.1	10
67	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	3.8	12
66	Three-dimensional microscale flow of polymer coatings on glass during indentation. <i>MRS Communications</i> , 2017 , 7, 896-903	2.7	
65	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	2.9	9
64	Determining Quiescent Colloidal Suspension Viscosities Using the Green-Kubo Relation and Image-Based Stress Measurements. <i>Physical Review Letters</i> , 2017 , 119, 138001	7.4	6
63	Stretchable surfaces with programmable 3D texture morphing for synthetic camouflaging skins. <i>Science</i> , 2017 , 358, 210-214	33.3	155
62	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,	9.1	8
61	Controlling the alignment of rodlike colloidal particles with time-dependent shear flows. <i>Journal of Rheology</i> , 2017 , 61, 979-996	4.1	6
60	Walking like an ant: a quantitative and experimental approach to understanding locomotor mimicry in the jumping spider. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2017 , 284,	4.4	23
59	Human talar and femoral cartilage have distinct mechanical properties near the articular surface. <i>Journal of Biomechanics</i> , 2016 , 49, 3320-3327	2.9	23
58	Relating microstructure and particle-level stress in colloidal crystals under increased confinement. <i>Soft Matter</i> , 2016 , 12, 9058-9067	3.6	3
57	Tunable shear thickening in suspensions. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 10774-8	11.5	45

56	Airborne Acoustic Perception by a Jumping Spider. <i>Current Biology</i> , 2016 , 26, 2913-2920	6.3	43
55	Topological Mechanics of Origami and Kirigami. <i>Physical Review Letters</i> , 2016 , 116, 135501	7.4	123
54	Chondrocyte death and mitochondrial dysfunction are mediated by cartilage friction and shear strain. <i>Osteoarthritis and Cartilage</i> , 2016 , 24, S46	6.2	8
53	Measuring nonlinear stresses generated by defects in 3D colloidal crystals. <i>Nature Materials</i> , 2016 , 15, 1172-1176	27	25
52	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, 3440-8	2.9	49
51	Mechanical characterization of matrix-induced autologous chondrocyte implantation (MACI) grafts in an equine model at 53 weeks. <i>Journal of Biomechanics</i> , 2015 , 48, 1944-9	2.9	40
50	Origami structures with a critical transition to bistability arising from hidden degrees of freedom. <i>Nature Materials</i> , 2015 , 14, 389-93	27	283
49	The effect of shear flow on the rotational diffusion of a single axisymmetric particle. <i>Journal of Fluid Mechanics</i> , 2015 , 772, 42-79	3.7	20
48	Controlling roll perturbations in fruit flies. <i>Journal of the Royal Society Interface</i> , 2015 , 12,	4.1	63
47	Pitch perfect: how fruit flies control their body pitch angle. <i>Journal of Experimental Biology</i> , 2015 , 218, 3508-19	3	19
46	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, 12938-43	11.5	8
45	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, 11175-80	11.5	53
44	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	2.4	25
43	Visualization, coarsening, and flow dynamics of focal conic domains in simulated smectic-A liquid crystals. <i>Physical Review E</i> , 2015 , 92, 062511	2.4	6
42	Elastoviscous Transitions of Articular Cartilage Reveal a Mechanism of Synergy between Lubricin and Hyaluronic Acid. <i>PLoS ONE</i> , 2015 , 10, e0143415	3.7	85
41	Hydrodynamic and Contact Contributions to Continuous Shear Thickening in Colloidal Suspensions. <i>Physical Review Letters</i> , 2015 , 115, 228304	7.4	199
40	Wall Slip of Bidisperse Linear Polymer Melts. <i>Macromolecules</i> , 2014 , 47, 3154-3160	5.5	22
39	Wall Slip of Tridisperse Polymer Melts and the Effect of Unentangled versus Weakly Entangled Chains. <i>Macromolecules</i> , 2014 , 47, 8033-8040	5.5	9

38	Biaxial shear of confined colloidal hard spheres: the structure and rheology of the vorticity-aligned string phase. <i>Soft Matter</i> , 2014 , 10, 1969-76	3.6	16
37	Applied origami. Using origami design principles to fold reprogrammable mechanical metamaterials. <i>Science</i> , 2014 , 345, 647-50	33.3	525
36	Structure-function relations and rigidity percolation in the shear properties of articular cartilage. <i>Biophysical Journal</i> , 2014 , 107, 1721-30	2.9	59
35	Effects of enzymatic treatments on the depth-dependent viscoelastic shear properties of articular cartilage. <i>Journal of Orthopaedic Research</i> , 2014 , 32, 1652-7	3.8	45
34	A multi-axis confocal rheoscope for studying shear flow of structured fluids. <i>Review of Scientific Instruments</i> , 2014 , 85, 033905	1.7	32
33	Anatomic variation of depth-dependent mechanical properties in neonatal bovine articular cartilage. <i>Journal of Orthopaedic Research</i> , 2013 , 31, 686-91	3.8	29
32	Spatial periodicity in growth plate shear mechanical properties is disrupted by vitamin D deficiency. <i>Journal of Biomechanics</i> , 2013 , 46, 1597-603	2.9	7
31	Collective motion of humans in mosh and circle pits at heavy metal concerts. <i>Physical Review Letters</i> , 2013 , 110, 228701	7.4	101
30	Enhancing rotational diffusion using oscillatory shear. <i>Physical Review Letters</i> , 2013 , 110, 228301	7.4	15
29	Localization of viscous behavior and shear energy dissipation in articular cartilage under dynamic shear loading. <i>Journal of Biomechanical Engineering</i> , 2013 , 135, 31002	2.1	41
28	Active and passive stabilization of body pitch in insect flight. <i>Journal of the Royal Society Interface</i> , 2013 , 10, 20130237	4.1	104
27	Far-from-equilibrium sheared colloidal liquids: disentangling relaxation, advection, and shear-induced diffusion. <i>Physical Review E</i> , 2013 , 88, 062309	2.4	17
26	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, 9301-4	11.5	16
25	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, 16794-9	11.5	51
24	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, 63-7	11.5	65
23	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, 9786-91	11.5	116
22	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	3.8	33
21	Imaging the microscopic structure of shear thinning and thickening colloidal suspensions. <i>Science</i> , 2011 , 333, 1276-9	33.3	338

20	Paddling mode of forward flight in insects. <i>Physical Review Letters</i> , 2011 , 106, 178103	7.4	44
19	Fruit flies modulate passive wing pitching to generate in-flight turns. <i>Physical Review Letters</i> , 2010 , 104, 148101	7.4	108
18	Direct measurements of island growth and step-edge barriers in colloidal epitaxy. <i>Science</i> , 2010 , 327, 445-8	33.3	84
17	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, 4820-4	11.5	142
16	Constitutive Curve and Velocity Profile in Entangled Polymers during Start-Up of Steady Shear Flow. <i>Macromolecules</i> , 2010 , 43, 4412-4417	5.5	17
15	The effects of needle puncture injury on microscale shear strain in the intervertebral disc annulus fibrosus. <i>Spine Journal</i> , 2010 , 10, 1098-105	4	67
14	Partial universality: pinch-off dynamics in fluids with smectic liquid crystalline order. <i>Soft Matter</i> , 2010 , 6, 892	3.6	27
13	High-resolution spatial mapping of shear properties in cartilage. <i>Journal of Biomechanics</i> , 2010 , 43, 796-800		60
12	Automated hull reconstruction motion tracking (HRMT) applied to sideways maneuvers of free-flying insects. <i>Journal of Experimental Biology</i> , 2009 , 212, 1324-35	3	83
11	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, 2279-85 ^{2.9}		101
10	Synthesis and assembly of nonspherical hollow silica colloids under confinement. <i>Journal of Materials Chemistry</i> , 2008 , 18, 4912		49
9	High resolution shear profile measurements in entangled polymers. <i>Physical Review Letters</i> , 2008 , 101, 218301	7.4	23
8	Liquid interfaces in viscous straining flows: numerical studies of the selective withdrawal transition. <i>Journal of Fluid Mechanics</i> , 2008 , 613, 171-203	3.7	15
7	Mapping the depth dependence of shear properties in articular cartilage. <i>Journal of Biomechanics</i> , 2008 , 41, 2430-7	2.9	114
6	Slip, yield, and bands in colloidal crystals under oscillatory shear. <i>Physical Review Letters</i> , 2006 , 97, 215502 ^{2.4}		58
5	Visualizing dislocation nucleation by indenting colloidal crystals. <i>Nature</i> , 2006 , 440, 319-23	50.4	180
4	Visualization of dislocation dynamics in colloidal crystals. <i>Science</i> , 2004 , 305, 1944-8	33.3	180
3	Persistence of memory in drop breakup: the breakdown of universality. <i>Science</i> , 2003 , 302, 1185-8	33.3	119

- 2 Using selective withdrawal to coat microparticles. *Science*, **2001**, 292, 265-7 33.3 128
- 1 Two Fluid Drop Snap-Off Problem: Experiments and Theory. *Physical Review Letters*, **1999**, 83, 1147-1150.4 132