

# Hauke Clausen-Schaumann

## List of Publications by Year in descending order

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97  
papers

6,570  
citations

136950

32  
h-index

64796

79  
g-index

102  
all docs

102  
docs citations

102  
times ranked

7422  
citing authors

#	ARTICLE	IF	CITATIONS
1	Mechanochemistry: The Mechanical Activation of Covalent Bonds. <i>Chemical Reviews</i> , 2005, 105, 2921-2948.	47.7	1,106
2	How Strong Is a Covalent Bond?. <i>Science</i> , 1999, 283, 1727-1730.	12.6	1,007
3	Sequence-dependent mechanics of single DNA molecules. <i>Nature Structural Biology</i> , 1999, 6, 346-349.	9.7	726
4	Mechanical Stability of Single DNA Molecules. <i>Biophysical Journal</i> , 2000, 78, 1997-2007.	0.5	405
5	Force spectroscopy with single bio-molecules. <i>Current Opinion in Chemical Biology</i> , 2000, 4, 524-530.	6.1	388
6	Elasticity of Single Polyelectrolyte Chains and Their Desorption from Solid Supports Studied by AFM Based Single Molecule Force Spectroscopy. <i>Macromolecules</i> , 2001, 34, 1039-1047.	4.8	239
7	Atomic Force Microscope Imaging of Phospholipid Bilayer Degradation by Phospholipase A2. <i>Biophysical Journal</i> , 1998, 74, 2398-2404.	0.5	193
8	Researching into the cellular shape, volume and elasticity of mesenchymal stem cells, osteoblasts and osteosarcoma cells by atomic force microscopy. <i>Journal of Cellular and Molecular Medicine</i> , 2008, 12, 537-552.	3.6	172
9	DNA: A Programmable Force Sensor. <i>Science</i> , 2003, 301, 367-370.	12.6	167
10	Structural and mechanical properties of the proliferative zone of the developing murine growth plate cartilage assessed by atomic force microscopy. <i>Matrix Biology</i> , 2016, 50, 1-15.	3.6	97
11	Basement membrane stiffness determines metastases formation. <i>Nature Materials</i> , 2021, 20, 892-903.	27.5	94
12	Increased stemness and migration of human mesenchymal stem cells in hypoxia is associated with altered integrin expression. <i>Biochemical and Biophysical Research Communications</i> , 2012, 423, 379-385.	2.1	86
13	Tenomodulin is Required for Tendon Endurance Running and Collagen I Fibril Adaptation to Mechanical Load. <i>EBioMedicine</i> , 2017, 20, 240-254.	6.1	78
14	Structural decoding of netrin-4 reveals a regulatory function towards mature basement membranes. <i>Nature Communications</i> , 2016, 7, 13515.	12.8	74
15	Direct Detection of Domains in Phospholipid Bilayers by Grazing Incidence Diffraction of Neutrons and Atomic Force Microscopy. <i>Biophysical Journal</i> , 1998, 74, 2443-2450.	0.5	71
16	Dynamic Strength of the Silicon-Carbon Bond Observed over Three Decades of Force-Loading Rates. <i>Journal of the American Chemical Society</i> , 2008, 130, 3664-3668.	13.7	70
17	Changes in water chemistry can disable plankton prey defenses. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 15377-15382.	7.1	66
18	A force-based protein biochip. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2003, 100, 11356-11360.	7.1	59

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19	Cisplatin Changes the Mechanics of Single DNA Molecules. <i>Angewandte Chemie - International Edition</i> , 2000, 39, 3912-3915.	13.8	58
20	DNA Adsorption to Laterally Structured Charged Lipid Membranes. <i>Langmuir</i> , 1999, 15, 8246-8251.	3.5	52
21	Effect of collagen I and fibronectin on the adhesion, elasticity and cytoskeletal organization of prostate cancer cells. <i>Biochemical and Biophysical Research Communications</i> , 2010, 402, 361-366.	2.1	50
22	A Perfusion Bioreactor System for Cell Seeding and Oxygen-Controlled Cultivation of Three-Dimensional Cell Cultures. <i>Tissue Engineering - Part C: Methods</i> , 2018, 24, 585-595.	2.1	50
23	Mechanically activated rupture of single covalent bonds: evidence of force induced bond hydrolysis. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 5994.	2.8	48
24	Cationically Charged Mn <sup>II</sup> /Al <sup>III</sup> LDH Nanosheets by Chemical Exfoliation and Their Use As Building Blocks in Graphene Oxide-Based Materials. <i>Langmuir</i> , 2013, 29, 9199-9207.	3.5	43
25	Severe Extracellular Matrix Abnormalities and Chondrodysplasia in Mice Lacking Collagen Prolyl 4-Hydroxylase Isoenzyme II in Combination with a Reduced Amount of Isoenzyme I. <i>Journal of Biological Chemistry</i> , 2015, 290, 16964-16978.	3.4	43
26	Forced exercise-induced osteoarthritis is attenuated in mice lacking the small leucine-rich proteoglycan decorin. <i>Annals of the Rheumatic Diseases</i> , 2017, 76, 442-449.	0.9	42
27	Establishment of immortalized periodontal ligament progenitor cell line and its behavioural analysis on smooth and rough titanium surface. , 2010, 19, 228-241.		41
28	Uncovering Ultrastructural Defences in <i>Daphnia magna</i> – An Interdisciplinary Approach to Assess the Predator-Induced Fortification of the Carapace. <i>PLoS ONE</i> , 2013, 8, e67856.	2.5	40
29	Three-dimensional self-assembling nanofiber matrix rejuvenates aged/degenerative human tendon stem/progenitor cells. <i>Biomaterials</i> , 2020, 236, 119802.	11.4	40
30	Enzyme-Assisted Nanoscale Lithography in Lipid Membranes. <i>Advanced Materials</i> , 1998, 10, 949-952.	21.0	38
31	Mechanical Activation Drastically Accelerates Amide Bond Hydrolysis, Matching Enzyme Activity. <i>Angewandte Chemie - International Edition</i> , 2019, 58, 9787-9790.	13.8	37
32	Aggrecan Hypomorphism Compromises Articular Cartilage Biomechanical Properties and Is Associated with Increased Incidence of Spontaneous Osteoarthritis. <i>International Journal of Molecular Sciences</i> , 2019, 20, 1008.	4.1	36
33	Loss of tenomodulin expression is a risk factor for age-related intervertebral disc degeneration. <i>Aging Cell</i> , 2020, 19, e13091.	6.7	36
34	Nanospheres from Polymerized Lipofullerenes. <i>Angewandte Chemie - International Edition</i> , 1999, 38, 1962-1965.	13.8	34
35	Mechanochemical Cycloreversion of Cyclobutane Observed at the Single Molecule Level. <i>Chemistry - A European Journal</i> , 2016, 22, 12034-12039.	3.3	34
36	Single-Molecule Force-Clamp Experiments Reveal Kinetics of Mechanically Activated Silyl Ester Hydrolysis. <i>ACS Nano</i> , 2012, 6, 1314-1321.	14.6	33

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37	Decoding Cytoskeleton-Anchored and Non-Anchored Receptors from Single-Cell Adhesion Force Data. <i>Biophysical Journal</i> , 2015, 109, 1330-1333.	0.5	32
38	Sensory neuropeptides are required for bone and cartilage homeostasis in a murine destabilization-induced osteoarthritis model. <i>Bone</i> , 2020, 133, 115181.	2.9	30
39	Precision 3D-Printed Cell Scaffolds Mimicking Native Tissue Composition and Mechanics. <i>Advanced Healthcare Materials</i> , 2020, 9, e2000918.	7.6	29
40	On the function of chitin synthase extracellular domains in biomineralization. <i>Journal of Structural Biology</i> , 2013, 183, 216-225.	2.8	28
41	Early changes in morphology, bone mineral density and matrix composition of vertebrae lead to disc degeneration in aged collagen IX $\alpha^1/2$ mice. <i>Matrix Biology</i> , 2016, 49, 132-143.	3.6	27
42	Simple Coupling Chemistry Linking Carboxyl-Containing Organic Molecules to Silicon Oxide Surfaces under Acidic Conditions. <i>Langmuir</i> , 2010, 26, 15333-15338.	3.5	26
43	Single Molecule Force Spectroscopy Reveals Two-Domain Binding Mode of Pilus-1 Tip Protein RrgA of <i>Streptococcus pneumoniae</i> to Fibronectin. <i>ACS Nano</i> , 2018, 12, 549-558.	14.6	25
44	Age related changes in cell stiffness of tendon stem/progenitor cells and a rejuvenating effect of ROCK-inhibition. <i>Biochemical and Biophysical Research Communications</i> , 2019, 509, 839-844.	2.1	24
45	Characterization of IgG Langmuir-Blodgett films immobilized on functionalized polymers. <i>Talanta</i> , 2000, 52, 921-930.	5.5	23
46	The structure and functionality of contractile forisome protein aggregates. <i>Biomaterials</i> , 2008, 29, 247-256.	11.4	23
47	Mice Lacking the Matrilin Family of Extracellular Matrix Proteins Develop Mild Skeletal Abnormalities and Are Susceptible to Age-Associated Osteoarthritis. <i>International Journal of Molecular Sciences</i> , 2020, 21, 666.	4.1	23
48	Pilus-1 Backbone Protein RrgB of <i>Streptococcus pneumoniae</i> Binds Collagen I in a Force-Dependent Way. <i>ACS Nano</i> , 2019, 13, 7155-7165.	14.6	21
49	Higher Adducts of C60 by Tether-Directed Remote Functionalization: X-Ray Crystal Structure and Reactivity of a Chiral Hexakis-Cyclopropanated Fullerene with all Addends Located along an Equatorial Belt. <i>Angewandte Chemie - International Edition</i> , 2000, 39, 3813-3816.	13.8	20
50	Probing the Interaction Forces of Prostate Cancer Cells with Collagen I and Bone Marrow Derived Stem Cells on the Single Cell Level. <i>PLoS ONE</i> , 2013, 8, e57706.	2.5	20
51	Double-chip protein arrays: force-based multiplex sandwich immunoassays with increased specificity. <i>Analytical and Bioanalytical Chemistry</i> , 2004, 379, 974-81.	3.7	19
52	Microindentation sensor system based on an optical fiber Bragg grating for the mechanical characterization of articular cartilage by stress-relaxation. <i>Sensors and Actuators B: Chemical</i> , 2017, 252, 440-449.	7.8	19
53	Single Cell Bioprinting with Ultrashort Laser Pulses. <i>Advanced Functional Materials</i> , 2021, 31, 2100066.	14.9	19
54	Mechanically induced silyl ester cleavage under acidic conditions investigated by AFM-based single-molecule force spectroscopy in the force-ramp mode. <i>Faraday Discussions</i> , 2014, 170, 357-367.	3.2	18

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55	A density functional theory model of mechanically activated silyl ester hydrolysis. <i>Journal of Chemical Physics</i> , 2014, 140, 044321.	3.0	18
56	Early Detection of Cartilage Degeneration: A Comparison of Histology, Fiber Bragg Grating-Based Micro-Indentation, and Atomic Force Microscopy-Based Nano-Indentation. <i>International Journal of Molecular Sciences</i> , 2020, 21, 7384.	4.1	18
57	Artificial Noses Sniff DNA. <i>ChemPhysChem</i> , 2000, 1, 89-90.	2.1	16
58	Fibrin glue displays promising in vitro characteristics as a potential carrier of adipose progenitor cells for tissue regeneration. <i>Journal of Tissue Engineering and Regenerative Medicine</i> , 2019, 13, 359-368.	2.7	16
59	Mitochondrial respiratory chain function promotes extracellular matrix integrity in cartilage. <i>Journal of Biological Chemistry</i> , 2021, 297, 101224.	3.4	16
60	Knotted Fishing Line, Covalent Bonds, and Breaking Points. <i>Science</i> , 1999, 286, 11a-11.	12.6	15
61	Differential analysis of biomolecular rupture forces. <i>Journal of Physics Condensed Matter</i> , 2006, 18, S581-S599.	1.8	15
62	Sacrificial-layer free transfer of mammalian cells using near infrared femtosecond laser pulses. <i>PLoS ONE</i> , 2018, 13, e0195479.	2.5	15
63	Synthetic cell-based materials extract positional information from morphogen gradients. <i>Science Advances</i> , 2022, 8, eabl9228.	10.3	15
64	Double chip protein arrays using recombinant single-chain Fv antibody fragments. <i>Proteomics</i> , 2004, 4, 1417-1420.	2.2	14
65	A laser-cutting-based manufacturing process for the generation of three-dimensional scaffolds for tissue engineering using Polycaprolactone/Hydroxyapatite composite polymer. <i>Journal of Tissue Engineering</i> , 2019, 10, 204173141985915.	5.5	14
66	Transmembrane myosin chitin synthase involved in mollusc shell formation produced in <i>Dictyostelium</i> is active. <i>Biochemical and Biophysical Research Communications</i> , 2011, 415, 586-590.	2.1	11
67	Covalent Immobilization of Proteins for the Single Molecule Force Spectroscopy. <i>Journal of Visualized Experiments</i> , 2018, , .	0.3	10
68	Adhesive Properties of the Hyaluronan Pericellular Coat in Hyaluronan Synthases Overexpressing Mesenchymal Stem Cells. <i>International Journal of Molecular Sciences</i> , 2020, 21, 3827.	4.1	10
69	Force dependence of the infrared spectra of polypropylene calculated with density functional theory. <i>Polymer Degradation and Stability</i> , 2016, 128, 294-299.	5.8	9
70	Contactless Vibrational Analysis of Transparent Hydrogel Structures Using Laser-Doppler Vibrometry. <i>Experimental Mechanics</i> , 2020, 60, 1067-1078.	2.0	9
71	ER Stress in ERp57 Knockout Knee Joint Chondrocytes Induces Osteoarthritic Cartilage Degradation and Osteophyte Formation. <i>International Journal of Molecular Sciences</i> , 2022, 23, 182.	4.1	9
72	Osteoidosis leads to altered differentiation and function of osteoclasts. <i>Journal of Cellular and Molecular Medicine</i> , 2020, 24, 5665-5674.	3.6	7

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73	Mechanische Aktivierung beschleunigt die Hydrolyse der Amidbindung drastisch, vergleichbar der Aktivität von Enzymen. <i>Angewandte Chemie</i> , 2019, 131, 9890-9894.	2.0	6
74	Extending Single Cell Bioprinting from Femtosecond to Picosecond Laser Pulse Durations. <i>Micromachines</i> , 2021, 12, 1172.	2.9	6
75	Imbalanced cellular metabolism compromises cartilage homeostasis and joint function in a mouse model of mucopolidosis type III gamma. <i>DMM Disease Models and Mechanisms</i> , 2020, 13, .	2.4	4
76	The Matrilin-3 T298M mutation predisposes for post-traumatic osteoarthritis in a knock-in mouse model. <i>Osteoarthritis and Cartilage</i> , 2021, 29, 78-88.	1.3	4
77	Nano-Scale Mechanical Properties of the Articular Cartilage Zones in a Mouse Model of Post-Traumatic Osteoarthritis. <i>Applied Sciences (Switzerland)</i> , 2022, 12, 2596.	2.5	4
78	Aggrecan is critical in maintaining the cartilage matrix biomechanics which in turn influences the correct development of the growth plate. <i>Osteoarthritis and Cartilage</i> , 2019, 27, S178.	1.3	3
79	Mechanochemistry: The Mechanical Activation of Covalent Bonds. <i>ChemInform</i> , 2005, 36, no.	0.0	2
80	All optical indentation probe for endoscopic diagnosis of osteoarthritis. <i>Proceedings of SPIE</i> , 2015, , .	0.8	2
81	Inadequate tissue mineralization promotes cancer cell attachment. <i>PLoS ONE</i> , 2020, 15, e0237116.	2.5	2
82	Fourier Transform Infrared Microspectroscopy Combined with Principal Component Analysis and Artificial Neural Networks for the Study of the Effect of $\beta^2$ -Hydroxy- $\beta^2$ -Methylbutyrate (HMB) Supplementation on Articular Cartilage. <i>International Journal of Molecular Sciences</i> , 2021, 22, 9189.	4.1	2
83	Effects of tissue calcification during osteoarthritis on extracellular matrix and cartilage stiffness. <i>Osteoarthritis and Cartilage</i> , 2015, 23, A290.	1.3	1
84	Inhibition of SDC4-LOX mediated extracellular matrix stiffening prevents chondrocyte differentiation in OA cartilage via increased YAP/TAZ signaling. <i>Osteoarthritis and Cartilage</i> , 2019, 27, S150-S151.	1.3	1
85	Functionalization of Diamond-Like Carbon Surfaces to Access High Rupture Forces in Single-Molecule Force Spectroscopy of Covalent Bonds. <i>Chemistry Methods</i> , 2021, 1, 271-277.	3.8	1
86	Femtosecond laser printing of living human cells. , 2019, , .		1
87	Cartilage microindentation using cylindrical and spherical optical fiber indenters with integrated Bragg gratings as force sensors. , 2018, , .		1
88	Perfect nanospheres from polymerized lipofullerenes. , 1999, , .		0
89	Decorin-deficient mice are less prone to develop osteoarthritis after forced exercise. <i>Osteoarthritis and Cartilage</i> , 2014, 22, S12-S13.	1.3	0
90	A4.10-Forced exercise-induced osteoarthritis is attenuated in mice lacking the small leucine-rich proteoglycan decorin. <i>Annals of the Rheumatic Diseases</i> , 2015, 74, A40.1-A40.	0.9	0

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91	Structural and Mechanical Cues in Cartilage Morphogenesis. <i>Biophysical Journal</i> , 2016, 110, 498a.	0.5	0
92	Altered matrix stiffness in decorin-null articular cartilage results in improved resistance to osteoarthritis induced by forced exercise. <i>Osteoarthritis and Cartilage</i> , 2016, 24, S134.	1.3	0
93	Syndecan-4 deficiency affects extracellular matrix architecture of articular cartilage. <i>Osteoarthritis and Cartilage</i> , 2017, 25, S146.	1.3	0
94	Printing of living cells by using ultra-short laser pulses. , 2021, , .		0
95	Vibrational Analysis of Biopolymer-Based Hydrogels Using 3D-Printed Test Structures for Applications in Bioprinting. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2020, , 29-35.	0.5	0
96	Investigating the Feasibility of Laser-Doppler Vibrometry for Vibrational Analysis of Living Mammalian Cells. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2020, , 31-36.	0.5	0
97	Single cell RNA sequencing identifies mitochondrial respiration as a key factor contributing to extracellular matrix integrity. <i>Osteologie</i> , 2021, 30, .	0.1	0