Hermann E Gaub

List of Publications by Year
in descending order

98 papers	12,845 citations	61984 43 h-index	37204 96 g-index
107 all docs	107 docs citations	107 times ranked	8920 citing authors

#	Article	IF	Citations
1	Reversible Unfolding of Individual Titin Immunoglobulin Domains by AFM. Science, 1997, 276, 1109-1112.	12.6	2,874
2	Single Molecule Force Spectroscopy on Polysaccharides by Atomic Force Microscopy. Science, 1997, 275, 1295-1297.	12.6	1,096
3	How Strong Is a Covalent Bond?. Science, 1999, 283, 1727-1730.	12.6	1,007
4	Discrete interactions in cell adhesion measured by single-molecule force spectroscopy. Nature Cell Biology, 2000, 2, 313-317.	10.3	551
5	Single molecule force spectroscopy of spectrin repeats: low unfolding forces in helix bundles. Journal of Molecular Biology, 1999, 286, 553-561.	4.2	530
6	Atomic force microscopy-based mechanobiology. Nature Reviews Physics, 2019, 1, 41-57.	26.6	500
7	Single-cell force spectroscopy. Journal of Cell Science, 2008, 121, 1785-1791.	2.0	443
8	Mechanical Stability of Single DNA Molecules. Biophysical Journal, 2000, 78, 1997-2007.	0.5	405
9	Small cantilevers for force spectroscopy of single molecules. Journal of Applied Physics, 1999, 86, 2258-2262.	2.5	368
10	Mechanoenzymatics of titin kinase. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 13385-13390.	7.1	311
11	Structure and Mechanics of Membrane Proteins. Annual Review of Biochemistry, 2008, 77, 127-148.	11.1	246
12	Force and function: probing proteins with AFM-based force spectroscopy. Current Opinion in Structural Biology, 2009, 19, 605-614.	5.7	239
13	Affinity Imaging of Red Blood Cells Using an Atomic Force Microscope. Journal of Histochemistry and Cytochemistry, 2000, 48, 719-724.	2.5	196
14	Molecular mechanism of extreme mechanostability in a pathogen adhesin. Science, 2018, 359, 1527-1533.	12.6	176
15	DNA: A Programmable Force Sensor. Science, 2003, 301, 367-370.	12.6	167
16	A Metal-Chelating Microscopy Tip as a New Toolbox for Single-Molecule Experiments by Atomic Force Microscopy. Biophysical Journal, 2000, 78, 3275-3285.	0.5	166
17	Highly Stretched Single Polymers: Atomic-Force-Microscope Experiments VersusAb-InitioTheory. Physical Review Letters, 2005, 94, 048301.	7.8	165
18	Stability of Bacteriorhodopsin Î±-Helices and Loops Analyzed by Single-Molecule Force Spectroscopy. Biophysical Journal, 2002, 83, 3578-3588.	0.5	163

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19	Atomic force microscopy-based characterization and design of biointerfaces. Nature Reviews Materials, 2017, 2, .	48.7	145
20	Dynamic single-molecule force spectroscopy: bond rupture analysis with variable spacer length. Journal of Physics Condensed Matter, 2003, 15, S1709-S1723.	1.8	126
21	Atomic force microscopy of native purple membrane. Biochimica Et Biophysica Acta - Bioenergetics, 2000, 1460, 27-38.	1.0	121
22	Interlaboratory round robin on cantilever calibration for AFM force spectroscopy. Ultramicroscopy, 2011, 111, 1659-1669.	1.9	110
23	Unzipping DNA Oligomers. Nano Letters, 2003, 3, 493-496.	9.1	109
24	Single-molecule force spectroscopy on polyproteins and receptorâ€"ligand complexes: The current toolbox. Journal of Structural Biology, 2017, 197, 3-12.	2.8	109
25	Atomic Force Microscopy-Based Force Spectroscopy and Multiparametric Imaging of Biomolecular and Cellular Systems. Chemical Reviews, 2021, 121, 11701-11725.	47.7	109
26	Single-molecule dissection of the high-affinity cohesinâ€"dockerin complex. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 20431-20436.	7.1	104
27	Bacteriorhodopsin Folds into the Membrane against an External Force. Journal of Molecular Biology, 2006, 357, 644-654.	4.2	93
28	Ultrastable cellulosome-adhesion complex tightens under load. Nature Communications, 2014, 5, 5635.	12.8	92
29	Mapping Mechanical Force Propagation through Biomolecular Complexes. Nano Letters, 2015, 15, 7370-7376.	9.1	83
30	B-S Transition in Short Oligonucleotides. Biophysical Journal, 2007, 93, 2400-2409.	0.5	73
31	Affinity-Matured Recombinant Antibody Fragments Analyzed by Single-Molecule Force Spectroscopy. Biophysical Journal, 2007, 93, 3583-3590.	0.5	73
32	Elastin-like Polypeptide Linkers for Single-Molecule Force Spectroscopy. ACS Nano, 2017, 11, 6346-6354.	14.6	72
33	Comparing Proteins by Their Unfolding Pattern. Biophysical Journal, 2008, 95, 426-434.	0.5	71
34	Unfolding Forces of Titin and Fibronectin Domains Directly Measured by AFM. Advances in Experimental Medicine and Biology, 2000, 481, 129-141.	1.6	71
35	From genes to protein mechanics on a chip. Nature Methods, 2014, 11, 1127-1130.	19.0	66
36	Streptavidin/biotin: Tethering geometry defines unbinding mechanics. Science Advances, 2020, 6, eaay5999.	10.3	66

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37	Single-Molecule Mechanoenzymatics. Annual Review of Biophysics, 2012, 41, 497-518.	10.0	63
38	Optically monitoring the mechanical assembly of single molecules. Nature Nanotechnology, 2009, 4, 45-49.	31.5	59
39	Triggering Enzymatic Activity with Force. Nano Letters, 2009, 9, 3290-3295.	9.1	56
40	Mechanisms of Nanonewton Mechanostability in a Protein Complex Revealed by Molecular Dynamics Simulations and Single-Molecule Force Spectroscopy. Journal of the American Chemical Society, 2019, 141, 14752-14763.	13.7	55
41	Combining <i>in Vitro</i> and <i>in Silico</i> Single-Molecule Force Spectroscopy to Characterize and Tune Cellulosomal Scaffoldin Mechanics. Journal of the American Chemical Society, 2017, 139, 17841-17852.	13.7	53
42	Direction Matters: Monovalent Streptavidin/Biotin Complex under Load. Nano Letters, 2019, 19, 3415-3421.	9.1	53
43	Nanoparticle Self-Assembly on a DNA-Scaffold Written by Single-Molecule Cut-and-Paste. Nano Letters, 2008, 8, 3692-3695.	9.1	51
44	Force-based Analysis of Multidimensional Energy Landscapes: Application of Dynamic Force Spectroscopy and Steered Molecular Dynamics Simulations to an Antibody Fragmentâ€“Peptide Complex. Journal of Molecular Biology, 2008, 381, 1253-1266.	4.2	48
45	Covalent immobilization of recombinant fusion proteins with hAGT for single molecule force spectroscopy. European Biophysics Journal, 2005, 35, 72-78.	2.2	47
46	DNA as a Force Sensor in an Aptamer-Based Biochip for Adenosine. Analytical Chemistry, 2009, 81, 3159-3164.	6.5	45
47	Post-Translational Sortase-Mediated Attachment of High-Strength Force Spectroscopy Handles. ACS Omega, 2017, 2, 3064-3069.	3.5	43
48	Nanoscale Engineering of Designer Cellulosomes. Advanced Materials, 2016, 28, 5619-5647.	21.0	42
49	Calcium stabilizes the strongest protein fold. Nature Communications, 2018, 9, 4764.	12.8	41
50	Monodisperse measurement of the biotin-streptavidin interaction strength in a well-defined pulling geometry. PLoS ONE, 2017, 12, e0188722.	2.5	40
51	Resolving dual binding conformations of cellulosome cohesin-dockerin complexes using single-molecule force spectroscopy. ELife, 2015, 4, .	6.0	39
52	A tethered ligand assay to probe SARS-CoV-2:ACE2 interactions. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2114397119.	7.1	38
53	Proteinâ€“DNA Chimeras for Nano Assembly. ACS Nano, 2014, 8, 6551-6555.	14.6	37
54	Monovalent Strep-Tactin for strong and site-specific tethering in nanospectroscopy. Nature Nanotechnology, 2016, 11, 89-94.	31.5	37

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55	Photothermal cantilever actuation for fast single-molecule force spectroscopy. Review of Scientific Instruments, 2009, 80, 073702.	1.3	35
56	Modelling cantilever-based force spectroscopy with polymers. Polymer, 2006, 47, 2555-2563.	3.8	33
57	Placing Individual Molecules in the Center of Nanoapertures. Nano Letters, 2014, 14, 391-395.	9.1	33
58	Predicting the Rupture Probabilities of Molecular Bonds in Series. Biophysical Journal, 2007, 93, 1215-1223.	0.5	30
59	Exploring the Conformationâ€Regulated Function of Titin Kinase by Mechanical Pump and Probe Experiments with Single Molecules. Angewandte Chemie - International Edition, 2010, 49, 1147-1150.	13.8	30
60	Electrically induced bonding of DNA to gold. Nature Chemistry, 2010, 2, 745-749.	13.6	27
61	Atomic force microscope-based single-molecule force spectroscopy of RNA unfolding. Analytical Biochemistry, 2011, 414, 1-6.	2.4	27
62	Sequence-Independent Cloning and Post-Translational Modification of Repetitive Protein Polymers through Sortase and Sfp-Mediated Enzymatic Ligation. Biomacromolecules, 2016, 17, 1330-1338.	5.4	26
63	Extreme mechanical stability in protein complexes. Current Opinion in Structural Biology, 2020, 60, 124-130.	5.7	26
64	Dronpa: A Light-Switchable Fluorescent Protein for Opto-Biomechanics. Nano Letters, 2019, 19, 3176-3181.	9.1	25
65	Enzymeâ€Mediated, Siteâ€Specific Protein Coupling Strategies for Surfaceâ€Based Binding Assays. Angewandte Chemie - International Edition, 2018, 57, 12666-12669.	13.8	24
66	Recognition of â€œMirrorâ€Imageâ€•DNA by Small Molecules. Angewandte Chemie - International Edition, 2007, 46, 8384-8387.	13.8	21
67	Different Vinculin Binding Sites Use the Same Mechanism to Regulate Directional Force Transduction. Biophysical Journal, 2020, 118, 1344-1356.	0.5	21
68	A Conditional Gating Mechanism Assures the Integrity of the Molecular Force-Sensor Titin Kinase. Biophysical Journal, 2011, 101, 1978-1986.	0.5	20
69	Functional Assembly of Aptamer Binding Sites by Single-Molecule Cut-and-Paste. Nano Letters, 2012, 12, 2425-2428.	9.1	20
70	Quantitative Detection of Small Molecule/DNA Complexes Employing a Force-Based and Label-Free DNA-Microarray. Biophysical Journal, 2009, 96, 4661-4671.	0.5	19
71	A high throughput molecular force assay for proteinâ€"DNA interactions. Lab on A Chip, 2011, 11, 856.	6.0	18
72	Designed anchoring geometries determine lifetimes of biotinâ€"streptavidin bonds under constant load and enable ultra-stable coupling. Nanoscale, 2020, 12, 21131-21137.	5.6	18

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73	Nanoscale Arrangement of Proteins by Single-Molecule Cut-and-Paste. Journal of the American Chemical Society, 2012, 134, 15193-15196.	13.7	17
74	DNA-free directed assembly in single-molecule cut-and-paste. Nanoscale, 2019, 11, 407-411.	5.6	16
75	Mechanical Stability of a High-Affinity Toxin Anchor from the Pathogen <i>Clostridium perfringens</i>. Journal of Physical Chemistry B, 2017, 121, 3620-3625.	2.6	15
76	Increasing evidence of mechanical force as a functional regulator in smooth muscle myosin light chain kinase. ELife, 2017, 6, .	6.0	15
77	Biasing effects of receptor-ligand complexes on protein-unfolding statistics. Physical Review E, 2016, 94, 042412.	2.1	14
78	Membrane proteins scrambling through a foldinglandscape. Science, 2017, 355, 907-908.	12.6	13
79	A Force-Based, Parallel Assay for the Quantification of Protein-DNA Interactions. PLoS ONE, 2014, 9, e89626.	2.5	13
80	Sequence-specific inhibition of Dicer measured with a force-based microarray for RNA ligands. Nucleic Acids Research, 2013, 41, e69-e69.	14.5	12
81	Switching the mechanics of dsDNA by Cu salicylic aldehyde complexation. Nanotechnology, 2009, 20, 434002.	2.6	11
82	DNAâ€"Protein Binding Force Chip. Small, 2012, 8, 3269-3273.	10.0	11
83	Energy profile of nanobodyâ€"GFP complex under force. Physical Biology, 2015, 12, 056009.	1.8	11
84	Nanoapertures for AFM-based single-molecule force spectroscopy. International Journal of Nanotechnology, 2013, 10, 607.	0.2	10
85	Covalent Immobilization of Proteins for the Single Molecule Force Spectroscopy. Journal of Visualized Experiments, 2018, , .	0.3	10
86	Ligand Binding Stabilizes Cellulosomal Cohesins as Revealed by AFM-based Single-Molecule Force Spectroscopy. Scientific Reports, 2018, 8, 9634.	3.3	9
87	Parallel Force Assay for Protein-Protein Interactions. PLoS ONE, 2014, 9, e115049.	2.5	8
88	Proteinâ€"DNA force assay in a microfluidic format. Lab on A Chip, 2013, 13, 4198.	6.0	7
89	Stamping Vital Cellsâ€"a Force-Based Ligand Receptor Assay. Biophysical Journal, 2013, 105, 2687-2694.	0.5	6
90	Câ€5 Propynyl Modifications Enhance the Mechanical Stability of DNA. ChemPhysChem, 2015, 16, 2085-2090.	2.1	6

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91	<i>Strep</i> -Tag II and Monovalent <i>Strep</i> -Tactin as Novel Handles in Single-Molecule Cut-and-Paste. Small Methods, 2017, 1, 1700169.	8.6	6
92	Tip localization of an atomic force microscope in transmission microscopy with nanoscale precision. Review of Scientific Instruments, 2015, 86, 035109.	1.3	5
93	Peptideâ€"Antibody Complex as Handle for Singleâ€Molecule Cut & Paste. ChemPhysChem, 2012, 13, 914-917.	2.1	3
94	Single molecule techniques â€•applications in biology. FEBS Letters, 2014, 588, 3519-3519.	2.8	3
95	Singleâ€Molecule Manipulation in Zeroâ€Mode Waveguides. Small, 2020, 16, 1906740.	10.0	3
96	Switchable reinforced streptavidin. Nanoscale, 2020, 12, 6803-6809.	5.6	2
97	Enzymeâ€Mediated, Siteâ€Specific Protein Coupling Strategies for Surfaceâ€Based Binding Assays. Angewandte Chemie, 2018, 130, 12848-12851.	2.0	1
98	Inside Cover: Exploring the Conformation-Regulated Function of Titin Kinase by Mechanical Pump and Probe Experiments with Single Molecules (Angew. Chem. Int. Ed. 6/2010). Angewandte Chemie - International Edition, 2010, 49, 990-990.	13.8	0