Oliver Lieleg

List of Publications by Citations

112 papers	3,466 citations	31 h-index	56 g-index
120 ext. papers	4,266 ext. citations	7.3 avg, IF	5.78 L-index

#	Paper	IF	Citations
112	Biological hydrogels as selective diffusion barriers. *Trends in Cell Biology*, **2011**, 21, 543-51	18.3	232
111	Selective filtering of particles by the extracellular matrix: an electrostatic bandpass. *Biophysical Journal*, **2009**, 97, 1569-77	2.9	202
110	Characterization of particle translocation through mucin hydrogels. *Biophysical Journal*, **2010**, 98, 1782-9	2.9	201
109	Structure and dynamics of cross-linked actin networks. *Soft Matter*, **2010**, 6, 218-225	3.6	176
108	Enzymatically active biomimetic micropropellers for the penetration of mucin gels. *Science Advances*, **2015**, 1, e1500501	14.3	172
107	Non-equilibrium dissipative supramolecular materials with a tunable lifetime. *Nature Communications*, **2017**, 8, 15895	17.4	159
106	Slow dynamics and internal stress relaxation in bundled cytoskeletal networks. *Nature Materials*, **2011**, 10, 236-42	27	115
105	Mechanics of bundled semiflexible polymer networks. *Physical Review Letters*, **2007**, 99, 088102	7.4	112
104	Mucin biopolymers as broad-spectrum antiviral agents. *Biomacromolecules*, **2012**, 13, 1724-32	6.9	104
103	Transient binding and dissipation in cross-linked actin networks. *Physical Review Letters*, **2008**, 101, 108101	7.4	98
102	Mechanical robustness of Pseudomonas aeruginosa biofilms. *Soft Matter*, **2011**, 7, 3307-3314	3.6	96
101	Cytoskeletal polymer networks: viscoelastic properties are determined by the microscopic interaction potential of cross-links. *Biophysical Journal*, **2009**, 96, 4725-32	2.9	89
100	Structural and viscoelastic properties of actin/filamin networks: cross-linked versus bundled networks. *Biophysical Journal*, **2009**, 97, 83-9	2.9	83
99	An optimized purification process for porcine gastric mucin with preservation of its native functional properties. *RSC Advances*, **2016**, 6, 44932-44943	3.7	64
98	Diffusion Regulation in the Vitreous Humor. *Biophysical Journal*, **2015**, 109, 2171-81	2.9	58
97	Cross-linker unbinding and self-similarity in bundled cytoskeletal networks. *Physical Review Letters*, **2007**, 99, 158105	7.4	57
96	Structural polymorphism in heterogeneous cytoskeletal networks. *Soft Matter*, **2009**, 5, 1796	3.6	56

95	Micro- and macrorheological properties of isotropically cross-linked actin networks. *Biophysical Journal*, **2008**, 94, 688-93	2.9	54
94	Rheology of semiflexible bundle networks with transient linkers. *Physical Review Letters*, **2014**, 112, 238102	7.4	49
93	Modulating Mucin Hydration and Lubrication by Deglycosylation and Polyethylene Glycol Binding. *Advanced Materials Interfaces*, **2015**, 2, 1500308	4.6	48
92	Relation between structural, mechanical and sensory properties of gluten-free bread as affected by modified dietary fibers. *Food Chemistry*, **2019**, 277, 664-673	8.5	48
91	Modulation of the mechanical properties of bacterial biofilms in response to environmental challenges. *Biomaterials Science*, **2017**, 5, 887-900	7.4	44
90	Specific integrin labeling in living cells using functionalized nanocrystals. *Small*, **2007**, 3, 1560-5	11	43
89	Cervical mucus properties stratify risk for preterm birth. *PLoS ONE*, **2013**, 8, e69528	3.7	40
88	Surface topology affects wetting behavior of biofilms. *Npj Biofilms and Microbiomes*, **2017**, 3, 11	8.2	37
87	Internal stress in kinetically trapped actin bundle networks. *Soft Matter*, **2008**, 4, 2365	3.6	37
86	Selected metal ions protect Bacillus subtilis biofilms from erosion. *Metallomics*, **2014**, 6, 1441-50	4.5	35
85	Cross-linking molecules modify composite actin networks independently. *Physical Review Letters*, **2008**, 101, 118102	7.4	35
84	Direct Comparison of Physical Properties of Bacillus subtilis NCIB 3610 and B-1 Biofilms. *Applied and Environmental Microbiology*, **2016**, 82, 2424-2432	4.8	33
83	Metal ions weaken the hydrophobicity and antibiotic resistance of NCIB 3610 biofilms. *Npj Biofilms and Microbiomes*, **2020**, 6, 1	8.2	31
82	Biopolymer-Based Coatings: Promising Strategies to Improve the Biocompatibility and Functionality of Materials Used in Biomedical Engineering. *Advanced Materials Interfaces*, **2020**, 7, 2000850	4.6	31
81	Transient binding promotes molecule penetration into mucin hydrogels by enhancing molecular partitioning. *Biomaterials Science*, **2018**, 6, 3373-3387	7.4	30
80	A microfluidic in vitro system for the quantitative study of the stomach mucus barrier function. *Lab on A Chip*, **2012**, 12, 4071-9	7.2	29
79	Cationic astringents alter the tribological and rheological properties of human saliva and salivary mucin solutions. *Biotribology*, **2016**, 6, 12-20	2.3	28
78	Collapse of genetic division of labour and evolution of autonomy in pellicle biofilms. *Nature Microbiology*, **2018**, 3, 1451-1460	26.6	28

77	Hydrophobic Properties of Biofilm-Enriched Hybrid Mortar. *Advanced Materials*, **2016**, 28, 8138-8143	24	27
76	Mucin-Inspired Lubrication on Hydrophobic Surfaces. *Biomacromolecules*, **2017**, 18, 2454-2462	6.9	27
75	Comparison of friction and wear of articular cartilage on different length scales. *Journal of Biomechanics*, **2015**, 48, 3052-8	2.9	25
74	The structure and mechanical properties of articular cartilage are highly resilient towards transient dehydration. *Acta Biomaterialia*, **2016**, 29, 180-187	10.8	25
73	Regulating Chemically Fueled Peptide Assemblies by Molecular Design. *Journal of the American Chemical Society*, **2020**, 142, 14142-14149	16.4	25
72	Evolution of exploitative interactions during diversification in Bacillus subtilis biofilms. *FEMS Microbiology Ecology*, **2017**, 93,	4.3	23
71	Adapting a commercial shear rheometer for applications in cartilage research. *Review of Scientific Instruments*, **2014**, 85, 093903	1.7	23
70	Mucin Coatings Prevent Tissue Damage at the Cornea□Contact Lens Interface. *Advanced Materials Interfaces*, **2017**, 4, 1700186	4.6	23
69	Ion-specific effects modulate the diffusive mobility of colloids in an extracellular matrix gel. *Langmuir*, **2013**, 29, 15965-73	4	23
68	Covalent Mucin Coatings Form Stable Anti-Biofouling Layers on a Broad Range of Medical Polymer Materials. *Advanced Materials Interfaces*, **2020**, 7, 1902069	4.6	22
67	A Selective Mucin/Methylcellulose Hybrid Gel with Tailored Mechanical Properties. *Macromolecular Bioscience*, **2016**, 16, 567-79	5.5	22
66	Rheological characterization of the bundling transition in F-actin solutions induced by methylcellulose. *PLoS ONE*, **2008**, 3, e2736	3.7	21
65	Topographical alterations render bacterial biofilms susceptible to chemical and mechanical stress. *Biomaterials Science*, **2018**, 7, 220-232	7.4	20
64	Highly Transparent Covalent Mucin Coatings Improve the Wettability and Tribology of Hydrophobic Contact Lenses. *ACS Applied Materials & Interfaces*, **2020**, 12, 28024-28033	9.5	17
63	Oscillatory Tribology Performed With a Commercial Shear Rheometer. *Biotribology*, **2018**, 14, 11-18	2.3	17
62	Immune-Informed Mucin Hydrogels Evade Fibrotic Foreign Body Response In Vivo. *Advanced Functional Materials*, **2019**, 29, 1902581	15.6	17
61	Structural Alterations of Mucins Are Associated with Losses in Functionality. *Biomacromolecules*, **2021**, 22, 1600-1613	6.9	15
60	Bioinspired Dopamine/Mucin Coatings Provide Lubricity, Wear Protection, and Cell-Repellent Properties for Medical Applications. *Advanced Healthcare Materials*, **2021**, 10, e2000831	10.1	15

59	Glyco-Modification of Mucin Hydrogels to Investigate Their Immune Activity. *ACS Applied Materials & Interfaces*, **2020**, 12, 19324-19336	9.5	14
58	The biophysical properties of Basal lamina gels depend on the biochemical composition of the gel. *PLoS ONE*, **2015**, 10, e0118090	3.7	14
57	Charged glycan residues critically contribute to the adsorption and lubricity of mucins. *Colloids and Surfaces B: Biointerfaces*, **2020**, 187, 110614	6	14
56	Quantification of cartilage wear morphologies in unidirectional sliding experiments: Influence of different macromolecular lubricants. *Biotribology*, **2017**, 12, 43-51	2.3	13
55	Carbohydrate coating reduces adhesion of biofilm-forming Bacillus subtilis to gold surfaces. *Applied and Environmental Microbiology*, **2014**, 80, 5911-7	4.8	13
54	Comparative study of instrumental properties and sensory profiling of low-calorie chocolate containing hydrophobically modified inulin. Part II: Proton mobility, topological, tribological and dynamic sensory properties. *Food Hydrocolloids*, **2021**, 110, 106144	10.6	12
53	Elongational rheology of bacterial biofilms in situ. *Journal of Rheology*, **2016**, 60, 1085-1094	4.1	11
52	Reversible Condensation of Mucins into Nanoparticles. *Langmuir*, **2018**, 34, 13615-13625	4	11
51	Matrix composition determines the dimensions of Bacillus subtilis NCIB 3610 biofilm colonies grown on LB agar. *RSC Advances*, **2017**, 7, 31886-31898	3.7	10
50	Importance of the biofilm matrix for the erosion stability of NCIB 3610 biofilms.. *RSC Advances*, **2019**, 9, 11521-11529	3.7	10
49	Engineering an orchestrated release avalanche from hydrogels using DNA-nanotechnology. *Journal of Controlled Release*, **2019**, 304, 19-28	11.7	10
48	A single charge in the actin binding domain of fascin can independently tune the linear and non-linear response of an actin bundle network. *European Physical Journal E*, **2015**, 38, 136	1.5	10
47	Synuclein Penetrates Mucin Hydrogels Despite Its Mucoadhesive Properties. *Biomacromolecules*, **2019**, 20, 4332-4344	6.9	10
46	Macromolecular Coatings Enhance the Tribological Performance of Polymer-Based Lubricants. *Advanced Materials Interfaces*, **2019**, 6, 1900366	4.6	9
45	The Lubricity of Mucin Solutions Is Robust toward Changes in Physiological Conditions.. *ACS Applied Bio Materials*, **2019**, 2, 3448-3457	4.1	9
44	An adsorption chromatography assay to probe bulk particle transport through hydrogels. *Journal of Pharmaceutical Sciences*, **2012**, 101, 436-42	3.9	9
43	Controlled nanoparticle release from a hydrogel by DNA-mediated particle disaggregation. *Journal of Controlled Release*, **2017**, 246, 71-78	11.7	8
42	A microfluidics approach to study the accumulation of molecules at basal lamina interfaces. *Lab on A Chip*, **2015**, 15, 3326-34	7.2	8

41	Bacterial Additives Improve the Water Resistance of Mortar. *ACS Sustainable Chemistry and Engineering*, **2020**, 8, 5704-5715	8.3	8
40	Bio-based and bio-inspired adhesives from animals and plants for biomedical applications.. *Materials Today Bio*, **2022**, 13, 100203	9.9	7
39	DNA Strands Trigger the Intracellular Release of Drugs from Mucin-Based Nanocarriers. *ACS Nano*, **2021**, 15, 2350-2362	16.7	7
38	Several Sterilization Strategies Maintain the Functionality of Mucin Glycoproteins. *Macromolecular Bioscience*, **2020**, 20, e2000090	5.5	7
37	Macromolecular Coating Enables Tunable Selectivity in a Porous PDMS Matrix. *Macromolecular Bioscience*, **2018**, 18, 1700311	5.5	6
36	Structural and viscoelastic properties of actin networks formed by espin or pathologically relevant espin mutants. *ChemPhysChem*, **2009**, 10, 2813-7	3.2	6
35	Repulsive Backbone-Backbone Interactions Modulate Access to Specific and Unspecific Binding Sites on Surface-Bound Mucins. *Langmuir*, **2020**, 36, 12973-12982	4	6
34	Synthesis and characterization of chemically fueled supramolecular materials driven by carbodiimide-based fuels. *Nature Protocols*, **2021**, 16, 3901-3932	18.8	6
33	Biophysical Properties of the Basal Lamina: A Highly Selective Extracellular Matrix **2016**,		5
32	Smart Biopolymer-Based Multi-Layers Enable Consecutive Drug Release Events on Demand. *Advanced Materials Interfaces*, **2020**, 7, 2000735	4.6	5
31	Biopolymer-enriched B. subtilis NCIB 3610 biofilms exhibit increased erosion resistance. *Biomaterials Science*, **2019**, 7, 4675-4686	7.4	4
30	Draft Genome Sequence of the Biofilm-Producing Bacillus subtilis Strain B-1, Isolated from an Oil Field. *Genome Announcements*, **2014**, 2,		4
29	Publisher's Note: Rheology of Semiflexible Bundle Networks with Transient Linkers [Phys. Rev. Lett. 112, 238102 (2014)]. *Physical Review Letters*, **2014**, 113,	7.4	4
28	Bacterial Materials: Applications of Natural and Modified Biofilms. *Advanced Materials Interfaces*,2101024	4.6	4
27	Machine Learning Approach to Analyze the Surface Properties of Biological Materials. *ACS Biomaterials Science and Engineering*, **2021**, 7, 4614-4625	5.5	4
26	Biofilm Adhesion to Surfaces is Modulated by Biofilm Wettability and Stiffness. *Advanced Materials Interfaces*, **2021**, 8, 2001658	4.6	4
25	Chelate chemistry governs ion-specific stiffening of Bacillus subtilis B-1 and Azotobacter vinelandii biofilms. *Biomaterials Science*, **2020**, 8, 1923-1933	7.4	3
24	Lipid Head Group Charge and Fatty Acid Configuration Dictate Liposome Mobility in Neurofilament Networks. *Macromolecular Bioscience*, **2017**, 17, 1600229	5.5	3

23	Emulsions of hydrolyzable oils for the zero-order release of hydrophobic drugs. *Journal of Controlled Release*, **2021**, 339, 498-505	11.7	3
22	MUC5AC drives COPD exacerbation severity through amplification of virus-induced airway inflammation		3
21	A novel modelling and simulation approach for the hindered mobility of charged particles in biological hydrogels. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2021**, 477, 20210039	2.4	3
20	Purified mucins in drug delivery research. *Advanced Drug Delivery Reviews*, **2021**, 178, 113845	18.5	3
19	Advances in Mucin Biopolymer Research: Purification, Characterization, and Applications **2021**, 181-208		3
18	Modulating the Bioactivity of Mucin Hydrogels with Crosslinking Architecture. *Advanced Functional Materials*, **2021**, 31, 2008428	15.6	3
17	Biopolymer-based nanoparticles with tunable mucoadhesivity efficiently deliver therapeutics across the corneal barrier. *Materials Science and Engineering C*, **2021**, 121, 111890	8.3	2
16	Immune-Modulating Mucin Hydrogel Microdroplets for the Encapsulation of Cell and Microtissue. *Advanced Functional Materials*, **2021**, 31, 2105967	15.6	2
15	Viscoelastic behavior of chemically fueled supramolecular hydrogels under load and influence of reaction side products. *Communications Materials*, **2021**, 2,	6	2
14	Topography quantifications allow for identifying the contribution of parental strains to physical properties of co-cultured biofilms. *Biofilm*, **2021**, 3, 100044	5.9	2
13	Multifunctional Janus-Type Bilayer Films Combine Broad-Range Tissue Adhesion with Guided Drug Release. *Advanced Functional Materials*,2105721	15.6	2
12	Continuous Synthesis and Application of Novel, Archaeoinspired Tackifiers from Birch Bark Waste. *ACS Sustainable Chemistry and Engineering*, **2019**, 7, 13157-13166	8.3	1
11	Hot Flows: Evolving an Archaeal Glucose Dehydrogenase for Ultrastable Carba-NADP+ Using Microfluidics at Elevated Temperatures. *ACS Catalysis*, **2022**, 12, 1841-1846	13.1	1
10	Molecular micromanagement: DNA nanotechnology establishes spatio-temporal control for precision medicine. *Biophysics Reviews*, **2020**, 1, 011305	2.6	1
9	Bacterial spores as hydrophobizing agents in mortar. *Cement and Concrete Composites*, **2021**, 120, 104008	8.6	1
8	Effects of Sterilization Methods on the Integrity and Functionality of Covalent Mucin Coatings on Medical Devices. *Advanced Materials Interfaces*, **2022**, 9, 2101716	4.6	1
7	Machine learning approaches for biomolecular, biophysical, and biomaterials research. *Biophysics Reviews*, **2022**, 3, 021306	2.6	1
6	Forgotten but not gone: Particulate matter as contaminations of mucosal systems. *Biophysics Reviews*, **2021**, 2, 031302	2.6	0

5	Wetting behavior and stability of surface-modified polyurethane materials. *Plasma Processes and Polymers*,e2100126	3.4	0
4	An improved, filtration-based process to purify functional mucins from mucosal tissues with high yields. *Separation and Purification Technology*, **2022**, 294, 121209	8.3	0
3	Macromol. Biosci. 2/2018. *Macromolecular Bioscience*, **2018**, 18, 1870004	5.5	
2	Biofilms: Hydrophobic Properties of Biofilm-Enriched Hybrid Mortar (Adv. Mater. 37/2016). *Advanced Materials*, **2016**, 28, 8315-8315	24	
1	Inside Cover: Structural and Viscoelastic Properties of Actin Networks Formed by Espin or Pathologically Relevant Espin Mutants (ChemPhysChem 16/2009). *ChemPhysChem*, **2009**, 10, 2738-2738	3.2	