Eric von Lieres

List of Publications by Year
in descending order

97 papers	2,123 citations	236925 25 h-index	265206 42 g-index
102 all docs	102 docs citations	102 times ranked	1771 citing authors

#	Article	IF	Citations
1	Advanced score system and automated search strategies for parameter estimation in mechanistic chromatography modeling. Journal of Chromatography A, 2022, 1661, 462693.	3.7	13
2	Bayesian calibration, process modeling and uncertainty quantification in biotechnology. PLoS Computational Biology, 2022, 18, e1009223.	3.2	10
3	Microfluidic Reproduction of Dynamic Bioreactor Environment Based on Computational Lifelines. Frontiers in Chemical Engineering, 2022, 4, .	2.7	10
4	Rhizosphere models: their concepts and application to plant-soil ecosystems. Plant and Soil, 2022, 474, 17-55.	3.7	9
5	Enzyme co-localisation: Mechanisms and benefits. Current Research in Chemical Biology, 2022, , 100031.	2.9	8
6	Complex Evolution of Light-Dependent Protochlorophyllide Oxidoreductases in Aerobic Anoxygenic Phototrophs: Origin, Phylogeny, and Function. Molecular Biology and Evolution, 2021, 38, 819-837.	8.9	6
7	Development and application of a cultivation platform for mammalian suspension cell lines with single‐cell resolution. Biotechnology and Bioengineering, 2021, 118, 992-1005.	3.3	18
8	Fluid dynamics in pleated membrane filter devices. Separation and Purification Technology, 2021, 267, 118580.	7.9	8
9	How Do Operational and Design Parameters Effect Biomass Productivity in a Flat-Panel Photo-Bioreactor? A Computational Analysis. Processes, 2021, 9, 1387.	2.8	5
10	Patterns of protein adsorption in ion-exchange particles and columns: Evolution of protein concentration profiles during load, hold, and wash steps predicted for pore and solid diffusion mechanisms. Journal of Chromatography A, 2021, 1653, 462412.	3.7	7
11	Continuous enzymatic stirred tank reactor cascade with unconventional medium yielding high concentrations of (S)-2-hydroxyphenyl propanone and its derivatives. Catalysis Science and Technology, 2021, 11, 7886-7897.	4.1	3
12	Robust mechanistic modeling of protein ion-exchange chromatography. Journal of Chromatography A, 2021, 1660, 462669.	3.7	27
13	Compartment Model of Mixing in a Bubble Trap and Its Impact on Chromatographic Separations. Processes, 2020, 8, 780.	2.8	1
14	Toward in silico CMC: An industrial collaborative approach to model‐based process development. Biotechnology and Bioengineering, 2020, 117, 3986-4000.	3.3	26
15	dMSCC: a microfluidic platform for microbial single-cell cultivation of $Corynebacterium$ $glutamicum$ under dynamic environmental medium conditions. Lab on A Chip, 2020, 20, 4442-4455.	6.0	32
16	Analysis of the local well‐posedness of optimization‐constrained differential equations by local optimality conditions. AICHE Journal, 2020, 66, e16548.	3.6	3
17	Model-based performance analysis of pleated filters with non-woven layers. Separation and Purification Technology, 2020, 250, 117006.	7.9	12
18	Simulation of differential-algebraic equation systems with optimization criteria embedded in Modelica. Computers and Chemical Engineering, 2020, 140, 106920.	3.8	5

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19	Model-based process design of a ternary protein separation using multi-step gradient ion-exchange SMB chromatography. Computers and Chemical Engineering, 2020, 138, 106851.	3.8	7
20	Dynamic Environmental Control in Microfluidic Single‐Cell Cultivations: From Concepts to Applications. Small, 2020, 16, e1906670.	10.0	22
21	ChromaTech: A discontinuous Galerkin spectral element simulator for preparative liquid chromatography. Computers and Chemical Engineering, 2020, 141, 107012.	3.8	13
22	A microfluidic experiment and pore scale modelling diagnostics for assessing mineral precipitation and dissolution in confined spaces. Chemical Geology, 2019, 528, 119264.	3.3	29
23	A microfluidic co-cultivation platform to investigate microbial interactions at defined microenvironments. Lab on A Chip, 2019, 19, 98-110.	6.0	79
24	Can enzyme proximity accelerate cascade reactions?. Scientific Reports, 2019, 9, 455.	3.3	57
25	Multiscale dynamic modeling and simulation of a biorefinery. Biotechnology and Bioengineering, 2019, 116, 2561-2574.	3.3	9
26	Microbial single-cell growth response at defined carbon limiting conditions. RSC Advances, 2019, 9, 14040-14050.	3.6	16
27	Reproduction of Large-Scale Bioreactor Conditions on Microfluidic Chips. Microorganisms, 2019, 7, 105.	3.6	26
28	Efficient numerical simulation of simulated moving bed chromatography with a single-column solver. Computers and Chemical Engineering, 2018, 111, 183-198.	3.8	8
29	Laboratory-scale photobiotechnology—current trends and future perspectives. FEMS Microbiology Letters, 2018, 365, .	1.8	6
30	Chromatography Analysis and Design Toolkit (CADET). Computers and Chemical Engineering, 2018, 113, 274-294.	3.8	64
31	Robust Multi‐Objective Global Optimization of Stochastic Processes With a Case Study in Gradient Elution Chromatography. Biotechnology Journal, 2018, 13, 1700257.	3.5	5
32	Single-cell computational analysis of light harvesting in a flat-panel photo-bioreactor. Biotechnology for Biofuels, 2018, 11, 149.	6.2	19
33	Model-Based Design of Long-Distance Tracer Transport Experiments in Plants. Frontiers in Plant Science, 2018, 9, 773.	3.6	3
34	Model-based performance analysis and scale-up of membrane adsorbers with a cassettes format designed for parallel operation. Chemical Engineering Science, 2018, 192, 103-113.	3.8	6
35	Finite volume schemes for the numerical simulation of tracer transport in plants. Mathematical Biosciences, 2017, 288, 14-20.	1.9	6
36	Dynamic flux balance analysis with nonlinear objective function. Journal of Mathematical Biology, 2017, 75, 1487-1515.	1.9	15

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37	Multi‐objective global optimization (MOGO): Algorithm and case study in gradient elution chromatography. Biotechnology Journal, 2017, 12, 1600613.	3.5	5
38	Multi-state steric mass action model and case study on complex high loading behavior of mAb on ion exchange tentacle resin. Journal of Chromatography A, 2017, 1525, 60-70.	3.7	20
39	Coarse‐graining bacteria colonies for modelling critical solute distributions in picolitre bioreactors for bacterial studies on single‐cell level. Microbial Biotechnology, 2017, 10, 845-857.	4.2	11
40	Kriging with trend functions nonlinear in their parameters: Theory and application in enzyme kinetics. Engineering in Life Sciences, 2017, 17, 916-922.	3.6	11
41	A framework for accelerated phototrophic bioprocess development: integration of parallelized microscale cultivation, laboratory automation and Kriging-assisted experimental design. Biotechnology for Biofuels, 2017, 10, 26.	6.2	13
42	Irreversible Damage of Polymer Membranes During Attenuated Total Reflection Infrared Analysis. Applied Spectroscopy, 2017, 71, 1127-1133.	2.2	7
43	Generic Protocol for Optimization of Heterologous Protein Production Using Automated Microbioreactor Technology. Journal of Visualized Experiments, 2017, , .	0.3	5
44	Does metabolite channeling accelerate enzyme-catalyzed cascade reactions?. PLoS ONE, 2017, 12, e0172673.	2.5	41
45	¼MORE: A microfluidic magnetic oscillation reactor for accelerated parameter optimization in biocatalysis. Journal of Biotechnology, 2016, 231, 174-182.	3.8	10
46	Robust multi-objective process design. New Biotechnology, 2016, 33, S27.	4.4	0
47	Integrated modeling of transport processes, buffer equilibria and biochemical reactions in chromatography columns using CADET. New Biotechnology, 2016, 33, S28-S29.	4.4	0
48	Framework for Kriging‐based iterative experimental analysis and design: Optimization of secretory protein production in <i>Corynebacterium glutamicum</i>. Engineering in Life Sciences, 2016, 16, 538-549.	3.6	27
49	Discrete-continuous reaction-diffusion model with mobile point-like sources and sinks. European Physical Journal E, 2016, 39, 11.	1.6	8
50	Fast arbitrary order moments and arbitrary precision solution of the general rate model of column liquid chromatography with linear isotherm. Computers and Chemical Engineering, 2016, 84, 350-362.	3.8	17
51	Utilizing algorithmic differentiation to efficiently compute chromatograms and parameter sensitivities. Chemical Engineering Science, 2016, 139, 152-162.	3.8	20
52	Spatiotemporal microbial single‐cell analysis using a high‐throughput microfluidics cultivation platform. Cytometry Part A: the Journal of the International Society for Analytical Cytology, 2015, 87, 1101-1115.	1.5	88
53	The effect of composition on diffusion of macromolecules in a crowded environment. Physical Biology, 2015, 12, 046003.	1.8	32
54	Kriging based iterative parameter estimation procedure for biotechnology applications with nonlinear trend functions. IFAC-PapersOnLine, 2015, 48, 574-579.	0.9	2

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55	Modeling and CFD simulation of nutrient distribution in picoliter bioreactors for bacterial growth studies on single-cell level. Lab on A Chip, 2015, 15, 4177-4186.	6.0	34
56	Mechanistic modeling of ion-exchange process chromatography of charge variants of monoclonal antibody products. Journal of Chromatography A, 2015, 1426, 140-153.	3.7	64
57	Surface and bulk porosity mapping of polymer membranes using infrared spectroscopy. Journal of Membrane Science, 2014, 452, 152-156.	8.2	21
58	A new mixed–mode model for interpreting and predicting protein elution during isoelectric chromatofocusing. Biotechnology and Bioengineering, 2014, 111, 925-936.	3.3	6
59	Effective Production of (S)-Î±-Hydroxy ketones: An Reaction Engineering Approach. Topics in Catalysis, 2014, 57, 401-411.	2.8	10
60	Zonal rate model for axial and radial flow membrane chromatography, part II: Model–based scale–up. Biotechnology and Bioengineering, 2014, 111, 1587-1594.	3.3	10
61	Diffusion in crowded cytoplasm-like environment. New Biotechnology, 2014, 31, S163.	4.4	0
62	Stabilized space–time finite elements for high-definition simulation of packed bed chromatography. Finite Elements in Analysis and Design, 2014, 86, 1-11.	3.2	14
63	Model-based analysis and quantitative prediction of membrane chromatography: Extreme scale-up from 0.08 ml to 1200 ml. Journal of Chromatography A, 2014, 1332, 8-13.	3.7	18
64	A class of compartmental models for long-distance tracer transport in plants. Journal of Theoretical Biology, 2014, 341, 131-142.	1.7	13
65	Two Steps in One Pot: Enzyme Cascade for the Synthesis of Nor(pseudo)ephedrine from Inexpensive Starting Materials. Angewandte Chemie - International Edition, 2013, 52, 6772-6775.	13.8	157
66	Zonal rate model for axial and radial flow membrane chromatography. Part I: Knowledge transfer across operating conditions and scales. Biotechnology and Bioengineering, 2013, 110, 1129-1141.	3.3	18
67	A Finite Element Method for Spatially Resolved Simulation of Packed Bed Chromatography. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 511-512.	0.2	0
68	Performance of iterative equation solvers for mass transfer problems in three-dimensional sphere packings in COMSOL. Simulation Modelling Practice and Theory, 2013, 33, 115-131.	3.8	29
69	Effects of uncertainties in experimental conditions on the estimation of adsorption model parameters in preparative chromatography. Computers and Chemical Engineering, 2013, 55, 148-157.	3.8	32
70	Computational fluid dynamic simulation of axial and radial flow membrane chromatography: Mechanisms of non-ideality and validation of the zonal rate model. Journal of Chromatography A, 2013, 1305, 114-122.	3.7	30
71	Fast and accurate parameter sensitivities for the general rate model of column liquid chromatography. Computers and Chemical Engineering, 2013, 56, 46-57.	3.8	43
72	Influence of Organic Solvents on Enzymatic Asymmetric Carboligations. Advanced Synthesis and Catalysis, 2012, 354, 2805-2820.	4.3	47

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73	Surface bound adsorption in a microfluidic T-sensor: Numerical comparison and optimization of 2D and 3D models and of sensor designs. Sensors and Actuators B: Chemical, 2012, 170, 75-81.	7.8	4
74	Detection, Quantification, and Propagation of Uncertainty in High-Throughput Experimentation by Monte Carlo Methods. Chemical Engineering and Technology, 2012, 35, 1456-1464.	1.5	9
75	Mechanistische und semi-empirische Modellierung inhomogener Flussverteilungen in der Membranchromatographie. Chemie-Ingenieur-Technik, 2012, 84, 1335-1335.	0.8	0
76	Model-integrated process development demonstrated on the optimization of a robotic cation exchange step. Chemical Engineering Science, 2012, 76, 129-139.	3.8	49
77	Determination of parameters for the steric mass action model—A comparison between two approaches. Journal of Chromatography A, 2012, 1233, 54-65.	3.7	72
78	Optimizing a chromatographic three component separation: A comparison of mechanistic and empiric modeling approaches. Journal of Chromatography A, 2012, 1237, 86-95.	3.7	54
79	Zonal rate model for stacked membrane chromatography part II: Characterizing ion-exchange membrane chromatography under protein retention conditions. Biotechnology and Bioengineering, 2012, 109, 615-629.	3.3	17
80	Zonal rate model for stacked membrane chromatography. I: Characterizing solute dispersion under flow-through conditions. Journal of Chromatography A, 2011, 1218, 5071-5078.	3.7	23
81	Model Based Quantification of Internal Flow Distributions from Breakthrough Curves of Flat Sheet Membrane Chromatography Modules. Chemical Engineering and Technology, 2010, 33, 960-968.	1.5	3
82	Surface bound adsorption in a microfluidic T-sensor: Numerical comparison and optimization of 2D and 3D models. Procedia Engineering, 2010, 5, 1272-1275.	1.2	0
83	A fast and accurate solver for the general rate model of column liquid chromatography. Computers and Chemical Engineering, 2010, 34, 1180-1191.	3.8	104
84	Chromatography Models with Langmuir and Steric Mass Action Adsorption Isotherms are of Differential Index One. , 2010, , .		2
85	Customizable Visualization on Demand for Hierarchically Organized Information in Biochemical Networks. Lecture Notes in Computer Science, 2010, , 163-174.	1.3	3
86	High Throughput Screening for the Design and Optimization of Chromatographic Processes: Automated Optimization of Chromatographic Phase Systems. Chemical Engineering and Technology, 2009, 32, 140-154.	1.5	55
87	Estimation, model discrimination, and experimental design for implicitly given nonlinear models of enzyme catalyzed chemical reactions. Mathematica Slovaca, 2009, 59, .	0.6	0
88	Development of a 3D Model for Packed Bed Liquid Chromatography in Micro-columns. , 2009, , .		2
89	Improving Convergence of Derivative-Based Parameter Estimation with Multistart Parameter Clustering Based on DAE Decomposition. , 2009, , .		1
90	High Throughput Screening for the Design and Optimization of Chromatographic Processes: Assessment of Model Parameter Determination from High Throughput Compatible Data. Chemical Engineering and Technology, 2008, 31, 1846-1855.	1.5	47

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91	Investigation of pore diffusion hindrance of monoclonal antibody in hydrophobic interaction chromatography using confocal laser scanning microscopy. Journal of Chromatography A, 2007, 1149, 178-188.	3.7	20
92	Direct Quantification of Intraparticle Protein Diffusion in Chromatographic Media. Journal of Physical Chemistry B, 2006, 110, 1429-1436.	2.6	34
93	Competitive adsorption of labeled and native protein in confocal laser scanning microscopy. Biotechnology and Bioengineering, 2006, 95, 58-66.	3.3	34
94	High Throughput Screening of Chromatographic Phases for Rapid Process Development. Chemical Engineering and Technology, 2005, 28, 1274-1284.	1.5	116
95	A Multi-Scale Modeling Concept and Computational Tools for the Integrative Analysis of Stationary Metabolic Data. Journal of Integrative Bioinformatics, 2004, 1, 38-51.	1.5	2
96	Regularization of a non-characteristic Cauchy problem for a parabolic equation in multiple dimensions. Inverse Problems, 1999, 15, 731-743.	2.0	5
97	Consecutive Three‒component Synthesis of Phenothiazine Based Merocyanines â€" Bayesian Optimization, Electronic properties, and DSSC Characteristics. European Journal of Organic Chemistry, 0, , .	2.4	2