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	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
2	High Throughput Screening of Chromatographic Phases for Rapid Process Development. Chemical Engineering and Technology, 2005, 28, 1274-1284.	1.5	116
3	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
4	Spatiotemporal microbial singleâ€cell analysis using a highâ€throughput microfluidics cultivation platform. Cytometry Part A: the Journal of the International Society for Analytical Cytology, 2015, 87, 1101-1115.	1.5	88
5	A microfluidic co-cultivation platform to investigate microbial interactions at defined microenvironments. Lab on A Chip, 2019, 19, 98-110.	6.0	79
6	Determination of parameters for the steric mass action modelâ€”A comparison between two approaches. Journal of Chromatography A, 2012, 1233, 54-65.	3.7	72
7	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
8	Chromatography Analysis and Design Toolkit (CADET). Computers and Chemical Engineering, 2018, 113, 274-294.	3.8	64
9	Can enzyme proximity accelerate cascade reactions?. Scientific Reports, 2019, 9, 455.	3.3	57
10	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
11	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
12	Model-integrated process development demonstrated on the optimization of a robotic cation exchange step. Chemical Engineering Science, 2012, 76, 129-139.	3.8	49
13	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
14	Influence of Organic Solvents on Enzymatic Asymmetric Carboligations. Advanced Synthesis and Catalysis, 2012, 354, 2805-2820.	4.3	47
15	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
16	Does metabolite channeling accelerate enzyme-catalyzed cascade reactions?. PLoS ONE, 2017, 12, e0172673.	2.5	41
17	Direct Quantification of Intraparticle Protein Diffusion in Chromatographic Media. Journal of Physical Chemistry B, 2006, 110, 1429-1436.	2.6	34
18	Competitive adsorption of labeled and native protein in confocal laser scanning microscopy. Biotechnology and Bioengineering, 2006, 95, 58-66.	3.3	34

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19	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
20	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
21	The effect of composition on diffusion of macromolecules in a crowded environment. Physical Biology, 2015, 12, 046003.	1.8	32
22	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
23	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
24	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
25	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
26	Framework for Kriginâ€based iterative experimental analysis and design: Optimization of secretory protein production in Corynebacterium glutamicum. Engineering in Life Sciences, 2016, 16, 538-549.	3.6	27
27	Robust mechanistic modeling of protein ion-exchange chromatography. Journal of Chromatography A, 2021, 1660, 462669.	3.7	27
28	Reproduction of Large-Scale Bioreactor Conditions on Microfluidic Chips. Microorganisms, 2019, 7, 105.	3.6	26
29	Toward in silico CMC: An industrial collaborative approach to modelâ€based process development. Biotechnology and Bioengineering, 2020, 117, 3986-4000.	3.3	26
30	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
31	Dynamic Environmental Control in Microfluidic Singleâ€Cell Cultivations: From Concepts to Applications. Small, 2020, 16, e1906670.	10.0	22
32	Surface and bulk porosity mapping of polymer membranes using infrared spectroscopy. Journal of Membrane Science, 2014, 452, 152-156.	8.2	21
33	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
34	Utilizing algorithmic differentiation to efficiently compute chromatograms and parameter sensitivities. Chemical Engineering Science, 2016, 139, 152-162.	3.8	20
35	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
36	Single-cell computational analysis of light harvesting in a flat-panel photo-bioreactor. Biotechnology for Biofuels, 2018, 11, 149.	6.2	19

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37	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
38	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
39	Development and application of a cultivation platform for mammalian suspension cell lines with singleâ€cell resolution. Biotechnology and Bioengineering, 2021, 118, 992-1005.	3.3	18
40	Zonal rate model for stacked membrane chromatography part II: Characterizing ionâ€exchange membrane chromatography under protein retention conditions. Biotechnology and Bioengineering, 2012, 109, 615-629.	3.3	17
41	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
42	Microbial single-cell growth response at defined carbon limiting conditions. RSC Advances, 2019, 9, 14040-14050.	3.6	16
43	Dynamic flux balance analysis with nonlinear objective function. Journal of Mathematical Biology, 2017, 75, 1487-1515.	1.9	15
44	Stabilized spaceâ€“time finite elements for high-definition simulation of packed bed chromatography. Finite Elements in Analysis and Design, 2014, 86, 1-11.	3.2	14
45	A class of compartmental models for long-distance tracer transport in plants. Journal of Theoretical Biology, 2014, 341, 131-142.	1.7	13
46	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
47	ChromaTech: A discontinuous Galerkin spectral element simulator for preparative liquid chromatography. Computers and Chemical Engineering, 2020, 141, 107012.	3.8	13
48	Advanced score system and automated search strategies for parameter estimation in mechanistic chromatography modeling. Journal of Chromatography A, 2022, 1661, 462693.	3.7	13
49	Model-based performance analysis of pleated filters with non-woven layers. Separation and Purification Technology, 2020, 250, 117006.	7.9	12
50	Coarseâ€graining bacteria colonies for modelling critical solute distributions in picolitre bioreactors for bacterial studies on singleâ€cell level. Microbial Biotechnology, 2017, 10, 845-857.	4.2	11
51	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
52	Effective Production of (S)-Î±-Hydroxy ketones: An Reaction Engineering Approach. Topics in Catalysis, 2014, 57, 401-411.	2.8	10
53	Zonal rate model for axial and radial flow membrane chromatography, part II: Modelâ€based scaleâ€up. Biotechnology and Bioengineering, 2014, 111, 1587-1594.	3.3	10
54	Î¼MORE: A microfluidic magnetic oscillation reactor for accelerated parameter optimization in biocatalysis. Journal of Biotechnology, 2016, 231, 174-182.	3.8	10

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55	Bayesian calibration, process modeling and uncertainty quantification in biotechnology. PLoS Computational Biology, 2022, 18, e1009223.	3.2	10
56	Microfluidic Reproduction of Dynamic Bioreactor Environment Based on Computational Lifelines. Frontiers in Chemical Engineering, 2022, 4, .	2.7	10
57	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
58	Multiscale dynamic modeling and simulation of a biorefinery. Biotechnology and Bioengineering, 2019, 116, 2561-2574.	3.3	9
59	Rhizosphere models: their concepts and application to plant-soil ecosystems. Plant and Soil, 2022, 474, 17-55.	3.7	9
60	Discrete-continuous reaction-diffusion model with mobile point-like sources and sinks. European Physical Journal E, 2016, 39, 11.	1.6	8
61	Efficient numerical simulation of simulated moving bed chromatography with a single-column solver. Computers and Chemical Engineering, 2018, 111, 183-198.	3.8	8
62	Fluid dynamics in pleated membrane filter devices. Separation and Purification Technology, 2021, 267, 118580.	7.9	8
63	Enzyme co-localisation: Mechanisms and benefits. Current Research in Chemical Biology, 2022, , 100031.	2.9	8
64	Irreversible Damage of Polymer Membranes During Attenuated Total Reflection Infrared Analysis. Applied Spectroscopy, 2017, 71, 1127-1133.	2.2	7
65	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
66	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
67	A new mixedâ€mode model for interpreting and predicting protein elution during isoelectric chromatofocusing. Biotechnology and Bioengineering, 2014, 111, 925-936.	3.3	6
68	Finite volume schemes for the numerical simulation of tracer transport in plants. Mathematical Biosciences, 2017, 288, 14-20.	1.9	6
69	Laboratory-scale photobiotechnologyâ€"current trends and future perspectives. FEMS Microbiology Letters, 2018, 365, .	1.8	6
70	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
71	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
72	Regularization of a non-characteristic Cauchy problem for a parabolic equation in multiple dimensions. Inverse Problems, 1999, 15, 731-743.	2.0	5

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73	Multiâ€objective global optimization (MOGO): Algorithm and case study in gradient elution chromatography. Biotechnology Journal, 2017, 12, 1600613.	3.5	5
74	Generic Protocol for Optimization of Heterologous Protein Production Using Automated Microbioreactor Technology. Journal of Visualized Experiments, 2017, , .	0.3	5
75	Robust Multiâ€Objective Global Optimization of Stochastic Processes With a Case Study in Gradient Elution Chromatography. Biotechnology Journal, 2018, 13, 1700257.	3.5	5
76	Simulation of differential-algebraic equation systems with optimization criteria embedded in Modelica. Computers and Chemical Engineering, 2020, 140, 106920.	3.8	5
77	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
78	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
79	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
80	Model-Based Design of Long-Distance Tracer Transport Experiments in Plants. Frontiers in Plant Science, 2018, 9, 773.	3.6	3
81	Analysis of the local wellâ€posedness of optimizationâ€constrained differential equations by local optimality conditions. AIChE Journal, 2020, 66, e16548.	3.6	3
82	Customizable Visualization on Demand for Hierarchically Organized Information in Biochemical Networks. Lecture Notes in Computer Science, 2010, , 163-174.	1.3	3
83	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
84	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
85	Development of a 3D Model for Packed Bed Liquid Chromatography in Micro-columns. , 2009, , .		2
86	Chromatography Models with Langmuir and Steric Mass Action Adsorption Isotherms are of Differential Index One. , 2010, , .		2
87	Kriging based iterative parameter estimation procedure for biotechnology applications with nonlinear trend functions. IFAC-PapersOnLine, 2015, 48, 574-579.	0.9	2
88	Consecutive Threeâ€component Synthesis of Phenothiazine Based Merocyanines â€“ Bayesian Optimization, Electronic properties, and DSSC Characteristics. European Journal of Organic Chemistry, 0, , .	2.4	2
89	Compartment Model of Mixing in a Bubble Trap and Its Impact on Chromatographic Separations. Processes, 2020, 8, 780.	2.8	1
90	Improving Convergence of Derivative-Based Parameter Estimation with Multistart Parameter Clustering Based on DAE Decomposition. , 2009, , .		1

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91	Estimation, model discrimination, and experimental design for implicitly given nonlinear models of enzyme catalyzed chemical reactions. Mathematica Slovaca, 2009, 59, .	0.6	0
92	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
93	Mechanistische und semi-empirische Modellierung inhomogener Flussverteilungen in der Membranchromatographie. Chemie-Ingenieur-Technik, 2012, 84, 1335-1335.	0.8	0
94	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
95	Diffusion in crowded cytoplasm-like environment. New Biotechnology, 2014, 31, S163.	4.4	0
96	Robust multi-objective process design. New Biotechnology, 2016, 33, S27.	4.4	0
97	Integrated modeling of transport processes, buffer equilibria and biochemical reactions in chromatography columns using CADET. New Biotechnology, 2016, 33, S28-S29.	4.4	0