Wolfgang Wiechert

List of Publications by Citations

194 papers	7,149 citations	44 h-index	80 g-index
209 ext. papers	8,218 ext. citations	4.7 avg, IF	6.15 L-index

#	Paper	IF	Citations
194	13C metabolic flux analysis. *Metabolic Engineering*, **2001**, 3, 195-206	9.7	641
193	Determination of the fluxes in the central metabolism of Corynebacterium glutamicum by nuclear magnetic resonance spectroscopy combined with metabolite balancing. *Biotechnology and Bioengineering*, **1996**, 49, 111-29	4.9	375
192	A universal framework for 13C metabolic flux analysis. *Metabolic Engineering*, **2001**, 3, 265-83	9.7	296
191	Bidirectional reaction steps in metabolic networks: III. Explicit solution and analysis of isotopomer labeling systems. *Biotechnology and Bioengineering*, **1999**, 66, 69-85	4.9	245
190	Bidirectional reaction steps in metabolic networks: I. Modeling and simulation of carbon isotope labeling experiments. *Biotechnology and Bioengineering*, **1997**, 55, 101-17	4.9	206
189	Bidirectional reaction steps in metabolic networks: II. Flux estimation and statistical analysis. *Biotechnology and Bioengineering*, **1997**, 55, 118-35	4.9	198
188	Metabolic flux analysis at ultra short time scale: isotopically non-stationary 13C labeling experiments. *Journal of Biotechnology*, **2007**, 129, 249-67	3.7	178
187	Extensive exometabolome analysis reveals extended overflow metabolism in various microorganisms. *Microbial Cell Factories*, **2012**, 11, 122	6.4	176
186	Bidirectional reaction steps in metabolic networks: IV. Optimal design of isotopomer labeling experiments. *Biotechnology and Bioengineering*, **1999**, 66, 86-103	4.9	163
185	Modeling and simulation: tools for metabolic engineering. *Journal of Biotechnology*, **2002**, 94, 37-63	3.7	161
184	In vivo quantification of parallel and bidirectional fluxes in the anaplerosis of Corynebacterium glutamicum. *Journal of Biological Chemistry*, **2000**, 275, 35932-41	5.4	155
183	13CFLUX2--high-performance software suite for (13)C-metabolic flux analysis. *Bioinformatics*, **2013**, 29, 143-5	7.2	150
182	New tools for mass isotopomer data evaluation in (13)C flux analysis: mass isotope correction, data consistency checking, and precursor relationships. *Biotechnology and Bioengineering*, **2004**, 85, 259-68	4.9	140
181	Single-cell microfluidics: opportunity for bioprocess development. *Current Opinion in Biotechnology*, **2014**, 29, 15-23	11.4	128
180	13C-flux spectral analysis of host-pathogen metabolism reveals a mixed diet for intracellular Mycobacterium tuberculosis. *Chemistry and Biology*, **2013**, 20, 1012-21		106
179	Optical sensors for monitoring dynamic changes of intracellular metabolite levels in mammalian cells. *Nature Protocols*, **2011**, 6, 1818-33	18.8	97
178	Emerging Corynebacterium glutamicum systems biology. *Journal of Biotechnology*, **2006**, 124, 74-92	3.7	93

177	A disposable picolitre bioreactor for cultivation and investigation of industrially relevant bacteria on the single cell level. *Lab on A Chip*, **2012**, 12, 2060-8	7.2	90
176	Computational tools for isotopically instationary 13C labeling experiments under metabolic steady state conditions. *Metabolic Engineering*, **2006**, 8, 554-77	9.7	89
175	Chassis organism from Corynebacterium glutamicum--a top-down approach to identify and delete irrelevant gene clusters. *Biotechnology Journal*, **2015**, 10, 290-301	5.6	87
174	Beyond growth rate 0.6: What drives Corynebacterium glutamicum to higher growth rates in defined medium. *Biotechnology and Bioengineering*, **2014**, 111, 359-71	4.9	85
173	Experimental design principles for isotopically instationary 13C labeling experiments. *Biotechnology and Bioengineering*, **2006**, 94, 234-51	4.9	81
172	Metabolic state of Zymomonas mobilis in glucose-, fructose-, and xylose-fed continuous cultures as analysed by 13C- and 31P-NMR spectroscopy. *Archives of Microbiology*, **1999**, 171, 371-85	3	81
171	How to measure metabolic fluxes: a taxonomic guide for (13)C fluxomics. *Current Opinion in Biotechnology*, **2015**, 34, 82-90	11.4	79
170	Collisional fragmentation of central carbon metabolites in LC-MS/MS increases precision of □□C metabolic flux analysis. *Biotechnology and Bioengineering*, **2012**, 109, 763-71	4.9	79
169	Isotopically non-stationary metabolic flux analysis: complex yet highly informative. *Current Opinion in Biotechnology*, **2013**, 24, 979-86	11.4	78
168	Visualizing multi-omics data in metabolic networks with the software Omix: a case study. *BioSystems*, **2011**, 105, 154-61	1.9	78
167	Microbioreactor Systems for Accelerated Bioprocess Development. *Biotechnology Journal*, **2018**, 13, e1700141	5.6	75
166	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, 1101-15	4.6	68
165	Fluxomics: mass spectrometry versus quantitative imaging. *Current Opinion in Plant Biology*, **2007**, 10, 323-30	9.9	68
164	Engineering of Corynebacterium glutamicum for minimized carbon loss during utilization of D-xylose containing substrates. *Journal of Biotechnology*, **2014**, 192 Pt A, 156-60	3.7	65
163	The benefits of being transient: isotope-based metabolic flux analysis at the short time scale. *Applied Microbiology and Biotechnology*, **2011**, 91, 1247-65	5.7	64
162	Homogenizing bacterial cell factories: Analysis and engineering of phenotypic heterogeneity. *Metabolic Engineering*, **2017**, 42, 145-156	9.7	63
161	Comparative 13C metabolic flux analysis of pyruvate dehydrogenase complex-deficient, L-valine-producing Corynebacterium glutamicum. *Applied and Environmental Microbiology*, **2011**, 77, 6644-52	4.8	63
160	13C tracer experiments and metabolite balancing for metabolic flux analysis: comparing two approaches. *Biotechnology and Bioengineering*, **1998**, 58, 254-7	4.9	62

159	Determination of full 13C isotopomer distributions for metabolic flux analysis using heteronuclear spin echo difference NMR spectroscopy. *Journal of Biotechnology*, **2000**, 77, 25-35	3.7	58
158	Miniaturized and automated adaptive laboratory evolution: Evolving Corynebacterium glutamicum towards an improved d-xylose utilization. *Bioresource Technology*, **2017**, 245, 1377-1385	11	57
157	Bioprocess automation on a Mini Pilot Plant enables fast quantitative microbial phenotyping. *Microbial Cell Factories*, **2015**, 14, 32	6.4	56
156	Stationary versus non-stationary (13)C-MFA: a comparison using a consistent dataset. *Journal of Biotechnology*, **2011**, 154, 179-90	3.7	55
155	Metabolic isotopomer labeling systems. Part I: global dynamic behavior. *Mathematical Biosciences*, **2001**, 169, 173-205	3.9	54
154	Beyond growth rate 0.6: Corynebacterium glutamicum cultivated in highly diluted environments. *Biotechnology and Bioengineering*, **2013**, 110, 220-8	4.9	50
153	Combined fluxomics and transcriptomics analysis of glucose catabolism via a partially cyclic pentose phosphate pathway in Gluconobacter oxydans 621H. *Applied and Environmental Microbiology*, **2013**, 79, 2336-48	4.8	49
152	Process inhomogeneity leads to rapid side product turnover in cultivation of Corynebacterium glutamicum. *Microbial Cell Factories*, **2014**, 13, 6	6.4	48
151	13C labeling experiments at metabolic nonstationary conditions: an exploratory study. *BMC Bioinformatics*, **2008**, 9, 152	3.6	45
150	Corynebacterium glutamicum Chassis C1*: Building and Testing a Novel Platform Host for Synthetic Biology and Industrial Biotechnology. *ACS Synthetic Biology*, **2018**, 7, 132-144	5.7	43
149	From stationary to instationary metabolic flux analysis. *Advances in Biochemical Engineering/Biotechnology*, **2005**, 92, 145-72	1.7	42
148	Mechanistic pathway modeling for industrial biotechnology: challenging but worthwhile. *Current Opinion in Biotechnology*, **2011**, 22, 604-10	11.4	40
147	Influence of Organic Solvents on Enzymatic Asymmetric Carboligations. *Advanced Synthesis and Catalysis*, **2012**, 354, 2805-2820	5.6	39
146	Metabolic isotopomer labeling systems. Part II: structural flux identifiability analysis. *Mathematical Biosciences*, **2003**, 183, 175-214	3.9	39
145	Microfluidic picoliter bioreactor for microbial single-cell analysis: fabrication, system setup, and operation. *Journal of Visualized Experiments*, **2013**, 50560	1.6	38
144	Time-resolved, single-cell analysis of induced and programmed cell death via non-invasive propidium iodide and counterstain perfusion. *Scientific Reports*, **2016**, 6, 32104	4.9	37
143	Polydimethylsiloxane (PDMS) Sub-Micron Traps for Single-Cell Analysis of Bacteria. *Micromachines*, **2013**, 4, 357-369	3.3	37
142	Quantitative metabolomics: a phantom?. *Trends in Biotechnology*, **2014**, 32, 238-44	15.1	36

141	The thermodynamic meaning of metabolic exchange fluxes. *Biophysical Journal*, **2007**, 93, 2255-64	2.9	36
140	Assessment of robustness against dissolved oxygen/substrate oscillations for C. glutamicum DM1933 in two-compartment bioreactor. *Bioprocess and Biosystems Engineering*, **2014**, 37, 1151-62	3.7	35
139	Light-responsive control of bacterial gene expression: precise triggering of the lac promoter activity using photocaged IPTG. *Integrative Biology (United Kingdom)*, **2014**, 6, 755-65	3.7	34
138	Metabolic profile of 1,5-diaminopentane producing Corynebacterium glutamicum under scale-down conditions: Blueprint for robustness to bioreactor inhomogeneities. *Biotechnology and Bioengineering*, **2017**, 114, 560-575	4.9	34
137	Microfluidic growth chambers with optical tweezers for full spatial single-cell control and analysis of evolving microbes. *Journal of Microbiological Methods*, **2013**, 95, 470-6	2.8	34
136	Serial 13C-based flux analysis of an L-phenylalanine-producing E. coli strain using the sensor reactor. *Biotechnology Progress*, **2004**, 20, 706-14	2.8	32
135	Hydroxynitrile Lyase from Arabidopsis thaliana: Identification of Reaction Parameters for Enantiopure Cyanohydrin Synthesis by Pure and Immobilized Catalyst. *Advanced Synthesis and Catalysis*, **2011**, 353, 2399-2408	5.6	31
134	Investigating the dynamic behavior of biochemical networks using model families. *Bioinformatics*, **2005**, 21, 1617-25	7.2	31
133	Use of a Sec signal peptide library from Bacillus subtilis for the optimization of cutinase secretion in Corynebacterium glutamicum. *Microbial Cell Factories*, **2016**, 15, 208	6.4	31
132	Sessile-drop-induced bending of atomic force microscope cantilevers: a model system for monitoring microdrop evaporation. *Journal of Micromechanics and Microengineering*, **2006**, 16, 2273-2280	?	30
131	Technical bias of microcultivation environments on single-cell physiology. *Lab on A Chip*, **2015**, 15, 1822-34	7.2	28
130	Modeling and CFD simulation of nutrient distribution in picoliter bioreactors for bacterial growth studies on single-cell level. *Lab on A Chip*, **2015**, 15, 4177-86	7.2	28
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128	Live cell imaging of SOS and prophage dynamics in isogenic bacterial populations. *Molecular Microbiology*, **2015**, 98, 636-50	4.1	26
127	Plug flow versus stirred tank reactor flow characteristics in two-compartment scale-down bioreactor: Setup-specific influence on the metabolic phenotype and bioprocess performance ofCorynebacterium glutamicum. *Engineering in Life Sciences*, **2016**, 16, 610-619	3.4	25
126	Rapid inoculation of single bacteria into parallel picoliter fermentation chambers. *Analytical Methods*, **2015**, 7, 91-98	3.2	24
125	An evaluation of genetically encoded FRET-based biosensors for quantitative metabolite analyses in vivo. *Journal of Biotechnology*, **2014**, 191, 250-9	3.7	24
124	Translating biochemical network models between different kinetic formats. *Metabolic Engineering*, **2009**, 11, 87-100	9.7	24

123	The topology of metabolic isotope labeling networks. *BMC Bioinformatics*, **2007**, 8, 315	3.6	24
122	Visual workflows for 13C-metabolic flux analysis. *Bioinformatics*, **2015**, 31, 346-54	7.2	23
121	Photocaged Arabinose: A Novel Optogenetic Switch for Rapid and Gradual Control of Microbial Gene Expression. *ChemBioChem*, **2016**, 17, 296-9	3.8	23
120	The effect of composition on diffusion of macromolecules in a crowded environment. *Physical Biology*, **2015**, 12, 046003	3	23
119	Nondestructive and noncontact method for determining the spring constant of rectangular cantilevers. *Review of Scientific Instruments*, **2007**, 78, 043705	1.7	23
118	Image-Based Single Cell Profiling: High-Throughput Processing of Mother Machine Experiments. *PLoS ONE*, **2016**, 11, e0163453	3.7	23
117	Analyzing Microbial Population Heterogeneity-Expanding the Toolbox of Microfluidic Single-Cell Cultivations. *Journal of Molecular Biology*, **2019**, 431, 4569-4588	6.5	22
116	Automation of a Nile red staining assay enables high throughput quantification of microalgal lipid production. *Microbial Cell Factories*, **2016**, 15, 34	6.4	21
115	Omix A Visualization Tool for Metabolic Networks with Highest Usability and Customizability in Focus. *Chemie-Ingenieur-Technik*, **2013**, 85, 849-862	0.8	21
114	Framework for Kriging-based iterative experimental analysis and design: Optimization of secretory protein production inCorynebacterium glutamicum. *Engineering in Life Sciences*, **2016**, 16, 538-549	3.4	20
113	A Toolbox of Genetically Encoded FRET-Based Biosensors for Rapid l-Lysine Analysis. *Sensors*, **2016**, 16,	3.8	20
112	Less Sacrifice, More Insight: Repeated Low-Volume Sampling of Microbioreactor Cultivations Enables Accelerated Deep Phenotyping of Microbial Strain Libraries. *Biotechnology Journal*, **2019**, 14, e1800428	5.6	19
111	Tailor-made catalytically active inclusion bodies for different applications in biocatalysis. *Catalysis Science and Technology*, **2018**, 8, 5816-5826	5.5	19
110	Fast and reliable strain characterization of Streptomyces lividans through micro-scale cultivation. *Biotechnology and Bioengineering*, **2017**, 114, 2011-2022	4.9	18
109	Tailoring a stabilized variant of hydroxynitrile lyase from Arabidopsis thaliana. *ChemBioChem*, **2012**, 13, 797-802	3.8	18
108	An introduction to 13C metabolic flux analysis. *Genetic Engineering*, **2002**, 24, 215-38		17
107	Cutting the Gordian Knot: Identifiability of anaplerotic reactions in Corynebacterium glutamicum by means of (13) C-metabolic flux analysis. *Biotechnology and Bioengineering*, **2016**, 113, 661-74	4.9	16
106	Rapid assessment of oxygen transfer impact for Corynebacterium glutamicum. *Bioprocess and Biosystems Engineering*, **2014**, 37, 2567-77	3.7	16

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104	The Design of FluxML: A Universal Modeling Language for C Metabolic Flux Analysis. *Frontiers in Microbiology*, **2019**, 10, 1022	5.7	14
103	Microbial single-cell analysis in picoliter-sized batch cultivation chambers. *New Biotechnology*, **2018**, 47, 50-59	6.4	14
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101	To be certain about the uncertainty: Bayesian statistics for C metabolic flux analysis. *Biotechnology and Bioengineering*, **2017**, 114, 2668-2684	4.9	14
100	Multi-Omics and Targeted Approaches to Determine the Role of Cellular Proteases in Protein Secretion. *Frontiers in Microbiology*, **2018**, 9, 1174	5.7	13
99	Simultaneous utilization of glucose and gluconate in Penicillium chrysogenum during overflow metabolism. *Biotechnology and Bioengineering*, **2013**, 110, 3235-43	4.9	13
98	Design and validation of a parallelized micro-photobioreactor enabling phototrophic bioprocess development at elevated throughput. *Biotechnology and Bioengineering*, **2017**, 114, 122-131	4.9	13
97	Visualizing regulatory interactions in metabolic networks. *BMC Biology*, **2007**, 5, 46	7.3	13
96	Simplified cryopreservation of the microalga Chlorella vulgaris integrating a novel concept for cell viability estimation. *Engineering in Life Sciences*, **2016**, 16, 36-44	3.4	13
95	Developing a new production host from a blueprint: Bacillus pumilus as an industrial enzyme producer. *Microbial Cell Factories*, **2014**, 13, 46	6.4	12
94	Absolute quantification of Corynebacterium glutamicum glycolytic and anaplerotic enzymes by QconCAT. *Journal of Proteomics*, **2015**, 113, 366-77	3.9	11
93	Non-Invasive Microbial Metabolic Activity Sensing at Single Cell Level by Perfusion of Calcein Acetoxymethyl Ester. *PLoS ONE*, **2015**, 10, e0141768	3.7	11
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91	Automated growth rate determination in high-throughput microbioreactor systems. *BMC Research Notes*, **2017**, 10, 617	2.3	10
90	Quantitative measurements in single-cell analysis: towards scalability in microbial bioprocess development. *Current Opinion in Biotechnology*, **2018**, 54, 121-127	11.4	10
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88	A FRET-based biosensor for the quantification of glucose in culture supernatants of mL scale microbial cultivations. *Microbial Cell Factories*, **2019**, 18, 143	6.4	10

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85	Combinatorial impact of Sec signal peptides from Bacillus subtilis and bioprocess conditions on heterologous cutinase secretion by Corynebacterium glutamicum. *Biotechnology and Bioengineering*, **2019**, 116, 644-655	4.9	10
84	Real-time monitoring of fungal growth and morphogenesis at single-cell resolution. *Engineering in Life Sciences*, **2017**, 17, 86-92	3.4	9
83	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	6.3	9
82	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	7.8	9
81	An Efficient Route to Both Enantiomers of allo-Threonine by Simultaneous Amino Acid Racemase-Catalyzed Isomerization of Threonine and Crystallization. *Advanced Synthesis and Catalysis*, **2011**, 353, 2431-2438	5.6	9
80	A Pareto approach to resolve the conflict between information gain and experimental costs: Multiple-criteria design of carbon labeling experiments. *PLoS Computational Biology*, **2018**, 14, e1006533	5	9
79	Characterization of Sigma Factor Genes in TK24 Using a Genomic Library-Based Approach for Multiple Gene Deletions. *Frontiers in Microbiology*, **2018**, 9, 3033	5.7	9
78	Comparative evaluation of phototrophic microtiter plate cultivation against laboratory-scale photobioreactors. *Bioprocess and Biosystems Engineering*, **2017**, 40, 663-673	3.7	8
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72	A Primer to 13C Metabolic Flux Analysis **2015**, 97-142		7
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70	Modelling and simulation of micro-well formation. *Mathematical and Computer Modelling of Dynamical Systems*, **2006**, 12, 263-276	1	7

69	Evaporation of Solvent Microdrops on Polymer Substrates: From Well Controlled Experiments To Mathematical Models and Back. *Nanoscale and Microscale Thermophysical Engineering*, **2007**, 11, 31-41	3.7	7
68	Growth and Production Capabilities of Corynebacterium glutamicum: Interrogating a Genome-scale Metabolic Network Model **2015**, 39-56		7
67	Discrete-continuous reaction-diffusion model with mobile point-like sources and sinks. *European Physical Journal E*, **2016**, 39, 11	1.5	6
66	FeedER: a feedback-regulated enzyme-based slow-release system for fed-batch cultivation in microtiter plates. *Bioprocess and Biosystems Engineering*, **2019**, 42, 1843-1852	3.7	6
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63	Event driven algorithms applied to a high energy ball mill simulation. *Granular Matter*, **2007**, 9, 251-266	2.6	6
62	From Enzyme Kinetics to Metabolic Network Modeling Visualization Tool for Enhanced Kinetic Analysis of Biochemical Network Models. *Engineering in Life Sciences*, **2006**, 6, 155-162	3.4	6
61	pyFOOMB: Python framework for object oriented modeling of bioprocesses. *Engineering in Life Sciences*, **2021**, 21, 242-257	3.4	6
60	Construction and comprehensive characterization of an EcLDCc-CatIB set-varying linkers and aggregation inducing tags. *Microbial Cell Factories*, **2021**, 20, 49	6.4	6
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57	An Enzymatic 2-Step Cofactor and Co-Product Recycling Cascade towards a Chiral 1,2-Diol. Part II: Catalytically Active Inclusion Bodies. *Advanced Synthesis and Catalysis*, **2019**, 361, 2616	5.6	5
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55	Laboratory-scale photobiotechnology-current trends and future perspectives. *FEMS Microbiology Letters*, **2018**, 365,	2.9	5
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47	MMT--a pathway modeling tool for data from rapid sampling experiments. *In Silico Biology*, **2002**, 2, 467-84	2	4
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43	Stress and failure at mechanical contacts of microspheres under uniaxial compression. *Journal of Applied Physics*, **2007**, 101, 084908	2.5	3
42	Stochastic simulation of biotechnical processes. *Mathematics and Computers in Simulation*, **1996**, 42, 171-178	3.3	3
41	A fully automated pipeline for the dynamic at-line morphology analysis of microscale Aspergillus cultivation. *Fungal Biology and Biotechnology*, **2021**, 8, 2	7.5	3
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39	Bayesian calibration, process modeling and uncertainty quantification in biotechnology.. *PLoS Computational Biology*, **2022**, 18, e1009223	5	3
38	bletl - A Python package for integrating BioLector microcultivation devices in the Design-Build-Test-Learn cycle.. *Engineering in Life Sciences*, **2022**, 22, 242-259	3.4	3
37	Revisiting the Growth Modulon of Under Glucose Limited Chemostat Conditions. *Frontiers in Bioengineering and Biotechnology*, **2020**, 8, 584614	5.8	2
36	Simulation of differential-algebraic equation systems with optimization criteria embedded in Modelica. *Computers and Chemical Engineering*, **2020**, 140, 106920	4	2
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34	Customizable Visualization of Multi-omics Data in the Context of Biochemical Networks **2009**,		2

33	Interpretation of metabolic flux maps by limitation potentials and constrained limitation sensitivities. *Biotechnology and Bioengineering*, **2006**, 94, 263-72	4.9	2
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29	Analysis of the local well-posedness of optimization-constrained differential equations by local optimality conditions. *AICHE Journal*, **2020**, 66, e16548	3.6	2
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