

Branko Bijeljic

List of Publications by Year in descending order

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Version: 2024-02-01

138
papers

10,191
citations

29994

54
h-index

34900

98
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139
all docs

139
docs citations

139
times ranked

4518
citing authors

#	ARTICLE	IF	CITATIONS
1	Nonlinear multiphase flow in hydrophobic porous media. Journal of Fluid Mechanics, 2022, 934, .	1.4	9
2	Pore-scale imaging of asphaltene deposition with permeability reduction and wettability alteration. Fuel, 2022, 316, 123202.	3.4	9
3	Minimal Surfaces in Porous Materials: X-Ray Image-Based Measurement of the Contact Angle and Curvature in Gas Diffusion Layers to Design Optimal Performance of Fuel Cells. ACS Applied Energy Materials, 2022, 5, 4613-4621.	2.5	13
4	Generalized network modelling of two-phase flow in a water-wet and mixed-wet reservoir sandstone: Uncertainty and validation with experimental data. Advances in Water Resources, 2022, 164, 104194.	1.7	6
5	Pore-scale processes in tertiary low salinity waterflooding in a carbonate rock: Micro-dispersions, water film growth, and wettability change. Journal of Colloid and Interface Science, 2022, 628, 486-498.	5.0	6
6	Determination of contact angles for three-phase flow in porous media using an energy balance. Journal of Colloid and Interface Science, 2021, 582, 283-290.	5.0	16
7	Pore-scale imaging of asphaltene-induced pore clogging in carbonate rocks. Fuel, 2021, 283, 118871.	3.4	22
8	Dynamic fluid configurations in steady-state two-phase flow in Bentheimer sandstone. Physical Review E, 2021, 103, 013110.	0.8	13
9	Pore-scale characterization of carbon dioxide storage at immiscible and near-miscible conditions in altered-wettability reservoir rocks. International Journal of Greenhouse Gas Control, 2021, 105, 103232.	2.3	25
10	Quantification of Nonlinear Multiphase Flow in Porous Media. Geophysical Research Letters, 2021, 48, e2020GL090477.	1.5	33
11	A continuous time random walk method to predict dissolution in porous media based on validation of experimental NMR data. Advances in Water Resources, 2021, 149, 103847.	1.7	5
12	Pore-Scale Imaging and Analysis of Wettability Order, Trapping and Displacement in Three-Phase Flow in Porous Media with Various Wettabilities. Transport in Porous Media, 2021, 140, 59-84.	1.2	32
13	Pore-scale imaging of displacement patterns in an altered-wettability carbonate. Chemical Engineering Science, 2021, 235, 116464.	1.9	26
14	Pore-by-Pore Modelling, Validation and Prediction of Waterflooding in Oil-Wet Rocks Using Dynamic Synchrotron Data. Transport in Porous Media, 2021, 138, 285-308.	1.2	14
15	Direct Numerical Simulation of Pore-Scale Trapping Events During Capillary-Dominated Two-Phase Flow in Porous Media. Transport in Porous Media, 2021, 138, 443-458.	1.2	28
16	Pore-scale imaging and analysis of low salinity waterflooding in a heterogeneous carbonate rock at reservoir conditions. Scientific Reports, 2021, 11, 15063.	1.6	25
17	Drainage Capillary Pressure Distribution and Fluid Displacement in a Heterogeneous Laminated Sandstone. Geophysical Research Letters, 2021, 48, e2021GL093604.	1.5	7
18	Wettability Characterization from Pore-Scale Images Using Topology and Energy Balance with Implications for Recovery and Storage. , 2021, , .		2

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19	Disconnected Gas Transport in Steady-State Three-Phase Flow. Water Resources Research, 2021, 57, e2021WR031147.	1.7	11
20	Dynamics of enhanced gas trapping applied to CO ₂ storage in the presence of oil using synchrotron X-ray micro tomography. Applied Energy, 2020, 259, 114136.	5.1	46
21	Pore-scale imaging with measurement of relative permeability and capillary pressure on the same reservoir sandstone sample under water-wet and mixed-wet conditions. Advances in Water Resources, 2020, 146, 103786.	1.7	37
22	Pore-by-pore modeling, analysis, and prediction of two-phase flow in mixed-wet rocks. Physical Review E, 2020, 102, 023302.	0.8	27
23	Dynamics of fluid displacement in mixed-wet porous media. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200040.	1.0	25
24	In Situ Characterization of Three-Phase Flow in Mixed-Wet Porous Media Using Synchrotron Imaging. Water Resources Research, 2020, 56, e2020WR027873.	1.7	17
25	Dynamics of water injection in an oil-wet reservoir rock at subsurface conditions: Invasion patterns and pore-filling events. Physical Review E, 2020, 102, 023110.	0.8	23
26	Multispecies Reactive Transport in a Microporous Rock: Impact of Flow Heterogeneity and Reversibility of Reaction. Water Resources Research, 2020, 56, e2020WR027317.	1.7	5
27	Evaluation of methods using topology and integral geometry to assess wettability. Journal of Colloid and Interface Science, 2020, 576, 99-108.	5.0	17
28	Pore-scale X-ray imaging with measurement of relative permeability, capillary pressure and oil recovery in a mixed-wet micro-porous carbonate reservoir rock. Fuel, 2020, 268, 117018.	3.4	64
29	Pore-scale numerical simulation of low salinity water flooding using the lattice Boltzmann method. Journal of Colloid and Interface Science, 2020, 566, 444-453.	5.0	51
30	Using energy balance to determine pore-scale wettability. Journal of Colloid and Interface Science, 2020, 576, 486-495.	5.0	19
31	Local Capillary Pressure Estimation Based on Curvature of the Fluid Interface – Validation with Two-Phase Direct Numerical Simulations. E3S Web of Conferences, 2020, 146, 04003.	0.2	1
32	Verifying Pore Network Models of Imbibition in Rocks Using Time-Resolved Synchrotron Imaging. Water Resources Research, 2020, 56, e2019WR026587.	1.7	27
33	Pore-scale mechanisms of CO ₂ storage in oilfields. Scientific Reports, 2020, 10, 8534.	1.6	31
34	Three-phase flow displacement dynamics and Haines jumps in a hydrophobic porous medium. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200671.	1.0	10
35	Pore-scale dynamics and the multiphase Darcy law. Physical Review Fluids, 2020, 5, .	1.0	46
36	Validating the Generalized Pore Network Model Using Micro-CT Images of Two-Phase Flow. Transport in Porous Media, 2019, 130, 405-424.	1.2	36

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37	Quantification of Uncertainty and Best Practice in Computing Interfacial Curvature from Complex Pore Space Images. <i>Materials</i> , 2019, 12, 2138.	1.3	24
38	Intermittent fluid connectivity during two-phase flow in a heterogeneous carbonate rock. <i>Physical Review E</i> , 2019, 100, 043103.	0.8	33
39	In situ pore-scale analysis of oil recovery during three-phase near-miscible CO ₂ injection in a water-wet carbonate rock. <i>Advances in Water Resources</i> , 2019, 134, 103432.	1.7	32
40	Mechanisms of Microscopic Displacement During Enhanced Oil Recovery in Mixed-Wet Rocks Revealed Using Direct Numerical Simulation. <i>Transport in Porous Media</i> , 2019, 130, 731-749.	1.2	12
41	Mechanisms controlling fluid breakup and reconnection during two-phase flow in porous media. <i>Physical Review E</i> , 2019, 100, 043115.	0.8	19
42	iSCAL for Complete Rock Characterization: Using Pore-Scale Imaging to Determine Relative Permeability and Capillary Pressure. , 2019, , .		2
43	Minimal surfaces in porous media: Pore-scale imaging of multiphase flow in an altered-wettability Bentheimer sandstone. <i>Physical Review E</i> , 2019, 99, 063105.	0.8	98
44	Trajectories as Training Images to Simulate Advective–Diffusive, Non-Fickian Transport. <i>Water Resources Research</i> , 2019, 55, 3465-3480.	1.7	5
45	A thermodynamically consistent characterization of wettability in porous media using high-resolution imaging. <i>Journal of Colloid and Interface Science</i> , 2019, 552, 59-65.	5.0	69
46	Modelling of multispecies reactive transport on pore-space images. <i>Advances in Water Resources</i> , 2019, 127, 192-208.	1.7	15
47	Pore occupancy, relative permeability and flow intermittency measurements using X-ray micro-tomography in a complex carbonate. <i>Advances in Water Resources</i> , 2019, 129, 56-69.	1.7	58
48	Pore-Scale Dissolution by CO ₂ Saturated Brine in a Multimineral Carbonate at Reservoir Conditions: Impact of Physical and Chemical Heterogeneity. <i>Water Resources Research</i> , 2019, 55, 3171-3193.	1.7	49
49	Modeling Oil Recovery in Mixed-Wet Rocks: Pore-Scale Comparison Between Experiment and Simulation. <i>Transport in Porous Media</i> , 2019, 127, 393-414.	1.2	64
50	4D in situ synchrotron X-ray tomographic microscopy and laser-based heating study of oil shale pyrolysis. <i>Applied Energy</i> , 2019, 235, 1468-1475.	5.1	66
51	A New Waterflood Initialization Protocol With Wettability Alteration for Pore-Scale Multiphase Flow Experiments. <i>Petrophysics</i> , 2019, 60, 264-272.	0.2	9
52	Generalized network modeling of capillary-dominated two-phase flow. <i>Physical Review E</i> , 2018, 97, 023308.	0.8	57
53	4D multi-scale imaging of reactive flow in carbonates: Assessing the impact of heterogeneity on dissolution regimes using streamlines at multiple length scales. <i>Chemical Geology</i> , 2018, 481, 27-37.	1.4	60
54	Wetting boundary condition for the color-gradient lattice Boltzmann method: Validation with analytical and experimental data. <i>Advances in Water Resources</i> , 2018, 116, 56-66.	1.7	84

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55	Reservoir-condition pore-scale imaging of dolomite reaction with supercritical CO ₂ acidified brine: Effect of pore-structure on reaction rate using velocity distribution analysis. International Journal of Greenhouse Gas Control, 2018, 68, 99-111.	2.3	52
56	A numerical model of two-phase flow at the micro-scale using the volume-of-fluid method. Journal of Computational Physics, 2018, 357, 159-182.	1.9	77
57	A study to investigate viscous coupling effects on the hydraulic conductance of fluid layers in two-phase flow at the pore level. Journal of Colloid and Interface Science, 2018, 522, 299-310.	5.0	22
58	Optimization of image quality and acquisition time for lab-based X-ray microtomography using an iterative reconstruction algorithm. Advances in Water Resources, 2018, 115, 112-124.	1.7	12
59	Modelling and upscaling of transport in carbonates during dissolution: Validation and calibration with NMR experiments. Journal of Contaminant Hydrology, 2018, 212, 85-95.	1.6	9
60	Direct Multiphase Numerical Simulation on Mixed-Wet Reservoir Carbonates. , 2018, , .		0
61	Three-Phase Flow Visualization and Characterization for a Mixed-Wet Carbonate Rock. , 2018, , .		4
62	In situ characterization of immiscible three-phase flow at the pore scale for a water-wet carbonate rock. Advances in Water Resources, 2018, 121, 446-455.	1.7	72
63	Spatial Correlation of Contact Angle and Curvature in Pore-Space Images. Water Resources Research, 2018, 54, 6133-6152.	1.7	36
64	Pore-scale Imaging and Characterization of Hydrocarbon Reservoir Rock Wettability at Subsurface Conditions Using X-ray Microtomography. Journal of Visualized Experiments, 2018, , .	0.2	8
65	Imaging and Measurement of Pore-Scale Interfacial Curvature to Determine Capillary Pressure Simultaneously With Relative Permeability. Water Resources Research, 2018, 54, 7046-7060.	1.7	87
66	Validation of model predictions of pore-scale fluid distributions during two-phase flow. Physical Review E, 2018, 97, 053104.	0.8	72
67	Wettability in complex porous materials, the mixed-wet state, and its relationship to surface roughness. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 8901-8906.	3.3	153
68	Editorial. Journal of Contaminant Hydrology, 2018, 212, 1-2.	1.6	0
69	Time-resolved synchrotron X-ray micro-tomography datasets of drainage and imbibition in carbonate rocks. Scientific Data, 2018, 5, 180265.	2.4	23
70	Dynamic reservoir-condition microtomography of reactive transport in complex carbonates: Effect of initial pore structure and initial brine pH. Geochimica Et Cosmochimica Acta, 2017, 204, 267-285.	1.6	66
71	Microstructural imaging and characterization of oil shale before and after pyrolysis. Fuel, 2017, 197, 562-574.	3.4	123
72	Reaction Rates in Chemically Heterogeneous Rock: Coupled Impact of Structure and Flow Properties Studied by X-ray Microtomography. Environmental Science & Technology, 2017, 51, 4108-4116.	4.6	55

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73	In situ characterization of mixed-wettability in a reservoir rock at subsurface conditions. Scientific Reports, 2017, 7, 10753.	1.6	147
74	Observations of the impact of rock heterogeneity on solute spreading and mixing. Water Resources Research, 2017, 53, 4624-4642.	1.7	32
75	Generalized network modeling: Network extraction as a coarse-scale discretization of the void space of porous media. Physical Review E, 2017, 96, 013312.	0.8	213
76	Dynamics of snap-off and pore-filling events during two-phase fluid flow in permeable media. Scientific Reports, 2017, 7, 5192.	1.6	135
77	Automatic measurement of contact angle in pore-space images. Advances in Water Resources, 2017, 109, 158-169.	1.7	153
78	Visualization and quantification of capillary drainage in the pore space of laminated sandstone by a porous plate method using differential imaging X-ray microtomography. Water Resources Research, 2017, 53, 7457-7468.	1.7	29
79	X-ray Microtomography of Intermittency in Multiphase Flow at Steady State Using a Differential Imaging Method. Water Resources Research, 2017, 53, 10274-10292.	1.7	83
80	Dynamic Pore-scale Reservoir-condition Imaging of Reaction in Carbonates Using Synchrotron Fast Tomography. Journal of Visualized Experiments, 2017, , .	0.2	3
81	Multi-scale multi-dimensional microstructure imaging of oil shale pyrolysis using X-ray micro-tomography, automated ultra-high resolution SEM, MAPS Mineralogy and FIB-SEM. Applied Energy, 2017, 202, 628-647.	5.1	219
82	In situ Wettability Measurement in a Carbonate Reservoir Rock at High Temperature and Pressure. , 2017, , .		3
83	Imaging of oil layers, curvature and contact angle in a mixed-wet and a water-wet carbonate rock. Water Resources Research, 2016, 52, 1716-1728.	1.7	124
84	Pore-scale simulation of carbonate dissolution in micro-CT images. Journal of Geophysical Research: Solid Earth, 2016, 121, 558-576.	1.4	81
85	Pore-space structure and average dissolution rates: A simulation study. Water Resources Research, 2016, 52, 7198-7212.	1.7	28
86	Observations of 3-D transverse dispersion and dilution in natural consolidated rock by X-ray tomography. Advances in Water Resources, 2016, 96, 266-281.	1.7	17
87	Quantification of sub-resolution porosity in carbonate rocks by applying high-salinity contrast brine using X-ray microtomography differential imaging. Advances in Water Resources, 2016, 96, 306-322.	1.7	92
88	Pore-scale dispersion: Bridging the gap between microscopic pore structure and the emerging macroscopic transport behavior. Physical Review E, 2016, 94, 013107.	0.8	29
89	The Impact of Pore Structure Heterogeneity, Transport, and Reaction Conditions on Fluid-Fluid Reaction Rate Studied on Images of Pore Space. Transport in Porous Media, 2016, 115, 215-237.	1.2	33
90	Evolution and persistence of cross-directional statistical dependence during finite-Péclet transport through a real porous medium. Water Resources Research, 2016, 52, 8920-8937.	1.7	8

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91	Dynamic imaging of oil shale pyrolysis using synchrotron X-ray microtomography. Geophysical Research Letters, 2016, 43, 6799-6807.	1.5	63
92	The impact of residual water on CH ₄ -CO ₂ dispersion in consolidated rock cores. International Journal of Greenhouse Gas Control, 2016, 50, 100-111.	2.3	40
93	The impact of porous media heterogeneity on non-Darcy flow behaviour from pore-scale simulation. Advances in Water Resources, 2016, 95, 329-340.	1.7	137
94	Reservoir condition imaging of reactive transport in heterogeneous carbonates using fast synchrotron tomography – Effect of initial pore structure and flow conditions. Chemical Geology, 2016, 428, 15-26.	1.4	114
95	Continuum-scale characterization of solute transport based on pore-scale velocity distributions. Geophysical Research Letters, 2015, 42, 7537-7545.	1.5	33
96	Reservoir Condition Pore-scale Imaging of Multiple Fluid Phases Using X-ray Microtomography. Journal of Visualized Experiments, 2015, , .	0.2	12
97	The Imaging of Dynamic Multiphase Fluid Flow Using Synchrotron-Based X-ray Microtomography at Reservoir Conditions. Transport in Porous Media, 2015, 110, 1-24.	1.2	153
98	Enhanced gas recovery with CO ₂ sequestration: The effect of medium heterogeneity on the dispersion of supercritical CO ₂ -CH ₄ . International Journal of Greenhouse Gas Control, 2015, 39, 39-50.	2.3	63
99	Time-of-Flight Distributions and Breakthrough Curves in Heterogeneous Porous Media Using a Pore-Scale Streamline Tracing Algorithm. Transport in Porous Media, 2015, 109, 317-336.	1.2	31
100	Dynamic Three-Dimensional Pore-Scale Imaging of Reaction in a Carbonate at Reservoir Conditions. Environmental Science & Technology, 2015, 49, 4407-4414.	4.6	153
101	Predictions of dynamic changes in reaction rates as a consequence of incomplete mixing using pore scale reactive transport modeling on images of porous media. Journal of Contaminant Hydrology, 2015, 179, 171-181.	1.6	63
102	Modelling capillary trapping using finite-volume simulation of two-phase flow directly on micro-CT images. Advances in Water Resources, 2015, 83, 102-110.	1.7	97
103	Pore-by-pore capillary pressure measurements using X-ray microtomography at reservoir conditions: Curvature, snap-off, and remobilization of residual CO ₂ . Water Resources Research, 2014, 50, 8760-8774.	1.7	119
104	Reservoir Condition Pore Scale Imaging of the Capillary Trapping of CO ₂ . Energy Procedia, 2014, 63, 5427-5434.	1.8	3
105	Dynamic Pore-scale Imaging of Reactive Transport in Heterogeneous Carbonates at Reservoir Conditions. Energy Procedia, 2014, 63, 5503-5511.	1.8	12
106	Pore-scale contact angle measurements at reservoir conditions using X-ray microtomography. Advances in Water Resources, 2014, 68, 24-31.	1.7	317
107	Statistical Scaling of Geometric Characteristics in Millimeter Scale Natural Porous Media. Transport in Porous Media, 2014, 101, 465-475.	1.2	12
108	Numerical Modelling of Sub-pore Scale Events in Two-Phase Flow Through Porous Media. Transport in Porous Media, 2014, 101, 191-213.	1.2	87

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109	Direct simulations of two-phase flow on micro-CT images of porous media and upscaling of pore-scale forces. <i>Advances in Water Resources</i> , 2014, 74, 116-126.	1.7	254
110	An Experimental Study of Three-Phase Trapping in Sand Packs. <i>Transport in Porous Media</i> , 2014, 103, 421-436.	1.2	14
111	Pore-scale imaging of trapped supercritical carbon dioxide in sandstones and carbonates. <i>International Journal of Greenhouse Gas Control</i> , 2014, 22, 1-14.	2.3	191
112	Pore-scale intermittent velocity structure underpinning anomalous transport through 3D porous media. <i>Geophysical Research Letters</i> , 2014, 41, 6184-6190.	1.5	131
113	Pore-scale imaging of geological carbon dioxide storage under in situ conditions. <i>Geophysical Research Letters</i> , 2013, 40, 3915-3918.	1.5	142
114	Computations of Absolute Permeability on Micro-CT Images. <i>Mathematical Geosciences</i> , 2013, 45, 103-125.	1.4	338
115	Changes in Pore Structure and Connectivity Induced by CO ₂ Injection in Carbonates: A Combined Pore-Scale Approach. <i>Energy Procedia</i> , 2013, 37, 5367-5378.	1.8	58
116	Dipping open aquifers – The effect of top-surface topography and heterogeneity on CO ₂ storage efficiency. <i>International Journal of Greenhouse Gas Control</i> , 2013, 17, 318-331.	2.3	37
117	Pore-scale imaging and modelling. <i>Advances in Water Resources</i> , 2013, 51, 197-216.	1.7	1,407
118	Predictions of non-Fickian solute transport in different classes of porous media using direct simulation on pore-scale images. <i>Physical Review E</i> , 2013, 87, 013011.	0.8	199
119	Insights into non-Fickian solute transport in carbonates. <i>Water Resources Research</i> , 2013, 49, 2714-2728.	1.7	126
120	Simulation of Flow and Dispersion on Pore-Space Images. <i>SPE Journal</i> , 2012, 17, 1131-1141.	1.7	96
121	Modelling two-phase flow in porous media at the pore scale using the volume-of-fluid method. <i>Journal of Computational Physics</i> , 2012, 231, 5653-5668.	1.9	393
122	Mixing, spreading and reaction in heterogeneous media: A brief review. <i>Journal of Contaminant Hydrology</i> , 2011, 120-121, 1-17.	1.6	407
123	Non-Fickian transport in porous media with bimodal structural heterogeneity. <i>Journal of Contaminant Hydrology</i> , 2011, 120-121, 213-221.	1.6	36
124	Investigation of longitudinal and transverse dispersion in stable displacements with a high viscosity and density contrast between the fluids. <i>Journal of Contaminant Hydrology</i> , 2011, 120-121, 170-183.	1.6	24
125	Signature of Non-Fickian Solute Transport in Complex Heterogeneous Porous Media. <i>Physical Review Letters</i> , 2011, 107, 204502.	2.9	199
126	Measurement of Nonwetting-Phase Trapping in Sandpacks. <i>SPE Journal</i> , 2010, 15, 274-281.	1.7	86

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127	Measurements of non-wetting phase trapping applied to carbon dioxide storage. International Journal of Greenhouse Gas Control, 2010, 4, 283-288.	2.3	52
128	Simulation of Flow and Dispersion on Pore-Space Images. , 2010, , .		8
129	NONWETTING PHASE RESIDUAL SATURATION IN SAND PACKS. Journal of Porous Media, 2010, 13, 591-599.	1.0	22
130	Measurements of Non-Wetting Phase Trapping Applied to Carbon Dioxide Storage. Energy Procedia, 2009, 1, 3173-3180.	1.8	27
131	A Rigorous Pore-to-Field-Scale Simulation Method for Single-Phase Flow Based on Continuous-Time Random Walks. SPE Journal, 2009, 14, 88-94.	1.7	33
132	Pore-to-field simulation of single-phase transport using continuous time random walks. Advances in Water Resources, 2008, 31, 1527-1539.	1.7	50
133	A Rigorous Pore-to-Field-Scale Simulation Methodology for Single-Phase Flow Based on Continuous Time Random Walks. , 2007, , .		2
134	Pore-scale modeling of transverse dispersion in porous media. Water Resources Research, 2007, 43, .	1.7	111
135	Pore-scale modeling and continuous time random walk analysis of dispersion in porous media. Water Resources Research, 2006, 42, .	1.7	188
136	Slow flow across macroscopically semi-circular fibre lattices and a free-flow region of variable widthâ€”visualisation by magnetic resonance imaging. Chemical Engineering Science, 2004, 59, 2089-2103.	1.9	9
137	Pore-scale modeling of longitudinal dispersion. Water Resources Research, 2004, 40, .	1.7	166
138	Multicomponent mass transfer across water films during hydrocarbon gas injection. Chemical Engineering Science, 2003, 58, 2377-2388.	1.9	36