E A J Frank Peters

List of Publications by Year
in descending order

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Version: 2024-02-01

105 papers	2,736 citations	172386 29 h-index	214721 47 g-index
106 all docs	106 docs citations	106 times ranked	1947 citing authors

#	Article	IF	Citations
1	A numerical study of flow boiling in a microchannel using the local front reconstruction method. AICHE Journal, 2022, 68, .	1.8	2
2	Analysis of Particle-Resolved CFD Results for Dispersion in Packed Beds. Fluids, 2022, 7, 199.	0.8	1
3	Experimental investigation of monodisperse solids drying in a gas-fluidized bed. Chemical Engineering Science, 2022, 259, 117783.	1.9	13
4	Fullâ€field <scp>PIV</scp>/<scp>DIA</scp> and local concentration measurements of ozone decomposition in riserâ€flow. Canadian Journal of Chemical Engineering, 2021, 99, 1616-1626.	0.9	4
5	A multi-scale model for the Fischer-Tropsch synthesis in a wall-cooled packed bed reactor. Chemical Engineering Journal, 2021, 410, 128245.	6.6	11
6	Numerical study on the interaction of two bubbles rising side-by-side in viscous liquids. Chemical Engineering Journal, 2021, 410, 128257.	6.6	9
7	Direct numerical simulation of mass transfer in bidisperse arrays of spheres. AICHE Journal, 2020, 66, e16786.	1.8	10
8	Direct numerical simulation of a non-isothermal non-adiabatic packed bed reactor. Chemical Engineering Journal, 2020, 385, 123641.	6.6	30
9	An improved subgrid scale model for frontâ€tracking based simulations of mass transfer from bubbles. AICHE Journal, 2020, 66, e16889.	1.8	16
10	Lift-off of multiple particles in a narrow channel. Chemical Engineering Science: X, 2020, 8, 100086.	1.5	0
11	Numerical simulations of bubble formation in liquid metal. International Journal of Multiphase Flow, 2020, 131, 103363.	1.6	9
12	Open-cell foams as catalysts support: A systematic analysis of the mass transfer limitations. Chemical Engineering Journal, 2020, 393, 124656.	6.6	24
13	Direct numerical simulation of mass transfer and mixing in complex two-phase systems using a coupled volume of fluid and immersed boundary method. Chemical Engineering Science: X, 2020, 5, 100059.	1.5	2
14	Comparison of the local front reconstruction method with a diffuse interface model for the modeling of droplet collisions. Chemical Engineering Science: X, 2020, 7, 100066.	1.5	4
15	A multiple resolution approach using adaptive grids for fully resolved boundary layers on deformable gas-liquid interfaces at high Schmidt numbers. Chemical Engineering Science, 2020, 227, 115900.	1.9	8
16	Influence of wetting conditions on bubble formation from a submerged orifice. Experiments in Fluids, 2020, 61, 1.	1.1	11
17	Bubble formation from an orifice in liquid cross-flow. Chemical Engineering Journal, 2020, 386, 120902.	6.6	18
18	Moving from momentum transfer to heat transfer â€“ A comparative study of an advanced Graetz-Nusselt problem using immersed boundary methods. Chemical Engineering Science, 2019, 198, 317-333.	1.9	11

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19	Oscillation dynamics of a bubble rising in viscous liquid. Experiments in Fluids, 2019, 60, 1.	1.1	23
20	Direct numerical simulations of water flooding process through digitized porous rocks. Chemical Engineering Science: X, 2019, 4, 100041.	1.5	1
21	Hydrodynamic interaction of bubbles rising side-by-side in viscous liquids. Experiments in Fluids, 2019, 60, 1.	1.1	20
22	Fully resolved scalar transport for high Prandtl number flows using adaptive mesh refinement. Chemical Engineering Science: X, 2019, 4, 100047.	1.5	4
23	Computing interface curvature from volume fractions: A machine learning approach. Computers and Fluids, 2019, 193, 104263.	1.3	20
24	Influence of gas fraction on wall-to-liquid heat transfer in dense bubbly flows. Chemical Engineering Science: X, 2019, 4, 100037.	1.5	1
25	A critical comparison of smooth and sharp interface methods for phase transition. International Journal of Multiphase Flow, 2019, 120, 103093.	1.6	19
26	Direct numerical simulation of fluid flow and dependently coupled heat and mass transfer in fluid-particle systems. Chemical Engineering Science, 2019, 204, 203-219.	1.9	23
27	Effect of microchannel structure and fluid properties on non-inertial particle migration. Soft Matter, 2019, 15, 2648-2656.	1.2	6
28	Effect of flow and fluid properties on the mobility of multiphase flows through porous media. Chemical Engineering Science, 2019, 193, 243-254.	1.9	14
29	Direct numerical simulation of hydrodynamic dispersion in open-cell solid foams. Chemical Engineering Journal, 2019, 358, 1305-1323.	6.6	21
30	Extension of local front reconstruction method with controlled coalescence model. Physics of Fluids, 2018, 30, .	1.6	21
31	Experimental and numerical investigation of structure and hydrodynamics in packed beds of spherical particles. AICHE Journal, 2018, 64, 1896-1907.	1.8	33
32	Dual emission LIF technique for pH and concentration field measurement around a rising bubble. Experimental Thermal and Fluid Science, 2018, 93, 186-194.	1.5	27
33	Direct Numerical Simulation of Fluid Flow and Mass Transfer in Particle Clusters. Industrial & Engineering Chemistry Research, 2018, 57, 4664-4679.	1.8	13
34	Viscoelastic effects on residual oil distribution in flows through pillared microchannels. Journal of Colloid and Interface Science, 2018, 510, 262-271.	5.0	49
35	Direct numerical simulation of fluid flow and mass transfer in dense fluid-particle systems with surface reactions. Chemical Engineering Science, 2018, 176, 1-18.	1.9	46
36	Computing interface curvature from volume fractions: A hybrid approach. Computers and Fluids, 2018, 161, 74-88.	1.3	10

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37	Direct Numerical Simulation of Reactive Fluidâ€“Particle Systems Using an Immersed Boundary Method. Industrial & Engineering Chemistry Research, 2018, 57, 15565-15578.	1.8	4
38	Numerical simulation of bubble formation with a moving contact line using Local Front Reconstruction Method. Chemical Engineering Science, 2018, 187, 415-431.	1.9	21
39	An improved ghost-cell sharp interface immersed boundary method with direct forcing for particle laden flows. Computers and Fluids, 2018, 175, 111-128.	1.3	13
40	Multiscale Modelling of Dense Gasâ€“Particle Flows. Advances in Chemical Engineering, 2018, , 1-52.	0.5	10
41	Experimental study of full field riser hydrodynamics by PIV/DIA coupling. Powder Technology, 2017, 313, 402-416.	2.1	31
42	Computational Fluid Dynamicsâ€“Discrete Element Method (CFD-DEM) Study of Mass-Transfer Mechanisms in Riser Flow. Industrial & Engineering Chemistry Research, 2017, 56, 5558-5572.	1.8	26
43	A recurrence CFD study of heat transfer in a fluidized bed. Chemical Engineering Science, 2017, 172, 310-322.	1.9	43
44	A coupled Volume of Fluid and Immersed Boundary Method for simulating 3D multiphase flows with contact line dynamics in complex geometries. Chemical Engineering Science, 2017, 166, 28-41.	1.9	49
45	Performance study of heat and mass transfer in an adsorption process by numerical simulation. Chemical Engineering Science, 2017, 160, 335-345.	1.9	21
46	Viscoelastic flow past mono- and bidisperse random arrays of cylinders: flow resistance, topology and normal stress distribution. Soft Matter, 2017, 13, 9138-9146.	1.2	23
47	Lane change in flows through pillared microchannels. Physics of Fluids, 2017, 29, 113102.	1.6	40
48	Direct numerical simulation of non-isothermal flow through dense bidisperse random arrays of spheres. Powder Technology, 2017, 314, 291-298.	2.1	17
49	CFD-DEM simulations and experimental validation of clustering phenomena and riser hydrodynamics. Chemical Engineering Science, 2017, 169, 246-258.	1.9	64
50	Viscoelastic flow simulations in random porous media. Journal of Non-Newtonian Fluid Mechanics, 2017, 248, 50-61.	1.0	51
51	Viscoelastic flow simulations in model porous media. Physical Review Fluids, 2017, 2, .	1.0	38
52	Degradation of a polyesterâ€urethane coating: Physical properties. Journal of Polymer Science, Part B: Polymer Physics, 2016, 54, 659-671.	2.4	7
53	A coupled finite volume immersed boundary method for simulating 3D viscoelastic flows in complex geometries. Journal of Non-Newtonian Fluid Mechanics, 2016, 232, 67-76.	1.0	24
54	Numerical modelling of flow and coupled mass and heat transfer in an adsorption process. Chemical Engineering Science, 2016, 152, 413-425.	1.9	21

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55	Direct numerical simulations of dynamic gasâ€“solid suspensions. AICHE Journal, 2016, 62, 1958-1969.	1.8	84
56	Solids volume fraction measurements on riser flow using a temporalâ€histogram based DIA method. AICHE Journal, 2016, 62, 2681-2698.	1.8	10
57	Direct numerical simulations and experiments of a pseudo-2D gas-fluidized bed. Chemical Engineering Science, 2016, 143, 166-180.	1.9	52
58	The influence of the exposure conditions on the simulated photodegradation process of polyester-urethane coatings. Polymer Degradation and Stability, 2016, 123, 121-130.	2.7	3
59	The influence of the exposure conditions on the chemical and physical changes of polyesterâ€“urethane coatings during photodegradation. Polymer Degradation and Stability, 2016, 123, 13-25.	2.7	25
60	Multi-scale simulation of degradation of polymer coatings: Thermo-mechanical simulations. Polymer Degradation and Stability, 2016, 123, 1-12.	2.7	6
61	Eulerâ€“Lagrange Modeling of the Hydrodynamics of Dense Multiphase Flows. Advances in Chemical Engineering, 2015, 46, 137-191.	0.5	4
62	Modeling 3D Bubble Heat Transfer in Gasâ€“Solid Fluidized Beds Using the CFD-DEM. Industrial & Engineering Chemistry Research, 2015, 54, 11466-11474.	1.8	17
63	Quantitative spectroscopic analysis of weathering of polyester-urethane coatings. Polymer Degradation and Stability, 2015, 121, 280-291.	2.7	13
64	Weathering of a polyester-urethane clearcoat: Lateral inhomogeneities. Polymer Degradation and Stability, 2015, 122, 180-186.	2.7	15
65	Experimental study of hydrodynamics and thermal behavior of a pseudoâ€2D spoutâ€fluidized bed with liquid injection. AICHE Journal, 2015, 61, 1146-1159.	1.8	40
66	Multi-scale simulations for predicting material properties of a cross-linked polymer. Computational Materials Science, 2015, 102, 68-77.	1.4	26
67	Hierarchical multi-scale simulations of adhesion at polymerâ€“metal interfaces: dry and wet conditions. Physical Chemistry Chemical Physics, 2015, 17, 8935-8944.	1.3	12
68	Computational study of particle temperature in a bubbling spout fluidized bed with hot gas injection. Powder Technology, 2015, 284, 475-485.	2.1	18
69	Kinetic Monte Carlo simulation of the photodegradation process of polyester-urethane coatings. Physical Chemistry Chemical Physics, 2015, 17, 19962-19976.	1.3	11
70	Direct numerical simulation of fluidâ€“particle heat transfer in fixed random arrays of non-spherical particles. Chemical Engineering Science, 2015, 129, 42-48.	1.9	72
71	Comparison of CFDâ€“DEM heat transfer simulations with infrared/visual measurements. Chemical Engineering Journal, 2015, 277, 388-401.	6.6	96
72	A new drag correlation from fully resolved simulations of flow past monodisperse static arrays of spheres. AICHE Journal, 2015, 61, 688-698.	1.8	176

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73	A study of heat transfer in fluidized beds using an integrated DIA/PIV/IR technique. Chemical Engineering Journal, 2015, 259, 90-106.	6.6	78
74	A simulation approach to study photo-degradation processes of polymeric coatings. Polymer Degradation and Stability, 2014, 105, 68-79.	2.7	29
75	Modeling bubble heat transfer in gasâ€“solid fluidized beds using DEM. Chemical Engineering Science, 2014, 105, 121-131.	1.9	42
76	Depth-resolved infrared microscopy and UV-VIS spectroscopy analysis of an artificially degraded polyester-urethane clearcoat. Polymer Degradation and Stability, 2014, 110, 422-434.	2.7	11
77	The molecular configuration of a DOPA/ST monolayer at the airâ€“water interface: a molecular dynamics study. Physical Chemistry Chemical Physics, 2014, 16, 9634-9642.	1.3	11
78	Stochastic Dynamics with Correct Sampling for Constrained Systems. Journal of Chemical Theory and Computation, 2014, 10, 4208-4220.	2.3	9
79	A methodology for highly accurate results of direct numerical simulations: Drag force in dense gasâ€“solid flows at intermediate Reynolds number. International Journal of Multiphase Flow, 2014, 62, 73-86.	1.6	41
80	Review of direct numerical simulation of fluidâ€“particle mass, momentum and heat transfer in dense gasâ€“solid flows. Chemical Engineering Science, 2014, 116, 710-724.	1.9	149
81	Direct numerical simulation of particulate flow with heat transfer. International Journal of Multiphase Flow, 2013, 57, 29-37.	1.6	93
82	Mesoscopic simulations for the molecular and network structure of a thermoset polymer. Soft Matter, 2013, 9, 5785.	1.2	38
83	Structure of a Thermoset Polymer near an Alumina Substrate as Studied by Dissipative Particle Dynamics. Journal of Physical Chemistry C, 2013, 117, 19038-19047.	1.5	24
84	Correction to â€œStructure of a Thermoset Polymer near an Alumina Substrate as Studied by Dissipative Particle Dynamicsâ€• Journal of Physical Chemistry C, 2013, 117, 21028-21028.	1.5	1
85	Molecular dynamics simulation of a DOPA/ST monolayer on the Au(111) surface. Physical Chemistry Chemical Physics, 2013, 15, 15426.	1.3	7
86	A generalized method for parameterization of dissipative particle dynamics for variable bead volumes. Europhysics Letters, 2013, 102, 40009.	0.7	40
87	Rejection-free Monte Carlo sampling for general potentials. Physical Review E, 2012, 85, 026703.	0.8	77
88	Pressure Effects on the Kinetic Separation of Isopropyl Alcohol-Water Vapor Mixtures with FricDiff. Separation Science and Technology, 2011, 46, 1868-1877.	1.3	1
89	Efficient Sampling of a Dual-Resolution Ensemble by Means of Dragging. Journal of Chemical Theory and Computation, 2011, 7, 2699-2709.	2.3	3
90	The influence of boundary layers on multi-component mass exchange in a FricDiff-module. Chemical Engineering Science, 2009, 64, 2256-2271.	1.9	3

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91	Separation of Gas Mixtures with FricDiff: A Comparison between Experimental Data and Simulations. Industrial & Engineering Chemistry Research, 2009, 48, 7694-7704.	1.8	4
92	Velocity profiles and circulation in Stefan-diffusion. Chemical Engineering Science, 2008, 63, 4685-4693.	1.9	9
93	Separation of azeotropic mixtures of alcohols and water with FricDiff. Separation and Purification Technology, 2008, 62, 349-362.	3.9	6
94	Transfer Units Approach to the FricDiff Separation Process. Industrial & Engineering Chemistry Research, 2008, 47, 3937-3942.	1.8	7
95	FricDiff: A novel separation concept. Separation and Purification Technology, 2007, 56, 47-52.	3.9	10
96	Detailed fluctuation theorem for mesoscopic modeling. Physical Review E, 2004, 70, 066114.	0.8	1
97	Elimination of time step effects in DPD. Europhysics Letters, 2004, 66, 311-317.	0.7	98
98	Efficient Brownian dynamics simulation of particles near walls. II. Sticky walls. Physical Review E, 2002, 66, 056702.	0.8	12
99	Efficient Brownian dynamics simulation of particles near walls. I. Reflecting and absorbing walls. Physical Review E, 2002, 66, 056701.	0.8	29
100	Accurate method for the Brownian dynamics simulation of spherical particles with hard-body interactions. Journal of Chemical Physics, 2002, 117, 9202-9214.	1.2	11
101	Caging of ad-dimensional sphere and its relevance for the random dense sphere packing. Physical Review E, 2001, 63, 021404.	0.8	23
102	A new approach to the deformation fields method for solving complex flows using integral constitutive equations. Journal of Non-Newtonian Fluid Mechanics, 2001, 98, 201-221.	1.0	35
103	Instationary Eulerian viscoelastic flow simulations using time separable Rivlinâ€“Sawyers constitutive equations. Journal of Non-Newtonian Fluid Mechanics, 2000, 89, 209-228.	1.0	39
104	Generalization of the deformation field method to simulate advanced reptation models in complex flow. Journal of Rheology, 2000, 44, 811-829.	1.3	23
105	The conductivity of a foam. Journal of Physics Condensed Matter, 1996, 8, L475-L482.	0.7	54