Carlos Dorao

List of Publications by Year
in descending order

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109 papers	2,015 citations	257101 24 h-index	315357 38 g-index
114 all docs	114 docs citations	114 times ranked	1300 citing authors

#	Article	IF	Citations
1	Modeling of Bubble Column Reactors:Â Progress and Limitations. Industrial & Engineering Chemistry Research, 2005, 44, 5107-5151.	1.8	247
2	A review on heat exchanger thermal hydraulic models for cryogenic applications. Cryogenics, 2011, 51, 366-379.	0.9	102
3	A least squares method for the solution of population balance problems. Computers and Chemical Engineering, 2006, 30, 535-547.	2.0	65
4	On the conceptual design of pre-cooling stage of LNG plants using propane or an ethane/propane mixture. Energy Conversion and Management, 2013, 65, 140-146.	4.4	56
5	Review on pressure drop oscillations in boiling systems. Nuclear Engineering and Design, 2012, 250, 436-447.	0.8	49
6	Numerical calculation of the moments of the population balance equation. Journal of Computational and Applied Mathematics, 2006, 196, 619-633.	1.1	44
7	Simulation of transients in natural gas pipelines. Journal of Natural Gas Science and Engineering, 2011, 3, 349-355.	2.1	43
8	Simple and general correlation for heat transfer during flow condensation inside plain pipes. International Journal of Heat and Mass Transfer, 2018, 122, 290-305.	2.5	42
9	Consensual decision-making model based on game theory for LNG processes. Energy Conversion and Management, 2012, 64, 387-396.	4.4	41
10	Analysis of breakage kernels for population balance modelling. Chemical Engineering Science, 2009, 64, 501-508.	1.9	40
11	A Combined Multifluid-Population Balance Model for Vertical Gasâ˜Liquid Bubble-Driven Flows Considering Bubble Column Operating Conditions. Industrial & Engineering Chemistry Research, 2011, 50, 1786-1798.	1.8	40
12	Conceptual analysis of the precooling stage for LNG processes. Energy Conversion and Management, 2013, 66, 41-47.	4.4	40
13	Decision-making in the oil and gas projects based on game theory: Conceptual process design. Energy Conversion and Management, 2013, 66, 48-55.	4.4	39
14	Least-Squares Spectral Method for the solution of a fractional advectionâ€“dispersion equation. Journal of Computational Physics, 2013, 232, 33-45.	1.9	35
15	A study of the effect of flow maldistribution on heat transfer performance in evaporators. Nuclear Engineering and Design, 2010, 240, 3868-3877.	0.8	32
16	Identification of droplet breakage kernel for population balance modelling. Chemical Engineering Science, 2009, 64, 638-645.	1.9	29
17	A least-squares method with direct minimization for the solution of the breakageâ€“coalescence population balance equation. Mathematics and Computers in Simulation, 2008, 79, 716-727.	2.4	28
18	Simulation of chemical reactors using the least-squares spectral element method. Chemical Engineering Science, 2010, 65, 5146-5159.	1.9	28

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19	Influence of the plot area in an economical analysis for selecting small scale LNG technologies for remote gas production. Journal of Natural Gas Science and Engineering, 2010, 2, 302-309.	2.1	27
20	Can flow oscillations during flow boiling deteriorate the heat transfer coefficient?. Applied Physics Letters, 2018, 113, .	1.5	27
21	hp-adaptive least squares spectral element method for population balance equations. Applied Numerical Mathematics, 2008, 58, 563-576.	1.2	26
22	Analysis of dynamic surfactant mass transfer and its relationship to the transient stabilization of coalescing liquidâ€“liquid dispersions. Journal of Colloid and Interface Science, 2010, 348, 479-490.	5.0	26
23	Timeâ€“space-property least squares spectral method for population balance problems. Chemical Engineering Science, 2007, 62, 1323-1333.	1.9	25
24	Experimental parametric study of the pressure drop characteristic curve in a horizontal boiling channel. Experimental Thermal and Fluid Science, 2014, 52, 318-327.	1.5	25
25	Least-squares spectral method for solving advective population balance problems. Journal of Computational and Applied Mathematics, 2007, 201, 247-257.	1.1	24
26	Population Balance Model for Batch Gravity Separation of Crude Oil and Water Emulsions. Part II: Comparison to Experimental Crude Oil Separation Data. Journal of Dispersion Science and Technology, 2012, 33, 591-598.	1.3	24
27	Experimental study of the heat transfer coefficient deterioration during Density Wave Oscillations. Chemical Engineering Science, 2015, 132, 178-185.	1.9	24
28	Dynamic simulation of Ledinegg instability. Journal of Natural Gas Science and Engineering, 2010, 2, 211-216.	2.1	23
29	The least squares spectral element method for the Cahnâ€“Hilliard equation. Applied Mathematical Modelling, 2011, 35, 797-806.	2.2	23
30	Model based on population balance for the simulation of bubble columns using methods of the least-square type. Chemical Engineering Science, 2011, 66, 3133-3144.	1.9	23
31	Numerical analysis of pressure drop oscillations in parallel channels. International Journal of Multiphase Flow, 2013, 56, 15-24.	1.6	23
32	Experimental results on boiling heat transfer coefficient, frictional pressure drop and flow patterns for R134a at a saturation temperature of 34ÂÂ°C. International Journal of Refrigeration, 2014, 40, 317-327.	1.8	22
33	Experimental and numerical study of single-phase pressure drop in downhole shut-in valve. Journal of Natural Gas Science and Engineering, 2015, 22, 214-226.	2.1	22
34	Experimental investigations on adiabatic frictional pressure drops of R134a during flow in 5 mm diameter channel. Experimental Thermal and Fluid Science, 2017, 83, 78-87.	1.5	22
35	Water droplet impacting on overheated random Si nanowires. International Journal of Heat and Mass Transfer, 2018, 124, 307-318.	2.5	22
36	Application of the least-squares method for solving population balance problems in <mml:math altimg="si6.gif" display="inline" overflow="scroll" xmlns:xocs="http://www.elsevier.com/xml/xocs/dtd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.elsevier.com/xml/ja/dtd" xmlns:ja="http://www.elsevier.com/xml/ja/dtd" xmlns:mml="http://www.w3.org/1998/Math/MathML" xmlns:tb="http://www.elsevier.com/xml/common/table/dtd" xmlns:sb="http://www.elsevi. Chemical Eng	1.9	21

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37	Prediction of the evolution of the dispersed phase in bubbly flow problems. Applied Mathematical Modelling, 2008, 32, 1813-1833.	2.2	21
38	On the Coupled Solution of a Combined Population Balance Model Using the Least-Squares Spectral Element Method. Industrial & Engineering Chemistry Research, 2009, 48, 7994-8006.	1.8	21
39	Dominant dimensionless groups controlling heat transfer coefficient during flow condensation inside pipes. International Journal of Heat and Mass Transfer, 2017, 112, 465-479.	2.5	21
40	A parallel timeâ€“space least-squares spectral element solver for incompressible flow problems. Applied Mathematics and Computation, 2007, 185, 45-58.	1.4	20
41	Effect of inlet pressure and temperature on density wave oscillations in a horizontal channel. Chemical Engineering Science, 2015, 134, 767-773.	1.9	20
42	Simulation of thermal disturbances with finite wave speeds using a high order method. Journal of Computational and Applied Mathematics, 2009, 231, 637-647.	1.1	19
43	On the modelling of dropletâ€“film interaction considering entrainment, deposition and breakage processes. Chemical Engineering Science, 2009, 64, 1362-1371.	1.9	18
44	The quadrature method of moments and its relationship with the method of weighted residuals. Chemical Engineering Science, 2006, 61, 7795-7804.	1.9	17
45	Bubble Size Distribution for A Bubble Column Reactor Undergoing Forced Oscillations. Industrial & Engineering Chemistry Research, 2009, 48, 1786-1796.	1.8	17
46	Liquid entrainmentâ€”Droplet size distribution for a low surface tension mixture. Chemical Engineering Science, 2010, 65, 5272-5284.	1.9	17
47	Can Wicking Control Droplet Cooling?. Langmuir, 2019, 35, 6562-6570.	1.6	17
48	Can the heat transfer coefficients for single-phase flow and for convective flow boiling be equivalent?. Applied Physics Letters, 2018, 112, .	1.5	16
49	Experimental study on the characteristics of pressure drop oscillations and their interaction with short-period oscillation in a horizontal tube. International Journal of Refrigeration, 2018, 91, 246-253.	1.8	16
50	On the heat transfer deterioration during condensation of binary mixtures. Applied Physics Letters, 2019, 114, .	1.5	16
51	Experimental study of pressure drop oscillations in parallel horizontal channels. International Journal of Heat and Fluid Flow, 2014, 50, 126-133.	1.1	15
52	Numerical study of heat and mass transfer of binary mixtures condensation in mini-channels. International Communications in Heat and Mass Transfer, 2014, 58, 45-53.	2.9	15
53	On the occurrence of superimposed density wave oscillations on pressure drop oscillations and the influence of a compressible volume. AIP Advances, 2018, 8, 075022.	0.6	15
54	Water-Repellent Surfaces Consisting of Nanowires on Micropyramidal Structures. ACS Applied Nano Materials, 2019, 2, 7696-7704.	2.4	15

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55	Conical micro-structures as a route for achieving super-repellency in surfaces with intrinsic hydrophobic properties. Applied Physics Letters, 2019, 115, 053703.	1.5	14
56	Detailed experimental investigations on frictional pressure drop of R134a during flow boiling in 5â€‰mm diameter channel: The influence of acceleration pressure drop component. International Journal of Refrigeration, 2017, 82, 163-173.	1.8	13
57	Jacobi galerkin spectral method for cylindrical and spherical geometries. Chemical Engineering Science, 2007, 62, 6777-6783.	1.9	12
58	Experimental Study of Horizontal Flow Boiling Heat Transfer of R134a at a Saturation Temperature of 18.6â€‰Â°C. Journal of Heat Transfer, 2017, 139, .	1.2	12
59	Water droplet dynamics on a heated nanowire surface. Applied Physics Letters, 2018, 113, .	1.5	12
60	Effect of heating profile on the characteristics of pressure drop oscillations. Chemical Engineering Science, 2017, 158, 453-461.	1.9	11
61	Macroscopic description of dropletâ€“film interaction for gasâ€“liquid systems. Applied Mathematical Modelling, 2009, 33, 3309-3318.	2.2	10
62	Solution of bubble number density with breakage and coalescence in a bubble column by Least-Squares Method. Progress in Computational Fluid Dynamics, 2009, 9, 436.	0.1	10
63	Time-property least-squares spectral method for population balance equations. Journal of Mathematical Chemistry, 2009, 46, 770-780.	0.7	9
64	On the influence of heat flux updating during pressure drop oscillations â€“ A numerical analysis. International Journal of Heat and Mass Transfer, 2013, 63, 31-40.	2.5	9
65	Wetting State Transitions over Hierarchical Conical Microstructures. Advanced Materials Interfaces, 2018, 5, 1701039.	1.9	9
66	Law of resistance in two-phase flows inside pipes. Applied Physics Letters, 2019, 114, 173704.	1.5	9
67	Droplet size distribution after liquid entrainment in horizontal stratified two-phase three-field dispersed flow. Chemical Engineering Science, 2010, 65, 1407-1414.	1.9	7
68	Mass Conservative Solution of the Population Balance Equation Using the Least-Squares Spectral Element Method. Industrial & Engineering Chemistry Research, 2010, 49, 6204-6214.	1.8	7
69	PARAMETRIC STUDY OF THE PRESSURE CHARACTERISTIC CURVE IN A BOILING CHANNEL. Computational Thermal Sciences, 2011, 3, 157-168.	0.5	7
70	On the scaling of convective boiling heat transfer coefficient. International Journal of Heat and Mass Transfer, 2021, 164, 120589.	2.5	7
71	Investigations on mixture preparation for two phase adiabatic pressure drop of R134a flowing in 5 mm diameter channel. Archives of Thermodynamics, 2017, 38, 101-118.	1.0	7
72	hp-Adaptive spectral element solver for reactor modeling. Chemical Engineering Science, 2009, 64, 904-911.	1.9	6

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73	Simulation of a natural circulation loop using a least squares hp-adaptive solver. Mathematics and Computers in Simulation, 2011, 81, 2517-2528.	2.4	6
74	Two-Phase Flow Instabilities in Boiling and Condensing Systems. Journal of Power and Energy Systems, 2012, 6, 302-313.	0.5	6
75	Study of the influence of axial conduction in a boiling heated pipe. Chemical Engineering Research and Design, 2012, 90, 1141-1150.	2.7	6
76	Experimental and numerical study of two-phase pressure drop in downhole shut-in valve with Unified Comprehensive Model formulation. Journal of Natural Gas Science and Engineering, 2015, 23, 440-449.	2.1	6
77	A numerical investigation of flow boiling of non-azeotropic and near-azeotropic binary mixtures. International Journal of Refrigeration, 2015, 49, 99-109.	1.8	6
78	Numerical Solution of Coupled Cahn-Hilliard and Navier-Stokes System Using the Least-Squares Spectral Element Method. , 2016, , .		6
79	The least-squares spectral element method for phase-field models for isothermal fluid mixture. Computers and Mathematics With Applications, 2017, 74, 1981-1998.	1.4	6
80	Numerical Simulation of Evaporation Process of Two-Phase Flow in Small-Diameter Channels. Heat Transfer Engineering, 2014, 35, 440-451.	1.2	5
81	A redefined energy functional to prevent mass loss in phase-field methods. AIP Advances, 2020, 10, .	0.6	5
82	The heat transfer coefficient similarity between binary and single component flow condensation inside plain pipes. International Journal of Heat and Mass Transfer, 2022, 186, 122450.	2.5	5
83	Decision-Making on Liquefied Natural Gas (LNG) projects using game theory. , 2011, , .		4
84	Dispersion phenomena in gas liquid systems. Journal of Natural Gas Science and Engineering, 2012, 5, 25-30.	2.1	4
85	Modeling of annular-mist flow during mixtures boiling. Applied Thermal Engineering, 2015, 91, 463-470.	3.0	4
86	Liquid entrainment from a wetted wire exposed to a high gas flow rate in cross flow. Chemical Engineering Science, 2010, 65, 6397-6406.	1.9	3
87	The Leidenfrost Phenomenon on Silicon Nanowires. , 2016, , .		3
88	The Leidenfrost Phenomenon on Sub-Micron Tapered Pillars. , 2017, , .		3
89	Droplet evaporation during dropwise condensation due to deposited volatile organic compounds. AIP Advances, 2021, 11, .	0.6	3
90	The overlooked role of pressure oscillations on heat transfer deterioration during self-sustained flow oscillations. Applied Physics Letters, 2020, 117, 253701.	1.5	3

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91	Modeling of dropletâ€“droplet interaction phenomena in gasâ€“liquid systems for natural gas processing. Chemical Engineering Science, 2008, 63, 3585-3592.	1.9	2
92	An improved flowsheet simulation approach for advanced CO2 absorption process design and optimization. Energy Procedia, 2009, 1, 4257-4264.	1.8	2
93	Solution of a Cattaneo-Maxwell diffusion model using a Spectral element least-squares method. Journal of Natural Gas Science and Engineering, 2010, 2, 253-258.	2.1	2
94	Experimental study of density wave oscillations in horizontal straight tube evaporator. , 2014, , .		2
95	ICONE19-43568 MODELING OF DYNAMIC INSTABILITIES IN BOILING SYSTEMS. The Proceedings of the International Conference on Nuclear Engineering (ICONE), 2011, 2011.19, _ICONE1943-_ICONE1943.	0.0	2
96	Anisotropic wetting and final shape of droplets impacting on micropillars with non-vertical lateral walls. AIP Advances, 2021, 11, 115319.	0.6	2
97	Toward Surfaces with Droplet Impact Robustness and Low Contact Angle Hysteresis. Advanced Materials Interfaces, 2022, 9, .	1.9	2
98	Thermal two-phase flow with a phase-field method. International Journal of Multiphase Flow, 2018, 100, 77-85.	1.6	1
99	Spectral Element Method for the Simulation of Natural Gas Conversion Processes. , 2009, , .		0
100	Modeling of Fractional Diffusion on a Catalytic Particle under Different Flow Conditions. Defect and Diffusion Forum, 0, 323-325, 121-126.	0.4	0
101	Controlling micro-sized droplet generation using electrical pulses for studying liquid-liquid systems. , 2014, , .		0
102	Novel Approach for Modeling the Dynamics of Fiber Breakage in Polymer Matrix Composites during Capillary Extrusion. Advances in Polymer Technology, 2017, 36, 507-516.	0.8	0
103	Special Issue From International Workshop on New Understanding in Nanoscale/Microscale Phase Change Phenomena Held in Trondheim, Norway, June 12â€“16, 2016. Journal of Heat Transfer, 2017, 139, .	1.2	0
104	Experimental validation of pressure drop models during flow boiling of R134a â€“ effect of flow acceleration and entrainment. MATEC Web of Conferences, 2018, 240, 03010.	0.1	0
105	Effect of the Pressure Drop Oscillation on the Local Heat Transfer Coefficient in a Heated Horizontal Pipe. , 2018, , .		0
106	Experimental Investigations On The Momentum Pressure Drop During Flow Boiling Of R134a. Journal of Physics: Conference Series, 2018, 1101, 012022.	0.3	0
107	Experimental Study of Nucleate Flow Boiling to Convective Flow Boiling Transition in a Horizontal Heated Pipe. , 2018, , .		0
108	Does the Criteria of Instability Thresholds During Density Wave Oscillations Need to Be Redefined?. Springer Proceedings in Energy, 2021, , 45-54.	0.2	0

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109	Reconsidering the influence of the mass flux during nucleate flow boiling in a horizontal heated pipe. AIP Advances, 2021, 11, .	0.6	0