Malcolm R Davidson

List of Publications by Year
in descending order

94	2,435	172207	223531
papers	citations	29 h-index	46 g-index

96	96	96	2361
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	An analysis of parasitic current generation in Volume of Fluid simulations. Applied Mathematical Modelling, 2006, 30, 1056-1066.	2.2	146
2	A simple, versatile valve model for use in lumped parameter and oneâ€dimensional cardiovascular models. International Journal for Numerical Methods in Biomedical Engineering, 2012, 28, 626-641.	1.0	136
3	A model for restart of a pipeline with compressible gelled waxy crude oil. Journal of Non-Newtonian Fluid Mechanics, 2004, 123, 269-280.	1.0	97
4	VOLUME-OF-FLUID CALCULATION OF HEAT OR MASS TRANSFER ACROSS DEFORMING INTERFACES IN TWO-FLUID FLOW. Numerical Heat Transfer, Part B: Fundamentals, 2002, 41, 291-308.	0.6	94
5	Evolution of Colloidal Nanocrystals: Theory and Modeling of their Nucleation and Growth. Journal of Physical Chemistry C, 2009, 113, 16342-16355.	1.5	92
6	Modelling oxygen diffusion and cell growth in a porous, vascularising scaffold for soft tissue engineering applications. Chemical Engineering Science, 2005, 60, 4924-4934.	1.9	74
7	The hydrolysis of metal ions. Part 2. Dioxouranium(VI). Journal of the Chemical Society Dalton Transactions, 1979, , 465.	1.1	71
8	A Porous Flow Model for Steady State Transport of Radium in Groundwater. Water Resources Research, 1986, 22, 34-44.	1.7	63
9	A Model Analysis of Arterial Oxygen Desaturation during Apnea in Preterm Infants. PLoS Computational Biology, 2009, 5, e1000588.	1.5	59
10	Spreading of an inviscid drop impacting on a liquid film. Chemical Engineering Science, 2002, 57, 3639-3647.	1.9	57
11	Electroviscous effects in steady fully developed flow of a power-law liquid through a cylindrical microchannel. International Journal of Heat and Fluid Flow, 2009, 30, 804-811.	1.1	54
12	A model for heap bioleaching of chalcocite with heat balance: Mesophiles and moderate thermophiles. Hydrometallurgy, 2007, 85, 24-41.	1.8	53
13	The hydrolysis of metal ions. Part 1. Copper(II). Journal of the Chemical Society Dalton Transactions, 1979, , 232.	1.1	49
14	The reservoir-wave paradigm introduces error into arterial wave analysis. Journal of Hypertension, 2012, 30, 734-743.	0.3	49
15	A theoretical model of absorption of gases by the bronchial wall. Journal of Fluid Mechanics, 1983, 129, 313.	1.4	48
16	SELF-SUSTAINED OSCILLATION OF A SUBMERGED JET IN A THIN RECTANGULAR CAVITY. Journal of Fluids and Structures, 2001, 15, 59-81.	1.5	48
17	Numerical calculations of flow in a hydrocyclone operating without an air core. Applied Mathematical Modelling, 1988, 12, 119-128.	2.2	43
18	Deformation of a viscoelastic droplet passing through a microfluidic contraction. Journal of Non-Newtonian Fluid Mechanics, 2008, 155, 67-79.	1.0	43

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19	Numerical calculations of two-phase flow in a liquid bath with bottom gas injection: The central plume. Applied Mathematical Modelling, 1990, 14, 67-76.	2.2	42
20	A parametric study of droplet deformation through a microfluidic contraction: Low viscosity Newtonian droplets. Chemical Engineering Science, 2006, 61, 5149-5158.	1.9	41
21	Flow patterns in models of small airway units of the lung. Journal of Fluid Mechanics, 1972, 52, 161-177.	1.4	39
22	Electrokinetics of the silica and aqueous electrolyte solution interface: Viscoelectric effects. Advances in Colloid and Interface Science, 2016, 234, 108-131.	7.0	38
23	Electrokinetics of isolated electrified drops. Soft Matter, 2016, 12, 3310-3325.	1.2	37
24	A model for heap bioleaching of chalcocite with heat balance: Bacterial temperature dependence. Minerals Engineering, 2005, 18, 1239-1252.	1.8	36
25	Electroviscous effects in low Reynolds number liquid flow through a slit-like microfluidic contraction. Chemical Engineering Science, 2007, 62, 4229-4240.	1.9	36
26	Pendant drop formation of shear-thinning and yield stress fluids. Applied Mathematical Modelling, 2006, 30, 1392-1405.	2.2	35
27	Computed oscillations of a confined submerged liquid jet. Applied Mathematical Modelling, 1998, 22, 843-850.	2.2	31
28	Concentration gradient focusing and separation in a silica nanofluidic channel with a non-uniform electroosmotic flow. Lab on A Chip, 2014, 14, 3539-3549.	3.1	30
29	Numerical calculation of saturatedâ€unsaturated infiltration in a cracked soil. Water Resources Research, 1985, 21, 709-714.	1.7	29
30	Milk skin formation during drying. Chemical Engineering Science, 2005, 60, 635-646.	1.9	29
31	A Greenâ€Ampt Model of infiltration in a cracked soil. Water Resources Research, 1984, 20, 1685-1690.	1.7	28
32	An adaptive method of predicting the air core diameter for numerical models of hydrocyclone flow. International Journal of Mineral Processing, 1995, 43, 167-177.	2.6	28
33	Viscoelectric Effects in Nanochannel Electrokinetics. Journal of Physical Chemistry C, 2017, 121, 20517-20523.	1.5	28
34	Restart model for a multi-plug gelled waxy oil pipeline. Journal of Petroleum Science and Engineering, 2007, 59, 1-16.	2.1	26
35	Steady flow of ionic liquid through a cylindrical microfluidic contractionâ€“expansion pipe: Electroviscous effects and pressure drop. Chemical Engineering Science, 2008, 63, 3593-3604.	1.9	26
36	Mechanism Underlying Accelerated Arterial Oxygen Desaturation during Recurrent Apnea. American Journal of Respiratory and Critical Care Medicine, 2010, 182, 961-969.	2.5	26

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37	A parametric study of droplet deformation through a microfluidic contraction: Shear thinning liquids. International Journal of Multiphase Flow, 2007, 33, 545-556.	1.6	25
38	Electroviscous effects in a Carreau liquid flowing through a cylindrical microfluidic contraction. Chemical Engineering Science, 2010, 65, 6259-6269.	1.9	24
39	A multiphase electrokinetic flow model for electrolytes with liquid/liquid interfaces. Journal of Computational Physics, 2013, 251, 209-222.	1.9	24
40	Definition of a capture zone for shallow water table lakes. Journal of Hydrology, 1988, 104, 53-76.	2.3	23
41	An air sparging CFD model for heap bioleaching of chalcocite. Applied Mathematical Modelling, 2006, 30, 1428-1444.	2.2	23
42	Boundary integral prediction of the spreading of an inviscid drop impacting on a solid surface. Chemical Engineering Science, 2000, 55, 1159-1170.	1.9	22
43	Stationary Chemical Gradients for Concentration Gradient-Based Separation and Focusing in Nanofluidic Channels. Langmuir, 2014, 30, 5337-5348.	1.6	22
44	Transport of O2 along a model pathway through the respiratory region of the lung. The Bulletin of Mathematical Biophysics, 1974, 36, 275-303.	0.5	21
45	Architecture control of three-dimensional polymeric scaffolds for soft tissue engineering. I. Establishment and validation of numerical models. Journal of Biomedical Materials Research Part B, 2004, 71A, 81-89.	3.0	21
46	The effect of dispersion on the establishment of a paleoclimatic record from groundwater. Journal of Hydrology, 1982, 58, 131-147.	2.3	20
47	Oscillatory Flow in a Physical Model of a Thin Slab Casting Mould With a Bifurcated Submerged Entry Nozzle. Journal of Fluids Engineering, Transactions of the ASME, 2002, 124, 535-543.	0.8	20
48	Similarity solutions for flow in hydrocyclones. Chemical Engineering Science, 1988, 43, 1499-1505.	1.9	19
49	The dissolution of a stationary spherical bubble beneath a flat plate. Chemical Engineering Science, 2006, 61, 7697-7705.	1.9	19
50	Crossflow Characteristics of an Oscillating Jet in a Thin Slab Casting Mould. Journal of Fluids Engineering, Transactions of the ASME, 1999, 121, 588-595.	0.8	18
51	Simulating particle agglomeration in the flash smelting reaction shaft. Minerals Engineering, 2009, 22, 1251-1265.	1.8	17
52	Electrophoretically mediated partial coalescence of a charged microdrop. Chemical Engineering Science, 2017, 169, 273-283.	1.9	17
53	Microfluidic circuit analysis I: Ion current relationships for thin slits and pipes. Journal of Colloid and Interface Science, 2012, 365, 1-15.	5.0	16
54	Interpretation of activity ratios in groundwaters. Chemical Geology: Isotope Geoscience Section, 1985, 58, 83-88.	0.7	15

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55	Asymptotic Behavior of Infiltration in Soils Containing Cracks or Holes. Water Resources Research, 1985, 21, 1345-1353.	1.7	15
56	Isoelectric Focusing in a Silica Nanofluidic Channel: Effects of Electromigration and Electroosmosis. Analytical Chemistry, 2014, 86, 8711-8718.	3.2	15
57	A model investigation of the impact of ventilationâ€“perfusion mismatch on oxygenation during apnea in preterm infants. Journal of Theoretical Biology, 2010, 264, 657-662.	0.8	13
58	Non-linear separation of pressure, velocity and wave intensity into forward and backward components. Medical and Biological Engineering and Computing, 2012, 50, 641-648.	1.6	13
59	A numerical model of neonatal pulmonary atresia with intact ventricular septum and RVâ€dependent coronary flow. International Journal for Numerical Methods in Biomedical Engineering, 2010, 26, 843-861.	1.0	11
60	Natural convection of gas/vapour mixtures in a porous medium. International Journal of Heat and Mass Transfer, 1986, 29, 1371-1381.	2.5	10
61	Microfluidic circuit analysis II: Implications of ion conservation for microchannels connected in series. Journal of Colloid and Interface Science, 2012, 365, 16-27.	5.0	10
62	Further considerations in a theoretical description of gas transport in lung airways. Bulletin of Mathematical Biology, 1981, 43, 517-548.	0.9	8
63	Control of a submerged jet in a thin rectangular cavity. Journal of Fluids and Structures, 2005, 20, 1025-1042.	1.5	8
64	Effect of wall permittivity on electroviscous flow through a contraction. Biomicrofluidics, 2011, 5, 044102.	1.2	8
65	Electrokinetic flow in parallel channels: Circuit modelling for microfluidics and membranes. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2014, 440, 63-73.	2.3	8
66	Lung gas mixing during expiration following an inspiration of air. Bulletin of Mathematical Biology, 1975, 37, 113-126.	0.9	7
67	An Eulerian-Eulerian Model for the Dispersion of a Suspension of Microscopic Particles Injected Into a Quiescent Liquid. Engineering Applications of Computational Fluid Mechanics, 2009, 3, 84-97.	1.5	7
68	Electrokinetic flow in connected channels: a comparison of two circuit models. Microfluidics and Nanofluidics, 2012, 13, 481-490.	1.0	7
69	Simulating the ultrafiltration of whey proteins isolate using a mixture model. Journal of Membrane Science, 2020, 613, 118388.	4.1	7
70	Collapse of a cylinder of Bingham fluid. ANZIAM Journal, 0, 42, 499.	0.0	7
71	Flow in the stagnation zone during submerged injection of a swirling gas jet. Chemical Engineering Science, 1990, 45, 687-694.	1.9	6
72	Robustness of the P-U and lnD-U loop wave speed estimation methods: Effects of the diastolic pressure decay and vessel wall non-linearities. , 2011, 2011, 6446-9.		5

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73	Asymptotic infiltration into a soil which contains cracks or holes but whose surface is otherwise impermeable. Transport in Porous Media, 1987, 2, 165-176.	1.2	4
74	Comparison of two-way coupling models for confined turbulent gasâ€“particle jets in flash smelting. Applied Mathematical Modelling, 1998, 22, 39-55.	2.2	4
75	Dispersion of neutrally buoyant solids falling vertically into stationary liquid and horizontal channel flow. Computers and Fluids, 2000, 29, 369-384.	1.3	4
76	Scaling behavior for gravity induced flow of a yield stress material. Journal of Rheology, 2005, 49, 105-112.	1.3	4
77	Numerical simulation of two-fluid flow of electrolyte solution with charged deforming interfaces. Applied Mathematical Modelling, 2016, 40, 1989-2001.	2.2	4
78	The influence of gas exchange on lung gas concentrations during air breathing. The Bulletin of Mathematical Biophysics, 1977, 39, 73-86.	0.5	3
79	A dynamic model for assessing the impact of diffusing capacity on arterial oxygenation during apnea. Respiratory Physiology and Neurobiology, 2010, 171, 193-200.	0.7	3
80	The reservoir-wave paradigm. Journal of Hypertension, 2012, 30, 1881-1883.	0.3	3
81	Parasitic current generation in Combined Level Set and Volume of Fluid immiscible fluid simulations. ANZIAM Journal, 0, 48, 868.	0.0	3
82	Electrohydrodynamic deformation and interaction of microscale drop pairs. International Journal of Computational Methods and Experimental Measurements, 2016, 4, 33-41.	0.1	3
83	Modelling the dispersion of dissolving spherical particles. Progress in Computational Fluid Dynamics, 2004, 4, 78.	0.1	2
84	Electroviscous flow through nanofluidic junctions. Applied Mathematical Modelling, 2014, 38, 4215-4225.	2.2	2
85	Numerical simulation of the deformation of charged drops of electrolyte. WIT Transactions on Engineering Sciences, 2014, , .	0.0	2
86	Control of an Oscillatory Rectangular Cavity Jet Flow by Secondary Injection. JSME International Journal Series B, 2006, 49, 1105-1110.	0.3	1
87	Simulations of viscoelastic droplet deformation through a microfluidic contraction. WIT Transactions on Engineering Sciences, 2006, , .	0.0	1
88	Fully Developed Flow of Power-Law Fluid Through a Cylindrical Microfluidic Pipe: Pressure Drop and Electroviscous Effects. , 2008, , .		0
89	Mathematical modeling and numerical simulation of wave-front flow on a vertical wall with surfactant effects. Journal of Engineering Mathematics, 2011, 70, 307-320.	0.6	0
90	Electroviscous resistance of nanofluidic bends. Physical Review E, 2014, 90, 043008.	0.8	0

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91	Deformation of a Droplet Passing Through a Contraction. , 2002, , .		0
92	Numerical Modelling of Droplet Deformation in a High-Pressure Homogeniser. , 2002, , .		0
93	CONTROL OF AN OSCILLATORY RECTANGULAR CAVITY JET FLOW BY SECONDARY INJECTION(Cavity Flow and) Tj ETQq1 1 0.784314 gl (ICJWSF), 2005, 2005, 561-565.	0.1	0
94	Modelling Pressure Losses at Arterial Junctions With Application to Junctions of the Fetal Ductus Arteriosus. , 2012, , .		0