Giles Richardson

List of Publications by Year
in descending order

63 papers	2,788 citations	331670 21 h-index	175258 52 g-index
63 all docs	63 docs citations	63 times ranked	4086 citing authors

#	Article	IF	Citations
1	Understanding rapid charge and discharge in nano-structured lithium iron phosphate cathodes. European Journal of Applied Mathematics, 2022, 33, 328-368.	2.9	6
2	Correctly computing targeting efficiency in magnetically targeted delivery from particle tracking models. Journal of Magnetism and Magnetic Materials, 2022, 549, 168960.	2.3	2
3	DandeLiion v1: An Extremely Fast Solver for the Newman Model of Lithium-Ion Battery (Dis)charge. Journal of the Electrochemical Society, 2021, 168, 060544.	2.9	18
4	Illumination Intensity Dependence of the Recombination Mechanism in Mixed Perovskite Solar Cells. ChemPlusChem, 2021, 86, 1347-1356.	2.8	15
5	Heat generation and a conservation law for chemical energy in Li-ion batteries. Electrochimica Acta, 2021, 392, 138909.	5.2	6
6	Parametrisation and Use of a Predictive DFN Model for a High-Energy NCA/Gr-SiOx Battery. Journal of the Electrochemical Society, 2021, 168, 120522.	2.9	13
7	Identification of recombination losses and charge collection efficiency in a perovskite solar cell by comparing impedance response to a drift-diffusion model. Nanoscale, 2020, 12, 17385-17398.	5.6	43
8	Deducing transport properties of mobile vacancies from perovskite solar cell characteristics. Journal of Applied Physics, 2020, 128, .	2.5	25
9	Generalised single particle models for high-rate operation of graded lithium-ion electrodes: Systematic derivation and validation. Electrochimica Acta, 2020, 339, 135862.	5.2	30
10	Vasomotion Drives Periarterial Drainage of AÎ² from the Brain. Neuron, 2020, 105, 400-401.	8.1	18
11	Systematic derivation of a surface polarisation model for planar perovskite solar cells. European Journal of Applied Mathematics, 2019, 30, 427-457.	2.9	22
12	IonMonger: a free and fast planar perovskite solar cell simulator with coupled ion vacancy and charge carrier dynamics. Journal of Computational Electronics, 2019, 18, 1435-1449.	2.5	42
13	How transport layer properties affect perovskite solar cell performance: insights from a coupled charge transport/ion migration model. Energy and Environmental Science, 2019, 12, 396-409.	30.8	184
14	Incorporating Dendrite Growth into Continuum Models of Electrolytes: Insights from NMR Measurements and Inverse Modeling. Journal of the Electrochemical Society, 2019, 166, A1591-A1602.	2.9	17
15	Asymptotic models for transport in large aspect ratio nanopores. European Journal of Applied Mathematics, 2019, 30, 557-584.	2.9	1
16	The Effect of Ionic Aggregates on the Transport of Charged Species in Lithium Electrolyte Solutions. Journal of the Electrochemical Society, 2018, 165, H561-H567.	2.9	15
17	Binder migration during drying of lithium-ion battery electrodes: Modelling and comparison to experiment. Journal of Power Sources, 2018, 393, 177-185.	7.8	108
18	A fast and robust numerical scheme for solving models of charge carrier transport and ion vacancy motion in perovskite solar cells. Applied Mathematical Modelling, 2018, 63, 329-348.	4.2	51

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19	Migration of cations induces reversible performance losses over day/night cycling in perovskite solar cells. Energy and Environmental Science, 2017, 10, 604-613.	30.8	525
20	Derivation and solution of effective medium equations for bulk heterojunction organic solar cells. European Journal of Applied Mathematics, 2017, 28, 973-1014.	2.9	9
21	Causes of binder damage in porous battery electrodes and strategies to prevent it. Journal of Power Sources, 2017, 350, 140-151.	7.8	49
22	Measurement and modelling of dark current decay transients in perovskite solar cells. Journal of Materials Chemistry C, 2017, 5, 452-462.	5.5	64
23	A Mathematical Model for Mechanically-Induced Deterioration of the Binder in Lithium-Ion Electrodes. SIAM Journal on Applied Mathematics, 2017, 77, 2172-2198.	1.8	8
24	Can slow-moving ions explain hysteresis in the currentâ€“voltage curves of perovskite solar cells?. Energy and Environmental Science, 2016, 9, 1476-1485.	30.8	363
25	The Hele-Shaw injection problem for an extremely shear-thinning fluid. European Journal of Applied Mathematics, 2015, 26, 563-594.	2.9	5
26	A Model for Interstitial Drainage Through a Sliding Lymphatic Valve. Bulletin of Mathematical Biology, 2015, 77, 1101-1131.	1.9	11
27	Improving the Long-Term Stability of Perovskite Solar Cells with a Porous Al₂O₃ Buffer Layer. Journal of Physical Chemistry Letters, 2015, 6, 432-437.	4.6	343
28	Modelling in vivo action potential propagation along a giant axon. Journal of Mathematical Biology, 2015, 70, 237-263.	1.9	9
29	A Model for the Operation of Perovskite Based Hybrid Solar Cells: Formulation, Analysis, and Comparison to Experiment. SIAM Journal on Applied Mathematics, 2014, 74, 1935-1966.	1.8	53
30	Asymptotic and numerical prediction of current-voltage curves for an organic bilayer solar cell under varying illumination and comparison to the Shockley equivalent circuit. Journal of Applied Physics, 2013, 114, .	2.5	17
31	A Model for Fluid Drainage by the Lymphatic System. Bulletin of Mathematical Biology, 2013, 75, 49-81.	1.9	10
32	Asymptotic Solution of a Model for Bilayer Organic Diodes and Solar Cells. SIAM Journal on Applied Mathematics, 2012, 72, 1792-1817.	1.8	10
33	The Reversing of Interfaces in Slow Diffusion Processes with Strong Absorption. SIAM Journal on Applied Mathematics, 2012, 72, 144-162.	1.8	7
34	Multiscale modelling and analysis of lithium-ion battery charge and discharge. Journal of Engineering Mathematics, 2012, 72, 41-72.	1.2	69
35	Derivation of the Bidomain Equations for a Beating Heart with a General Microstructure. SIAM Journal on Applied Mathematics, 2011, 71, 657-675.	1.8	39
36	On a biophysical and mathematical model of Pgp-mediated multidrug resistance: understanding the â€œspaceâ€“timeâ€•dimension of MDR. European Biophysics Journal, 2010, 39, 201-211.	2.2	18

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37	Particle trapping by an external body force in the limit of large Peclet number: applications to magnetic targeting in the blood flow. European Journal of Applied Mathematics, 2010, 21, 77-107.	2.9	8
38	An asymptotic analysis of the buckling of a highly shear-resistant vesicle. European Journal of Applied Mathematics, 2009, 20, 479-518.	2.9	4
39	A multiscale approach to modelling electrochemical processes occurring across the cell membrane with application to transmission of action potentials. Mathematical Medicine and Biology, 2009, 26, 201-224.	1.2	18
40	Experimental and theoretical modelling of blind-ended vessels within a developing angiogenic plexus. Microvascular Research, 2008, 76, 161-168.	2.5	17
41	Bond tilting and sliding friction in a model of cell adhesion. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2008, 464, 447-467.	2.1	25
42	Shock formation and non-linear dispersion in a microvascular capillary network. Mathematical Medicine and Biology, 2007, 24, 379-400.	1.2	13
43	The Saffman-Taylor problem for an extremely shear-thinning fluid. Quarterly Journal of Mechanics and Applied Mathematics, 2007, 60, 161-200.	1.3	4
44	Toward a Mathematical Model of the Assembly and Disassembly of Membrane Microdomains: Comparison with Experimental Models. Biophysical Journal, 2007, 92, 4145-4156.	0.5	23
45	Time-dependent modelling and asymptotic analysis of electrochemical cells. Journal of Engineering Mathematics, 2007, 59, 239-275.	1.2	19
46	Bistable nematic liquid crystal device with flexoelectric switching. European Journal of Applied Mathematics, 2006, 17, 435-463.	2.9	9
47	Mathematical modelling of magnetically targeted drug delivery. Journal of Magnetism and Magnetic Materials, 2005, 293, 455-463.	2.3	241
48	Similarity solutions to an averaged model for superconducting vortex motion. European Journal of Applied Mathematics, 2003, 14, 639-675.	2.9	0
49	The evolution of space curves by curvature and torsion. Journal of Physics A, 2002, 35, 9857-9879.	1.6	4
50	Motion by curvature of a three-dimensional filament: similarity solutions. Interfaces and Free Boundaries, 2002, 4, 395-421.	0.8	4
51	Classification of Phase Transitions in Thin Structures with Small Ginzburg--Landau Parameter. SIAM Journal on Applied Mathematics, 2001, 61, 1286-1307.	1.8	3
52	Models of void electromigration. European Journal of Applied Mathematics, 2001, 12, 97-134.	2.9	12
53	Ill-posedness of the mean-field model of superconducting vortices and a possible regularisation. European Journal of Applied Mathematics, 2000, 11, 137-152.	2.9	4
54	Vortex motion in shallow water with varying bottom topography and zero Froude number. Journal of Fluid Mechanics, 2000, 411, 351-374.	3.4	17

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55	Canonical reduced Ginzburgâ€“Landau models. Physica C: Superconductivity and Its Applications, 2000, 332, 289-291.	1.2	0
56	The mixed boundary condition for the Ginzburg Landau model in thin films. Applied Mathematics Letters, 2000, 13, 97-99.	2.7	17
57	A theoretical treatment of void electromigration in the strip geometry. Computational Materials Science, 2000, 17, 279-289.	3.0	2
58	The bifurcation structure of a thin superconducting loop swith small variations in its thickness. Quarterly of Applied Mathematics, 2000, 58, 685-703.	0.7	3
59	Motion and Homogenization of Vortices in Anisotropic Type II Superconductors. SIAM Journal on Applied Mathematics, 1998, 58, 587-606.	1.8	6
60	Long time asymptotics for forced curvature flow with applications to the motion of a superconducting vortex. Nonlinearity, 1997, 10, 655-678.	1.4	16
61	Vortex pinning by inhomogeneities in type-II superconductors. Physica D: Nonlinear Phenomena, 1997, 108, 397-407.	2.8	50
62	Instability of a superconducting line vortex. Physica D: Nonlinear Phenomena, 1997, 110, 139-153.	2.8	6
63	Motion of Vortices in Type II Superconductors. SIAM Journal on Applied Mathematics, 1995, 55, 1275-1296.	1.8	38