

Adrian P Sheppard

List of Publications by Year in descending order

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129
papers

7,629
citations

61857

43
h-index

53109

85
g-index

130
all docs

130
docs citations

130
times ranked

6435
citing authors

#	ARTICLE	IF	CITATIONS
1	X-ray imaging and analysis techniques for quantifying pore-scale structure and processes in subsurface porous medium systems. <i>Advances in Water Resources</i> , 2013, 51, 217-246.	1.7	939
2	Image processing of multiphase images obtained via X-ray microtomography: A review. <i>Water Resources Research</i> , 2014, 50, 3615-3639.	1.7	472
3	Assessment of bone ingrowth into porous biomaterials using MICRO-CT. <i>Biomaterials</i> , 2007, 28, 2491-2504.	5.7	370
4	Techniques for image enhancement and segmentation of tomographic images of porous materials. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 339, 145-151.	1.2	356
5	The correlation of pore morphology, interconnectivity and physical properties of 3D ceramic scaffolds with bone ingrowth. <i>Biomaterials</i> , 2009, 30, 1440-1451.	5.7	297
6	Morphological clues to wet granular pile stability. <i>Nature Materials</i> , 2008, 7, 189-193.	13.3	288
7	Polarized dark solitons in isotropic Kerr media. <i>Physical Review E</i> , 1997, 55, 4773-4782.	0.8	197
8	Pore Scale Characterization of Carbonates Using X-Ray Microtomography. <i>SPE Journal</i> , 2005, 10, 475-484.	1.7	194
9	Effect of fluid topology on residual nonwetting phase trapping: Implications for geologic CO ₂ sequestration. <i>Advances in Water Resources</i> , 2013, 62, 47-58.	1.7	185
10	Theory and Algorithms for Constructing Discrete Morse Complexes from Grayscale Digital Images. <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , 2011, 33, 1646-1658.	9.7	182
11	Analysis of 3D bone ingrowth into polymer scaffolds via micro-computed tomography imaging. <i>Biomaterials</i> , 2004, 25, 4947-4954.	5.7	162
12	Developing a virtual materials laboratory. <i>Materials Today</i> , 2007, 10, 44-51.	8.3	160
13	The effect of displacement rate on imbibition relative permeability and residual saturation. <i>Journal of Petroleum Science and Engineering</i> , 2006, 52, 54-70.	2.1	134
14	Robust Pore Size Analysis of Filamentous Networks from Three-Dimensional Confocal Microscopy. <i>Biophysical Journal</i> , 2008, 95, 6072-6080.	0.2	131
15	Pore network modelling of two-phase flow in porous rock: the effect of correlated heterogeneity. <i>Advances in Water Resources</i> , 2001, 24, 257-277.	1.7	130
16	Invasion percolation: new algorithms and universality classes. <i>Journal of Physics A</i> , 1999, 32, L521-L529.	1.6	121
17	Techniques in helical scanning, dynamic imaging and image segmentation for improved quantitative analysis with X-ray micro-CT. <i>Nuclear Instruments & Methods in Physics Research B</i> , 2014, 324, 49-56.	0.6	121
18	Digital rock physics: 3D imaging of core material and correlations to acoustic and flow properties. <i>The Leading Edge</i> , 2009, 28, 28-33.	0.4	119

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19	Collisions, steering, and guidance with spatial solitons. <i>Optics Letters</i> , 1993, 18, 482.	1.7	113
20	Stable topological spatial solitons in optical parametric oscillators. <i>Optics Letters</i> , 1997, 22, 970.	1.7	112
21	Title is missing!. <i>Transport in Porous Media</i> , 2002, 46, 345-371.	1.2	101
22	Skeletonization and Partitioning of Digital Images Using Discrete Morse Theory. <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> , 2015, 37, 654-666.	9.7	100
23	Bifurcation phenomena and multiple soliton-bound states in isotropic Kerr media. <i>Physical Review E</i> , 1994, 49, 3376-3381.	0.8	91
24	Three-dimensional imaging of multiphase flow in porous media. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 339, 166-172.	1.2	89
25	Effect of Network Topology on Relative Permeability. <i>Transport in Porous Media</i> , 2004, 55, 21-46.	1.2	86
26	Efficiently engineering pore-scale processes: The role of force dominance and topology during nonwetting phase trapping in porous media. <i>Advances in Water Resources</i> , 2015, 79, 91-102.	1.7	84
27	Reliable automatic alignment of tomographic projection data by passive auto-focus. <i>Medical Physics</i> , 2011, 38, 4934-4945.	1.6	82
28	High-resolution helical cone-beam micro-CT with theoretically-exact reconstruction from experimental data. <i>Medical Physics</i> , 2011, 38, 5459-5476.	1.6	81
29	Bound-vector solitary waves in isotropic nonlinear dispersive media. <i>Optics Letters</i> , 1993, 18, 1406.	1.7	78
30	Invasion percolation with long-range correlations: First-order phase transition and nonuniversal scaling properties. <i>Physical Review E</i> , 2000, 61, 4920-4934.	0.8	78
31	Structure and deformation correlation of closed-cell aluminium foam subject to uniaxial compression. <i>Acta Materialia</i> , 2012, 60, 3604-3615.	3.8	78
32	Polarization domain walls in diffractive or dispersive Kerr media. <i>Optics Letters</i> , 1994, 19, 96.	1.7	75
33	Liquid distribution and cohesion in wet granular assemblies beyond the capillary bridge regime. <i>Journal of Physics Condensed Matter</i> , 2008, 20, 494236.	0.7	71
34	Mapping forces in a 3D elastic assembly of grains. <i>Journal of the Mechanics and Physics of Solids</i> , 2012, 60, 55-66.	2.3	65
35	Imaging of metallic foams using X-ray micro-CT. <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> , 2009, 344, 107-112.	2.3	63
36	Relative permeability from tomographic images; effect of correlated heterogeneity. <i>Journal of Petroleum Science and Engineering</i> , 2003, 39, 247-259.	2.1	54

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37	Imaged-based multiscale network modelling of microporosity in carbonates. Geological Society Special Publication, 2015, 406, 95-113.	0.8	54
38	Impact of wettability alteration on 3D nonwetting phase trapping and transport. International Journal of Greenhouse Gas Control, 2016, 46, 175-186.	2.3	54
39	Simulation of mercury porosimetry on correlated grids: Evidence for extended correlated heterogeneity at the pore scale in rocks. Physical Review E, 1998, 58, R6923-R6926.	0.8	48
40	Elastic and transport properties of cellular solids derived from three-dimensional tomographic images. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2006, 462, 2833-2862.	1.0	48
41	Vector soliton associated with polarization modulational instability in the normal-dispersion regime. Physical Review E, 1994, 49, 3389-3399.	0.8	47
42	Percolating length scales from topological persistence analysis of micro-CT images of porous materials. Water Resources Research, 2016, 52, 315-329.	1.7	45
43	Flow rate impacts on capillary pressure and interface curvature of connected and disconnected fluid phases during multiphase flow in sandstone. Advances in Water Resources, 2017, 107, 460-469.	1.7	45
44	Space-Filling X-Ray Source Trajectories for Efficient Scanning in Large-Angle Cone-Beam Computed Tomography. IEEE Transactions on Computational Imaging, 2018, 4, 447-458.	2.6	45
45	Bimodal counterpropagating spatial solitary-waves. Optics Communications, 1993, 103, 145-152.	1.0	44
46	The effects of manufacturing parameters on geometrical and mechanical properties of copper foams produced by space holder technique. Materials & Design, 2014, 53, 681-690.	5.1	44
47	Dynamic tomography with a priori information. Applied Optics, 2011, 50, 3685.	2.1	43
48	Geometrical Frustration in Amorphous and Partially Crystallized Packings of Spheres. Physical Review Letters, 2013, 111, 148001.	2.9	43
49	Topological Persistence for Relating Microstructure and Capillary Fluid Trapping in Sandstones. Water Resources Research, 2019, 55, 555-573.	1.7	43
50	Digital Core Laboratory: Properties of reservoir core derived from 3D images. , 2004, , .		42
51	On the challenges of measuring interfacial characteristics of three-phase fluid flow with x-ray microtomography. Journal of Microscopy, 2014, 253, 171-182.	0.8	38
52	Bifurcations of the dark soliton and polarization domain walls in nonlinear dispersive media. Physical Review E, 1994, 49, 4512-4518.	0.8	36
53	Local diffusion coefficient measurements in shale using dynamic micro-computed tomography. Fuel, 2017, 207, 312-322.	3.4	35
54	Characterizing saline uptake and salt distributions in porous limestone with neutron radiography and X-ray micro-tomography. Journal of Building Physics, 2013, 36, 353-374.	1.2	34

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55	Remobilization of Residual Non-Aqueous Phase Liquid in Porous Media by Freeze-Thaw Cycles. Environmental Science & Technology, 2011, 45, 3473-3478.	4.6	33
56	Nonparaxiality stabilizes three-dimensional soliton beams in Kerr media. Optics Letters, 1998, 23, 1820.	1.7	31
57	Three-dimensional analysis of cortical bone structure using X-ray micro-computed tomography. Physica A: Statistical Mechanics and Its Applications, 2004, 339, 125-130.	1.2	31
58	The elliptically polarized fundamental vector soliton of isotropic Kerr media. Physics Letters, Section A: General, Atomic and Solid State Physics, 1994, 194, 191-196.	0.9	30
59	Nonuniversality of invasion percolation in two-dimensional systems. Physical Review E, 2002, 65, 035101.	0.8	30
60	Extending reference scan drift correction to high-magnification high-cone-angle tomography. Optics Letters, 2011, 36, 4809.	1.7	29
61	Standing localized modes in nonlinear lattices. Physical Review E, 1994, 50, 3161-3170.	0.8	28
62	Polarization-domain solitary waves of circular symmetry in Kerr media. Optics Letters, 1994, 19, 859.	1.7	26
63	Observations of nonwetting phase snap-off during drainage. Advances in Water Resources, 2018, 121, 32-43.	1.7	25
64	Automated registration for augmenting micro-CT 3D images. ANZIAM Journal, 0, 50, 534.	0.0	24
65	Time-Lapsed Visualization and Characterization of Shale Diffusion Properties Using 4D X-ray Microcomputed Tomography. Energy & Fuels, 2018, 32, 2889-2900.	2.5	23
66	Extended modulational instability and new type of solitary wave in coupled nonlinear Schrödinger equations. Physics Letters, Section A: General, Atomic and Solid State Physics, 1994, 185, 265-272.	0.9	22
67	Title is missing!. Transport in Porous Media, 2001, 44, 465-485.	1.2	20
68	Virtual Materials Design: Properties of Cellular Solids Derived from 3D Tomographic Images. Advanced Engineering Materials, 2005, 7, 238-243.	1.6	20
69	Multi-resolution radiograph alignment for motion correction in x-ray micro-tomography. , 2016, , .		20
70	Effect of network topology on two-phase imbibition relative permeability. Transport in Porous Media, 2007, 66, 481-493.	1.2	19
71	Mapping permeability in low-resolution micro-CT images: A multiscale statistical approach. Water Resources Research, 2016, 52, 4377-4398.	1.7	19
72	Devices written by colliding spatial solitons: a coupled mode theory approach. Optics Communications, 1993, 102, 317-323.	1.0	18

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73	Polymeric foam properties derived from 3D images. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2004, 339, 131-136.	1.2	17
74	Reprojection Alignment for Trajectory Perturbation Estimation in Microtomography. <i>IEEE Transactions on Computational Imaging</i> , 2018, 4, 271-283.	2.6	16
75	An x-ray tomography facility for quantitative prediction of mechanical and transport properties in geological, biological, and synthetic systems. , 2004, , .		15
76	A statistical analysis of the effects of pressure, temperature and salinity on contact angles in CO ₂ brine-quartz systems. <i>International Journal of Greenhouse Gas Control</i> , 2015, 42, 516-524.	2.3	15
77	PETROPHYSICAL PROPERTIES DERIVED FROM X-RAY CT IMAGES. <i>APPEA Journal</i> , 2003, 43, 577.	0.4	15
78	Trapping thresholds in invasion percolation. <i>Physical Review E</i> , 2002, 66, 056122.	0.8	14
79	Digital core analysis: Improved connectivity and permeability characterization of thin sandstone layers in heterolithic rocks. <i>Marine and Petroleum Geology</i> , 2020, 120, 104549.	1.5	14
80	Effect of Saturation and Image Resolution on Representative Elementary Volume and Topological Quantification: An Experimental Study on Bentheimer Sandstone Using Micro-CT. <i>Transport in Porous Media</i> , 2021, 137, 489-518.	1.2	13
81	Morse theory and persistent homology for topological analysis of 3D images of complex materials. , 2014, , .		12
82	Linear iterative near-field phase retrieval (LIPR) for dual-energy x-ray imaging and material discrimination. <i>Journal of the Optical Society of America A: Optics and Image Science, and Vision</i> , 2018, 35, A30.	0.8	11
83	Cancelling soliton interaction in singlemode optical fibres. <i>Electronics Letters</i> , 1993, 29, 1176.	0.5	10
84	Linear elastic properties of granular rocks derived from X-ray CT images. , 2007, , .		10
85	Polarization instability, multistability and transverse localized structures in Kerr media. <i>Chaos, Solitons and Fractals</i> , 1994, 4, 1731-1743.	2.5	9
86	Volume Conservation of the Intermediate Phase in Three-Phase Pore-Network Models. <i>Transport in Porous Media</i> , 2005, 59, 155-173.	1.2	9
87	3D Imaging of Reservoir Core at Multiple Scales; Correlations to Petrophysical Properties and Pore Scale Fluid Distributions. , 2008, , .		9
88	Rapidly converging multigrid reconstruction of cone-beam tomographic data. <i>Proceedings of SPIE</i> , 2016, , .	0.8	9
89	What is the Characteristic Length Scale for Permeability? Direct Analysis From Microtomographic Data. , 2005, , .		8
90	An auto-focus method for generating sharp 3D tomographic images. , 2010, , .		8

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91	Considerations for high-magnification high-cone-angle helical micro-CT. Proceedings of SPIE, 2012, , .	0.8	8
92	Bayesian approach to time-resolved tomography. Optics Express, 2015, 23, 20062.	1.7	8
93	Micro-CT facility for imaging reservoir rocks at pore scales. , 2003, , .		8
94	Fast high-resolution micro-CT with exact reconstruction methods. Proceedings of SPIE, 2010, , .	0.8	7
95	The Effect of Microporosity on Transport Properties in Tight Reservoirs. , 2011, , .		7
96	3D X-Ray Source Deblurring in High Cone-Angle Micro-CT. IEEE Transactions on Nuclear Science, 2015, 62, 2075-2084.	1.2	7
97	Quantitative properties of complex porous materials calculated from x-ray CT images. , 2006, , .		6
98	X-ray attenuation models to account for beam hardening in computed tomography. Applied Optics, 2020, 59, 9126.	0.9	6
99	Dynamic Micro-CT Imaging of Diffusion in Unconventionals. , 2015, , .		5
100	Virtual core laboratory: Properties of reservoir rock derived from X-ray CT images. , 2003, , .		4
101	Experimental Verification of Effect of Size on Drainage Capillary Pressure Computed from Digitized Tomographic Images. International Journal of Engineering Research in Africa, 0, 1, 1-10.	0.7	4
102	PI-Line Difference for Alignment and Motion-Correction of Cone-Beam Helical-Trajectory Micro-Tomography Data. IEEE Transactions on Computational Imaging, 2020, 6, 24-33.	2.6	4
103	Digital core analysis: Characterizing reservoir quality through thin sandstone layers in heterolithic rocks. Journal of Applied Geophysics, 2020, 182, 104178.	0.9	4
104	An adaptive volumetric flux boundary condition for lattice Boltzmann methods. Computers and Fluids, 2020, 210, 104670.	1.3	4
105	Discretization limits of lattice Boltzmann methods for studying immiscible two-phase flow in porous media. International Journal for Numerical Methods in Fluids, 2020, 92, 1162-1197.	0.9	4
106	Ground-truth verification of dynamic x-ray micro-tomography images of fluid displacement. , 2012, , .		3
107	3D mapping of deformation in an unconsolidated sand: A micro mechanical study. , 2012, , .		3
108	Improving dynamic tomography, through Maximum a posteriori estimation. Proceedings of SPIE, 2014, , .	0.8	3

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109	High cone-angle x-ray computed micro-tomography with 186 GigaVoxel datasets. , 2016, , .		3
110	Elastic and flow properties of carbonate core derived from 3D X rayâ€CT images. , 2008, , .		2
111	Micro-Petrophysical Experiments Via Tomography and Simulation. , 2013, , 238-253.		2
112	Grain-based characterisation and acoustic wave propagation in a sand packing subject to triaxial compression. AIP Conference Proceedings, 2013, , .	0.3	2
113	Crystallisation in a granular material. , 2013, , .		2
114	Optimized x-ray source scanning trajectories for iterative reconstruction in high cone-angle tomography. Proceedings of SPIE, 2016, , .	0.8	2
115	Geometric Alignment Of Cone-Beam Helical-Trajectory Micro-Tomography Data Using a PI-Line Difference Metric. Microscopy and Microanalysis, 2018, 24, 150-151.	0.2	2
116	Domain walls of linear polarization in isotropic Kerr media. Optics Communications, 1997, 141, 167-172.	1.0	1
117	X-Ray Micro-Tomography Applications Of Relevance To The Petroleum Industry. AIP Conference Proceedings, 2007, , .	0.3	1
118	Tomographic image analysis and processing to simulate micro-petrophysical experiments. , 2010, , .		1
119	Dual-energy iterative reconstruction for material characterisation. Proceedings of SPIE, 2014, , .	0.8	1
120	Improving spatial-resolution in high cone-angle micro-CT by source deblurring. , 2014, , .		1
121	Imaging Mean Energy of X-ray Spectra through Intensity Variation in Radiographs with an Example Application to Beam Hardening Correction.. Microscopy and Microanalysis, 2018, 24, 112-113.	0.2	1
122	Techniques for high-fidelity X-ray micro-tomography of additively manufactured metal components. Nondestructive Testing and Evaluation, 2020, 35, 241-251.	1.1	1
123	The vector soliton associated with polarization modulational instability in the normal dispersion regime. , 0, , .		0
124	Wavelength domains in bulk Kerr media. , 0, , .		0
125	Iterative reconstruction optimisations for high angle cone-beam micro-CT. Proceedings of SPIE, 2014, , .	0.8	0
126	Correction of beam hardening artefacts in microtomography for samples imaged in containers. , 2014, , .		0

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127	Density estimation in XCT using the Alvarez-Macovski model. , 2021, , .		0
128	NRZ Soliton Transmission Scheme. Solid-state Science and Technology Library, 1996, , 37-52.	0.3	0
129	Spectral information from photon statistics in x-ray radiography and computed tomography. Physical Review A, 2022, 106, .	1.0	0