

Erik Hans Saenger

List of Publications by Year in descending order

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148
papers

4,347
citations

136940

32
h-index

110368

64
g-index

174
all docs

174
docs citations

174
times ranked

2375
citing authors

#	ARTICLE	IF	CITATIONS
1	Ultrasonic prediction of crack density using machine learning: A numerical investigation. <i>Geoscience Frontiers</i> , 2022, 13, 101277.	8.4	5
2	Computing wave velocity of rock sample using rock chips and cuttings. <i>Journal of Petroleum Science and Engineering</i> , 2022, 209, 109849.	4.2	4
3	Digital rock physics: Defining the reservoir properties on drill cuttings. <i>Journal of Petroleum Science and Engineering</i> , 2022, 210, 110063.	4.2	8
4	Integrated Stress Field Estimation and Implications for Enhanced Geothermal System Development in Acoculco, Mexico. <i>Geothermics</i> , 2021, 89, 101931.	3.4	16
5	Characterization of discontinuities in potential reservoir rocks for geothermal applications in the Rhine-Ruhr metropolitan area (Germany). <i>Solid Earth</i> , 2021, 12, 35-58.	2.8	15
6	Low-Frequency Elastic Properties of a Polymineralic Carbonate: Laboratory Measurement and Digital Rock Physics. <i>Frontiers in Earth Science</i> , 2021, 9, .	1.8	0
7	Determination of the time-dependent moment tensor using time reverse imaging. <i>Geophysics</i> , 2021, 86, KS63-KS77.	2.6	7
8	Attenuation of Seismic Waves in Partially Saturated Berea Sandstone as a Function of Frequency and Confining Pressure. <i>Frontiers in Earth Science</i> , 2021, 9, .	1.8	6
9	Digital Rock Physics: A Geological Driven Workflow for the Segmentation of Anisotropic Ruhr Sandstone. <i>Frontiers in Earth Science</i> , 2021, 9, .	1.8	11
10	Validation suite for numerical solvers calculating effective thermal conductivity in porous media. <i>Journal of Applied Geophysics</i> , 2021, 189, 104323.	2.1	4
11	Single-Station Coda Wave Interferometry: A Feasibility Study Using Machine Learning. <i>Materials</i> , 2021, 14, 3451.	2.9	4
12	Elastic-Electrical Rock-Physics Template for the Characterization of Tight-Oil Reservoir Rocks. <i>Lithosphere</i> , 2021, 2021, .	1.4	10
13	Sensitivity of Ultrasonic Coda Wave Interferometry to Material Damage—Observations from a Virtual Concrete Lab. <i>Materials</i> , 2021, 14, 4033.	2.9	5
14	Numerical Simulation-Based Damage Identification in Concrete. <i>Modelling</i> , 2021, 2, 355-369.	1.4	5
15	Temperature and strain-rate dependence of brittle rock deformation: Experimental study on Mohr-Coulomb's failure criterion and Byerlee's law for a low-porosity sandstone. , 2021, , .		0
16	In Situ Stress State of the Ruhr Region (Germany) and Its Implications for Permeability Anisotropy. <i>Rock Mechanics and Rock Engineering</i> , 2021, 54, 6649-6663.	5.4	4
17	Damage identification in concrete using multiscale computational modeling and convolutional neural networks. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021, 21, .	0.2	0
18	Coal Cleat/Fracture Segmentation Using Convolutional Neural Networks. <i>Natural Resources Research</i> , 2020, 29, 1675-1685.	4.7	39

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19	Computing heterogeneous core sample velocity using Digital Rock Physics: A multiscale approach. <i>Computers and Geosciences</i> , 2020, 135, 104378.	4.2	21
20	Imaging the Deep Structures of Los Humeros Geothermal Field, Mexico, Using Three-Component Seismic Noise Beamforming. <i>Seismological Research Letters</i> , 2020, 91, 3269-3277.	1.9	7
21	Digital rock physics and laboratory considerations on a high-porosity volcanic rock. <i>Scientific Reports</i> , 2020, 10, 5840.	3.3	23
22	Guided ultrasonic wavefield cross-correlation with a curved array for high-resolution plate inspection. <i>Journal of Geophysics and Engineering</i> , 2020, 17, 451-462.	1.4	4
23	Sensitivity maps for time-reverse imaging: an accuracy study for the Los Humeros Geothermal Field (Mexico). <i>Geophysical Journal International</i> , 2020, 222, 231-246.	2.4	4
24	Estimation of crack porosity in deep carbonate reservoirs based on attenuation rock physics templates. , 2020, , .		0
25	Fracture Unclogging: A Numerical Study of Seismically Induced Viscous Shear Stresses in Fluid-Saturated Fractured Rocks. <i>Journal of Geophysical Research: Solid Earth</i> , 2019, 124, 11705-11727.	3.4	19
26	Hydromechanical phenomena at the pore scale and their upscaling – Introduction. <i>Geophysics</i> , 2019, 84, WA1-WA11.	2.6	0
27	Rock compressibility from microcomputed tomography images: Controls on digital rock simulations. <i>Geophysics</i> , 2019, 84, WA127-WA139.	2.6	20
28	Three-component ambient noise beamforming in the Parkfield area. <i>Geophysical Journal International</i> , 2018, 213, 1478-1491.	2.4	32
29	Application of alternative digital rock physics methods in a real case study: a challenge between clean and cemented samples. <i>Geophysical Prospecting</i> , 2018, 66, 767-783.	1.9	10
30	Estimating 3D elastic moduli of rock from 2D thin-section images using differential effective medium theory. <i>Geophysics</i> , 2018, 83, MR211-MR219.	2.6	25
31	Obtaining reliable source locations with time reverse imaging: limits to array design, velocity models and signal-to-noise ratios. <i>Solid Earth</i> , 2018, 9, 1487-1505.	2.8	11
32	Squirt flow due to interfacial water films in hydrate bearing sediments. <i>Solid Earth</i> , 2018, 9, 699-711.	2.8	13
33	Defect mapping in pipes by ultrasonic wavefield cross-correlation: A synthetic verification. <i>Ultrasonics</i> , 2018, 90, 153-165.	3.9	27
34	Forced oscillation measurements of seismic attenuation in fluid saturated sandstone. <i>Acta Geophysica</i> , 2017, 65, 165-172.	2.0	2
35	Numerical simulations of passing seismic waves at the Larderello-Travale Geothermal Field, Italy. <i>Geophysical Research Letters</i> , 2017, 44, 5418-5426.	4.0	6
36	Regional earthquakes followed by delayed ground uplifts at Campi Flegrei Caldera, Italy: Arguments for a causal link. <i>Earth and Planetary Science Letters</i> , 2017, 474, 436-446.	4.4	13

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37	Influence of stress and strain loading conditions on elastic and sonic properties of digital rocks. , 2017, , .		5
38	Carbonate Rocks: A case Study to Evaluate Rock Properties Using Digital Rock Physics. , 2017, , .		0
39	Digital carbonate rock physics. Solid Earth, 2016, 7, 1185-1197.	2.8	30
40	On the path to the digital rock physics of gas hydrate-bearing sediments â€“ processing of in situ synchrotron-tomography data. Solid Earth, 2016, 7, 1243-1258.	2.8	56
41	Analysis of high-resolution X-ray computed tomography images of Bentheim sandstone under elevated confining pressures. Geophysical Prospecting, 2016, 64, 848-859.	1.9	48
42	Digital Rock Physics: A case study of carbonate rocks. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 399-400.	0.2	0
43	Time reverse modeling of acoustic emissions in a reinforced concrete beam. Ultrasonics, 2016, 65, 96-104.	3.9	46
44	Microstructure of hydrate-bearing sediments and determination of P-wave velocities based on high-resolution synchrotron tomographic data. , 2015, , .		3
45	Laboratory-based seismic attenuation in Fontainebleau sandstone: Evidence of squirt flow. Journal of Geophysical Research: Solid Earth, 2015, 120, 7526-7535.	3.4	54
46	On effective elastic properties derived from CT-data. , 2015, , .		0
47	Seismic Attenuation in Fontainebleau Sandstone Saturated with High-viscosity Fluids. , 2015, , .		0
48	Laboratory-based seismic attenuation in Fontainebleau sandstone: Evidence of squirt flow. , 2015, , .		0
49	Towards a Representative Rock Model from a Micro-CT Image. , 2014, , .		1
50	Digital carbonate rock physics. , 2014, , .		2
51	Frequency-dependent seismic attenuation in shales: experimental results and theoretical analysis. Geophysical Journal International, 2014, 198, 504-515.	2.4	53
52	Numerical support of laboratory experiments: Attenuation and velocity estimations. Acta Geophysica, 2014, 62, 1-11.	2.0	9
53	An overview of laboratory apparatuses to measure seismic attenuation in reservoir rocks. Geophysical Prospecting, 2014, 62, 1211-1223.	1.9	53
54	Seismic attenuation in partially saturated rocks: Recent advances and future directions. The Leading Edge, 2014, 33, 640-646.	0.7	28

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55	Rayleigh and Love wave anisotropy in Southern California using seismic noise. Geophysical Research Letters, 2014, 41, 363-369.	4.0	5
56	Numerical Estimation of Carbonate Properties Using a Digital Rock Physics Workflow. , 2014, , .		0
57	Lusi mud eruption triggered by geometric focusing of seismic waves. Nature Geoscience, 2013, 6, 642-646.	12.9	73
58	Numerical simulation of ambient seismic wavefield modification caused by pore-fluid effects in an oil reservoir. Geophysics, 2013, 78, T41-T52.	2.6	14
59	Digital rock physics benchmarksâ€”Part I: Imaging and segmentation. Computers and Geosciences, 2013, 50, 25-32.	4.2	493
60	Digital rock physics benchmarksâ€”part II: Computing effective properties. Computers and Geosciences, 2013, 50, 33-43.	4.2	442
61	Synchrotron-based X-ray tomographic microscopy for rock physics investigations. Geophysics, 2013, 78, D53-D64.	2.6	88
62	Timeâ€”lapse analysis of ambient surface wave anisotropy: A threeâ€”component array study above an underground gas storage. Journal of Geophysical Research: Solid Earth, 2013, 118, 5339-5351.	3.4	31
63	Synchrotron-based X-ray tomographic images and segmentation techniques to account for effects of grain contacts and micro-cracks on rock properties. , 2013, , .		1
64	Synchrotron-based X-ray tomographic images: Raw data, segmentation techniques, and their influence on estimated rock properties. , 2013, , .		0
65	Digital Rock Physics: Poroelastic Signature of Permeability and Tortuosity. , 2013, , .		0
66	A statistical strategy for ambient seismic wavefield analysis: investigating correlations to a hydrocarbon reservoir. Geophysical Journal International, 2013, 192, 148-162.	2.4	10
67	Numerical analysis of wave propagation in fluid-filled deformable tubes. Proceedings in Applied Mathematics and Mechanics, 2013, 13, 329-330.	0.2	0
68	Laboratory apparatuses for measuring seismic attenuation in fluid-saturated rocks. , 2013, , .		0
69	Time Reverse Modeling Versus Automatic Onset Detection: A Study on the Localization of Acoustic Emissions in Reinforced Concrete. RILEM Bookseries, 2013, , 45-50.	0.4	2
70	Seismic wave attenuation for partially saturated sandstone as a function of confining pressure. , 2013, , .		7
71	On the Effect of Image Enhancement Techniques on Digital Rock Physics Results. , 2013, , .		1
72	Pore fluid effects on S-wave attenuation caused by wave-induced fluid flow. Geophysics, 2012, 77, L13-L23.	2.6	55

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73	Microscale Investigations of Highfrequency Wave Propagation Through Highly Porous Media. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 555-556.	0.2	1
74	Digital material laboratory: Wave propagation effects in open-cell aluminium foams. International Journal of Engineering Science, 2012, 58, 115-123.	5.0	7
75	Comparison of 2D and 3D time-reverse imagingâ€”A numerical case study. Computers and Geosciences, 2012, 46, 174-182.	4.2	6
76	Digital rock physics: numerical prediction of pressure-dependent ultrasonic velocities using micro-CT imaging. Geophysical Journal International, 2012, 189, 1475-1482.	2.4	134
77	Integrated Numerical and Laboratory Rock Physics Applied to Seismic Characterization of Reservoir Rocks. , 2012, , .		0
78	Numerical support of laboratory experiments: Attenuation and velocity estimations. , 2012, , .		0
79	Integrated numerical and laboratory rock physics applied to seismic characterization of reservoir rocks. The Leading Edge, 2011, 30, 1360-1367.	0.7	17
80	Comment on â€œA comparison of the dispersion relations for anisotropic elastodynamic finite-difference gridsâ€•(H. Bernth and C. Chapman, 2011, <scp>Geophysics</scp>, 76, no. 3, WA43â€”WA50). Geophysics, 2011, 76, X1-X1.	2.6	2
81	Time-reverse imaging with limited S-wave velocity model information. Geophysics, 2011, 76, MA33-MA40.	2.6	8
82	Low frequency measurements of seismic wave attenuation in Berea sandstone. , 2011, , .		1
83	Viscosity scaling of wave attenuation mechanisms in porous rocks: Theory and numerical simulations. , 2011, , .		0
84	Digital rock physics: Numerical vs. laboratory measurements. , 2011, , .		4
85	Analyzing passive seismic attributes: A statistical strategy. , 2011, , .		0
86	Further developments in measurement of lowâ€”frequency seismic attenuation in laboratory. , 2011, , .		0
87	Time reverse characterization of sources in heterogeneous media. NDT and E International, 2011, 44, 751-759.	3.7	36
88	Crack localization in a double-punched concrete cuboid with time reverse modeling of acoustic emissions. International Journal of Fracture, 2011, 171, 1-10.	2.2	16
89	Application of time reverse modeling on ultrasonic non-destructive testing of concrete. Applied Mathematical Modelling, 2011, 35, 807-816.	4.2	46
90	Spectral analysis of ambient ground-motionâ€”Noise reduction techniques and a methodology for mapping horizontal inhomogeneity. Journal of Applied Geophysics, 2011, 74, 100-113.	2.1	10

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91	Digital rock physics: Effect of fluid viscosity on effective elastic properties. Journal of Applied Geophysics, 2011, 74, 236-241.	2.1	98
92	Elastic wave propagation in a segmented X-ray computed tomography model of a concrete specimen. Construction and Building Materials, 2010, 24, 2393-2400.	7.2	35
93	Reply to comment on "Low-frequency microtremor anomalies at an oil and gas field in Voitsdorf, Austria" by Marc-André Lambert, Stefan M. Schmalholz, Erik H. Saenger and Brian Steiner, Geophysical Prospecting 57, 393-411. Geophysical Prospecting, 2010, 58, 341-346.	1.9	4
94	Comparison of 2D and 3D time reverse modeling for tremor source localization. , 2010, , .		2
95	Time Reverse Characterization of Sources in 2D and 3D Heterogeneous Media. , 2010, , .		1
96	Using Spectral Attributes to Detect Seismic Tremor Sources - A Synthetic Study. , 2010, , .		0
97	Temperature-dependent poroelastic and viscoelastic effects on microscale-modelling of seismic reflections in heavy oil reservoirs. Geophysical Journal International, 2009, 176, 822-832.	2.4	9
98	Low-frequency microtremor anomalies at an oil and gas field in Voitsdorf, Austria. Geophysical Prospecting, 2009, 57, 393-411.	1.9	50
99	A passive seismic survey over a gas field: Analysis of low-frequency anomalies. Geophysics, 2009, 74, O29-O40.	2.6	80
100	Preliminary Model of Hydrocarbon Reservoir Related Microtremors and Recent Application in the Potiguar Basin. , 2009, , .		0
101	Conceptual model of hydrocarbon reservoir related microtremors. , 2009, , .		2
102	Computational determination of effective properties of rocks using 3D tomographic images. , 2009, , .		1
103	Using spectral attributes to detect seismic tremor sources " a synthetic study. , 2009, , .		0
104	Numerical methods to determine effective elastic properties. International Journal of Engineering Science, 2008, 46, 598-605.	5.0	65
105	Time reverse modeling of low-frequency microtremors: Application to hydrocarbon reservoir localization. Geophysical Research Letters, 2008, 35, .	4.0	92
106	Comparison of finite difference and finite element methods for simulating two-dimensional scattering of elastic waves. Physics of the Earth and Planetary Interiors, 2008, 171, 112-121.	1.9	48
107	Finite-difference modeling of wave propagation on microscale: A snapshot of the work in progress. Geophysics, 2007, 72, SM293-SM300.	2.6	43
108	A hydrocarbon microtremor survey over a gas field: Identification of seismic attributes. , 2007, , .		12

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109	Time-reverse modeling of microtremors: A potential method for hydrocarbon reservoir localization. , 2007, , .		5
110	Attenuation of P-waves due to interlayer fluid flow in hydrate-bearing sediments. Journal of Geophysics and Engineering, 2007, 4, 394-403.	1.4	9
111	Low-frequency anomalies in spectral ratios of single-station microtremor measurements: Observations across an oil and gas field in Austria. , 2007, , .		14
112	Leaky mode: A mechanism of horizontal seismic attenuation in a gas-hydrate-bearing sediment. Geophysics, 2007, 72, E159-E163.	2.6	9
113	A numerical study on reflection coefficients of fractured media. Geophysics, 2007, 72, D61-D67.	2.6	20
114	Comment on "comparison of the non-interaction and differential schemes in predicting the effective elastic properties of fractured media" by V. Grechka. International Journal of Fracture, 2007, 146, 291-292.	2.2	5
115	Accuracy of heterogeneous staggered-grid finite-difference modeling of Rayleigh waves. Geophysics, 2006, 71, T109-T115.	2.6	161
116	Leaky mode: A horizontal seismic attenuation mechanism in a gas hydrate-bearing sediment. , 2006, , .		0
117	Effective elastic properties of fractured rocks: Dynamic vs. static considerations. , 2006, , .		1
118	Effective Elastic Properties of Fractured Rocks: Dynamic vs. Static Considerations. International Journal of Fracture, 2006, 139, 569-576.	2.2	33
119	Pore scale numerical modeling of elastic wave dispersion and attenuation in periodic systems of alternating solid and viscous fluid layers. Journal of the Acoustical Society of America, 2006, 120, 642-648.	1.1	20
120	Transmission signatures of gashydrate bearing microstructures: A numerical study. , 2006, , .		0
121	Slow compressional wave in porous media: Finite difference simulations on micro-scale. , 2006, , .		0
122	Interlayer flow as a reason for P-wave attenuation in multilayered gas hydrate-bearing sediments. , 2006, , .		0
123	Poroelastic effect on the shear wave in the systems of alternating solid and viscous fluid layers: theory vs numerical modeling. , 2005, , .		1
124	Numerical Considerations of Fluid Effects on Wave Propagation. , 2005, , 385-394.		0
125	Scattering and diffraction by a single crack: an accuracy analysis of the rotated staggered grid. Geophysical Journal International, 2005, 162, 25-31.	2.4	43
126	Seismic effects of viscous Biot-coupling: Finite difference simulations on micro-scale. Geophysical Research Letters, 2005, 32, n/a-n/a.	4.0	42

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127	Viscous fluid effects on wave propagation: a finite-difference modeling approach in combination with flow simulations. , 2005, , .		0
128	Numerical considerations of fluid effects on wave propagation. , 2005, , .		0
129	Effective elastic properties of randomly fractured soils: 3D numerical experiments. Geophysical Prospecting, 2004, 52, 183-195.	1.9	108
130	Numerical considerations of fluid effects on wave propagation: Influence of the tortuosity. Geophysical Research Letters, 2004, 31, n/a-n/a.	4.0	35
131	Finite-difference modeling of viscoelastic and anisotropic wave propagation using the rotated staggered grid. Geophysics, 2004, 69, 583-591.	2.6	245
132	Seismic hazard precursory evolution: fractal and multifractal aspects. Physics and Chemistry of the Earth, 2004, 29, 367-378.	2.9	31
133	Fluid effects on wave propagation: A numerical study. , 2004, , .		0
134	Reflection coefficients of fractured rocks: A numerical study. , 2004, , .		3
135	Numerical Rock Physics: Fluid Effects on Wave Propagation. ASEG Extended Abstracts, 2004, 2004, 1-4.	0.1	0
136	Effects of Parallel Crack Distributions on Effective Elastic Properties - a Numerical Study. International Journal of Fracture, 2003, 124, L171-L178.	2.2	36
137	Numerical rock physics: The Gassmann equation. , 2003, , .		0
138	Simulation of the diffraction by single cracks: An accuracy study. , 2002, , .		4
139	3D finite-difference modeling of viscoelastic and anisotropic wave propagation using the rotated staggered grid. , 2002, , .		1
140	Effective velocities in fractured media: a numerical study using the rotated staggered finite-difference grid. Geophysical Prospecting, 2002, 50, 183-194.	1.9	133
141	Simulation of effective elastic properties of 3D fractured medium. , 2002, , .		1
142	Wave Propagation in Heterogeneous Media. Part 1: Effective Velocities in Fractured Media. , 2002, , 469-475.		0
143	A numerical study of effective velocities in fractured media: Intersecting and parallel cracks. , 2001, , .		0
144	Modeling the propagation of elastic waves using a modified finite-difference grid. Wave Motion, 2000, 31, 77-92.	2.0	536

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145	A numerical study of effective velocities in fractured media using the rotated staggered finite difference grid. , 2000, , .		1
146	Summary of Project 11172. , 2000, , 26-26.		0
147	K α spectroscopy as temperature diagnostic of dense KALIF plasmas. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1998, 415, 594-598.	1.6	1
148	Numerical determination of pressureâ€dependent effective thermal conductivity in Berea sandstone. Geophysical Prospecting, 0, , .	1.9	1