Klaus Lehnertz

List of Publications by Year
in descending order

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151 papers	13,548 citations	44069 48 h-index	22832 112 g-index
158 all docs	158 docs citations	158 times ranked	8588 citing authors

#	Article	IF	Citations
1	Indications of nonlinear deterministic and finite-dimensional structures in time series of brain electrical activity: Dependence on recording region and brain state. Physical Review E, 2001, 64, 061907.	2.1	2,068
2	Mean phase coherence as a measure for phase synchronization and its application to the EEG of epilepsy patients. Physica D: Nonlinear Phenomena, 2000, 144, 358-369.	2.8	1,099
3	Seizure prediction: the long and winding road. Brain, 2007, 130, 314-333.	7.6	919
4	Human memory formation is accompanied by rhinalâ€“hippocampal coupling and decoupling. Nature Neuroscience, 2001, 4, 1259-1264.	14.8	637
5	Can Epileptic Seizures be Predicted? Evidence from Nonlinear Time Series Analysis of Brain Electrical Activity. Physical Review Letters, 1998, 80, 5019-5022.	7.8	468
6	Symbolic Transfer Entropy. Physical Review Letters, 2008, 100, 158101.	7.8	456
7	On the predictability of epileptic seizures. Clinical Neurophysiology, 2005, 116, 569-587.	1.5	442
8	Epileptic seizures are preceded by a decrease in synchronization. Epilepsy Research, 2003, 53, 173-185.	1.6	407
9	Phase/amplitude reset and theta-gamma interaction in the human medial temporal lobe during a continuous word recognition memory task. Hippocampus, 2005, 15, 890-900.	1.9	344
10	Assessing seizure dynamics by analysing the correlation structure of multichannel intracranial EEG. Brain, 2006, 130, 65-77.	7.6	292
11	Real-Time Tracking of Memory Formation in the Human Rhinal Cortex and Hippocampus. Science, 1999, 285, 1582-1585.	12.6	285
12	Seizure prediction â€” ready for a new era. Nature Reviews Neurology, 2018, 14, 618-630.	10.1	284
13	Seizure prediction by nonâ€linear time series analysis of brain electrical activity. European Journal of Neuroscience, 1998, 10, 786-789.	2.6	256
14	Evolving functional network properties and synchronizability during human epileptic seizures. Chaos, 2008, 18, 033119.	2.5	251
15	Synchronization phenomena in human epileptic brain networks. Journal of Neuroscience Methods, 2009, 183, 42-48.	2.5	200
16	Automated detection of a preseizure state based on a decrease in synchronization in intracranial electroencephalogram recordings from epilepsy patients. Physical Review E, 2003, 67, 021912.	2.1	184
17	Its Possible Use for Interictal Focus Localization, Seizure Anticipation, and Prevention. Journal of Clinical Neurophysiology, 2001, 18, 209-222.	1.7	173
18	State dependent properties of epileptic brain networks: Comparative graphâ€“theoretical analyses of simultaneously recorded EEG and MEG. Clinical Neurophysiology, 2010, 121, 172-185.	1.5	173

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19	Measuring synchronization in coupled model systems: A comparison of different approaches. Physica D: Nonlinear Phenomena, 2007, 225, 29-42.	2.8	171
20	Human temporal lobe potentials in verbal learning and memory processes. Neuropsychologia, 1997, 35, 657-667.	1.6	147
21	Increasing synchronization may promote seizure termination: Evidence from status epilepticus. Clinical Neurophysiology, 2007, 118, 1955-1968.	1.5	144
22	Seizure prediction and the preseizure period. Current Opinion in Neurology, 2002, 15, 173-177.	3.6	131
23	Evolving networks in the human epileptic brain. Physica D: Nonlinear Phenomena, 2014, 267, 7-15.	2.8	131
24	Seizure prediction by nonlinear EEG analysis. IEEE Engineering in Medicine and Biology Magazine, 2003, 22, 57-63.	0.8	127
25	Testing the null hypothesis of the nonexistence of a preseizure state. Physical Review E, 2003, 67, 010901.	2.1	122
26	Epilepsy and Nonlinear Dynamics. Journal of Biological Physics, 2008, 34, 253-266.	1.5	97
27	Reflex seizures, traits, and epilepsies: from physiology to pathology. Lancet Neurology, The, 2016, 15, 92-105.	10.2	97
28	PARAMETER SELECTION FOR PERMUTATION ENTROPY MEASUREMENTS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3729-3733.	1.7	92
29	From brain to earth and climate systems: Small-world interaction networks or not?. Chaos, 2010, 20, 013134.	2.5	81
30	Extreme events in excitable systems and mechanisms of their generation. Physical Review E, 2013, 88, 052911.	2.1	79
31	Improved spatial characterization of the epileptic brain by focusing on nonlinearity. Epilepsy Research, 2006, 69, 30-44.	1.6	74
32	FitzHughâ€“Nagumo oscillators on complex networks mimic epileptic-seizure-related synchronization phenomena. Chaos, 2020, 30, 123130.	2.5	74
33	State-of-the-Art of Seizure Prediction. Journal of Clinical Neurophysiology, 2007, 24, 147-153.	1.7	72
34	Long-term variability of global statistical properties of epileptic brain networks. Chaos, 2010, 20, 043126.	2.5	68
35	Measure profile surrogates: A method to validate the performance of epileptic seizure prediction algorithms. Physical Review E, 2004, 69, 061915.	2.1	66
36	Seizure anticipation: from algorithms to clinical practice. Current Opinion in Neurology, 2006, 19, 187-193.	3.6	64

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37	Independent delta/theta rhythms in the human hippocampus and entorhinal cortex. Frontiers in Human Neuroscience, 2008, 2, 3.	2.0	64
38	Route to extreme events in excitable systems. Physical Review E, 2014, 90, 022917.	2.1	63
39	How important is the seizure onset zone for seizure dynamics?. Seizure: the Journal of the British Epilepsy Association, 2015, 25, 160-166.	2.0	63
40	Controversies in epilepsy: Debates held during the Fourth International Workshop on Seizure Prediction. Epilepsy and Behavior, 2010, 19, 4-16.	1.7	61
41	Separating Neural Oscillations from Aperiodic 1/f Activity: Challenges and Recommendations. Neuroinformatics, 2022, 20, 991-1012.	2.8	61
42	Assessing directed interactions from neurophysiological signalsâ€"an overview. Physiological Measurement, 2011, 32, 1715-1724.	2.1	60
43	MEASURING THE DIRECTIONALITY OF COUPLING: PHASE VERSUS STATE SPACE DYNAMICS AND APPLICATION TO EEG TIME SERIES. International Journal of Neural Systems, 2007, 17, 139-148.	5.2	58
44	Assortative mixing in functional brain networks during epileptic seizures. Chaos, 2013, 23, 033139.	2.5	58
45	Stochastic Qualifiers of Epileptic Brain Dynamics. Physical Review Letters, 2007, 98, 138103.	7.8	57
46	Kernel-based regression of drift and diffusion coefficients of stochastic processes. Physics Letters, Section A: General, Atomic and Solid State Physics, 2009, 373, 3507-3512.	2.1	56
47	Limbic ERPs predict verbal memory after left-sided hippocampectomy. NeuroReport, 1998, 9, 3375-3378.	1.2	54
48	Identifying phase synchronization clusters in spatially extended dynamical systems. Physical Review E, 2006, 74, 051909.	2.1	50
49	MEASURING SYNCHRONIZATION IN THE EPILEPTIC BRAIN: A COMPARISON OF DIFFERENT APPROACHES. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3539-3544.	1.7	50
50	How generalised are secondarily "generalised" tonic clonic seizures?. Journal of Neurology, Neurosurgery and Psychiatry, 2007, 78, 993-996.	1.9	49
51	Disentangling the stochastic behavior of complex time series. Scientific Reports, 2016, 6, 35435.	3.3	48
52	Evaluation of selected recurrence measures in discriminating pre-ictal and inter-ictal periods from epileptic EEG data. Physics Letters, Section A: General, Atomic and Solid State Physics, 2016, 380, 1419-1425.	2.1	48
53	Measuring Nonstationarity by Analyzing the Loss of Recurrence in Dynamical Systems. Physical Review Letters, 2002, 88, 244102.	7.8	47
54	Unraveling Spurious Properties of Interaction Networks with Tailored Random Networks. PLoS ONE, 2011, 6, e22826.	2.5	47

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55	Measuring interdependences in dissipative dynamical systems with estimated Fokker-Planck coefficients. Physical Review E, 2008, 77, 041914.	2.1	46
56	Quantitative Pharmaco-Electroencephalography in Antiepileptic Drug Research. CNS Drugs, 2018, 32, 839-848.	5.9	45
57	Properties of advanced headmodelling and source reconstruction for the localization of epileptiform activity. Brain Topography, 1998, 10, 283-290.	1.8	44
58	Identifying important nodes in weighted functional brain networks: A comparison of different centrality approaches. Chaos, 2012, 22, 023142.	2.5	44
59	Inferring directional interactions from transient signals with symbolic transfer entropy. Physical Review E, 2011, 83, 011919.	2.1	42
60	A Gaussian graphical model approach to climate networks. Chaos, 2014, 24, 023103.	2.5	41
61	Symbolic transfer entropy: inferring directionality in biosignals. Biomedizinische Technik, 2009, 54, 323-328.	0.8	39
62	No evidence for critical slowing down prior to human epileptic seizures. Chaos, 2019, 29, 091104.	2.5	39
63	Centrality-based identification of important edges in complex networks. Chaos, 2019, 29, 033115.	2.5	38
64	Tinnitus remission objectified by neuromagnetic measurements. Hearing Research, 1989, 40, 261-264.	2.0	37
65	Sleep-dependent directional coupling between human neocortex and hippocampus. Cortex, 2010, 46, 256-263.	2.4	37
66	Self-Induced Switchings between Multiple Space-Time Patterns on Complex Networks of Excitable Units. Physical Review X, 2016, 6, .	8.9	37
67	Can spurious indications for phase synchronization due to superimposed signals be avoided?. Chaos, 2014, 24, 033112.	2.5	34
68	Weighted and directed interactions in evolving large-scale epileptic brain networks. Scientific Reports, 2016, 6, 34824.	3.3	34
69	Discerning nonstationarity from nonlinearity in seizure-free and preseizure EEG recordings from epilepsy patients. IEEE Transactions on Biomedical Engineering, 2003, 50, 634-639.	4.2	32
70	Time-dependent degree-degree correlations in epileptic brain networks: from assortative to dissortative mixing. Frontiers in Human Neuroscience, 2015, 9, 462.	2.0	31
71	Prediction of Postoperative Seizure Control by Hippocampal Event-Related Potentials. Epilepsia, 1999, 40, 303-306.	5.1	30
72	Assessing directionality and strength of coupling through symbolic analysis: an application to epilepsy patients. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2015, 373, 20140094.	3.4	30

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73	Which Brain Regions are Important for Seizure Dynamics in Epileptic Networks? Influence of Link Identification and EEG Recording Montage on Node Centralities. International Journal of Neural Systems, 2017, 27, 1650033.	5.2	30
74	Changes of EEG synchronization during low-frequency electric stimulation of the seizure onset zone. Epilepsy Research, 2007, 77, 108-119.	1.6	29
75	Detecting directional coupling in the human epileptic brain: Limitations and potential pitfalls. Physical Review E, 2008, 77, 011914.	2.1	29
76	Surrogate-assisted analysis of weighted functional brain networks. Journal of Neuroscience Methods, 2012, 208, 165-172.	2.5	29
77	Long-term variability of importance of brain regions in evolving epileptic brain networks. Chaos, 2017, 27, 043112.	2.5	29
78	Predictability of uncontrollable multifocal seizures â€“ towards new treatment options. Scientific Reports, 2016, 6, 24584.	3.3	28
79	Capturing time-varying brain dynamics. EPJ Nonlinear Biomedical Physics, 2017, 5, 2.	0.8	27
80	Inferior temporal stream for word processing with integrated mnemonic function. Human Brain Mapping, 2001, 14, 251-260.	3.6	26
81	Precursors of seizures due to specific spatial-temporal modifications of evolving large-scale epileptic brain networks. Scientific Reports, 2019, 9, 10623.	3.3	25
82	Estimating phase synchronization in dynamical systems using cellular nonlinear networks. Physical Review E, 2005, 71, 061926.	2.1	23
83	Constrained randomization of weighted networks. Physical Review E, 2011, 84, 026103.	2.1	23
84	Heterotopias, cortical dysplasias and glioneural tumors participate in cognitive processing in patients with temporal lobe epilepsy. Neuroscience Letters, 2003, 338, 237-241.	2.1	22
85	Estimating nonlinear interdependences in dynamical systems using cellular nonlinear networks. Physical Review E, 2007, 76, 041916.	2.1	22
86	Recurrent events of synchrony in complex networks of pulse-coupled oscillators. Europhysics Letters, 2011, 95, 38001.	2.0	22
87	Identifying delayed directional couplings with symbolic transfer entropy. Physical Review E, 2014, 90, 062706.	2.1	22
88	Characterizing abrupt transitions in stochastic dynamics. New Journal of Physics, 2018, 20, 113043.	2.9	22
89	A cellular neural network based method for classification of magnetic resonance images: Towards an automated detection of hippocampal sclerosis. Journal of Neuroscience Methods, 2008, 170, 324-331.	2.5	21
90	Identification of Preseizure States in Epilepsy: A Data-Driven Approach for Multichannel EEG Recordings. Frontiers in Computational Neuroscience, 2011, 5, 32.	2.1	21

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91	Incidental and Intentional Learning of Verbal Episodic Material Differentially Modifies Functional Brain Networks. PLoS ONE, 2013, 8, e80273.	2.5	21
92	Traceability and dynamical resistance of precursor of extreme events. Scientific Reports, 2019, 9, 1744.	3.3	21
93	Reduced signal complexity of intracellular recordings: a precursor for epileptiform activity?. Brain Research, 1999, 836, 156-163.	2.2	20
94	Multistability, local pattern formation, and global collective firing in a small-world network of nonleaky integrate-and-fire neurons. Chaos, 2009, 19, 015109.	2.5	20
95	A distributed computing system for multivariate time series analyses of multichannel neurophysiological data. Journal of Neuroscience Methods, 2006, 152, 190-201.	2.5	18
96	Transcutaneous auricular vagus nerve stimulation induces stabilizing modifications in large-scale functional brain networks: towards understanding the effects of taVNS in subjects with epilepsy. Scientific Reports, 2021, 11, 7906.	3.3	18
97	Conedy: A scientific tool to investigate complex network dynamics. Chaos, 2012, 22, 013125.	2.5	17
98	The Human Organism as an Integrated Interaction Network: Recent Conceptual and Methodological Challenges. Frontiers in Physiology, 2020, 11, 598694.	2.8	17
99	Controversies on the network theory of epilepsy: Debates held during the ICTALS 2019 conference. Seizure: the Journal of the British Epilepsy Association, 2020, 78, 78-85.	2.0	17
100	Epilepsy: Extreme Events in the Human Brain. The Frontiers Collection, 2006, , 123-143.	0.2	16
101	Improved statistical test for nonstationarity using recurrence time statistics. Physical Review E, 2004, 69, 046111.	2.1	15
102	Distinguishing between direct and indirect directional couplings in large oscillator networks: Partial or non-partial phase analyses?. Chaos, 2016, 26, 093106.	2.5	15
103	Nonlinear noise reduction using reference data. Physical Review E, 2001, 63, 036209.	2.1	14
104	Reconfiguration of human evolving large-scale epileptic brain networks prior to seizures: an evaluation with node centralities. Scientific Reports, 2020, 10, 21921.	3.3	14
105	Impact of type of intracranial EEG sensors on link strengths of evolving functional brain networks. Physiological Measurement, 2018, 39, 074003.	2.1	13
106	Time in Brain: How Biological Rhythms Impact on EEG Signals and on EEG-Derived Brain Networks. Frontiers in Network Physiology, 2021, 1, .	1.8	13
107	POSSIBLE CLINICAL AND RESEARCH APPLICATIONS OF NONLINEAR EEG ANALYSIS IN HUMANS. , 2000, , .		12
108	MEASURING SYNCHRONIZATION WITH NONLINEAR EXCITABLE MEDIA. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3425-3429.	1.7	12

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109	Identifying edges that facilitate the generation of extreme events in networked dynamical systems. Chaos, 2020, 30, 073113.	2.5	12
110	A straightforward edge centrality concept derived from generalizing degree and strength. Scientific Reports, 2022, 12, 4407.	3.3	11
111	A CNN-based synchronization analysis for epileptic seizure prediction: Inter- and intraindividual generalization properties. , 2008, , .		10
112	Surrogate-assisted identification of influences of network construction on evolving weighted functional networks. Chaos, 2017, 27, 123106.	2.5	10
113	Impact of Transcutaneous Auricular Vagus Nerve Stimulation on Large-Scale Functional Brain Networks: From Local to Global. Frontiers in Physiology, 2021, 12, 700261.	2.8	10
114	NONLINEAR TIME SERIES ANALYSIS IN EPILEPSY. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3305-3323.	1.7	9
115	Analysis and data-driven reconstruction of bivariate jump-diffusion processes. Physical Review E, 2019, 100, 062127.	2.1	9
116	EEG analysis with nonlinear excitable media. Journal of Clinical Neurophysiology, 2005, 22, 314-29.	1.7	9
117	Perspectives on Understanding Aberrant Brain Networks in Epilepsy. Frontiers in Network Physiology, 2022, 2, .	1.8	9
118	Network structure from a characterization of interactions in complex systems. Scientific Reports, 2022, 12, .	3.3	9
119	Arbitrary-Order Finite-Time Corrections for the Kramersâ€“Moyal Operator. Entropy, 2021, 23, 517.	2.2	8
120	What Models and Tools can Contribute to a Better Understanding of Brain Activity?. Frontiers in Network Physiology, 0, 2, .	1.8	8
121	How important are hubs for the generation of extreme events in networks of excitable units?. European Physical Journal: Special Topics, 2017, 226, 1963-1970.	2.6	7
122	Exact enumeration approach to first-passage time distribution of non-Markov random walks. Physical Review E, 2019, 99, 062101.	2.1	7
123	Bayesian inference of interaction properties of noisy dynamical systems with time-varying coupling: capabilities and limitations. European Physical Journal B, 2015, 88, 1.	1.5	6
124	A topology-dynamics-based control strategy for multi-dimensional complex networked dynamical systems. Scientific Reports, 2019, 9, 19831.	3.3	6
125	No evidence for spontaneous crossâ€frequency phaseâ€“phase coupling in the human hippocampus. European Journal of Neuroscience, 2020, 51, 1735-1742.	2.6	6
126	Modifications of Functional Human Brain Networks by Transcutaneous Auricular Vagus Nerve Stimulation: Impact of Time of Day. Brain Sciences, 2022, 12, 546.	2.3	6

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127	Transcutaneous Auricular Vagus Nerve Stimulation Differently Modifies Functional Brain Networks of Subjects With Different Epilepsy Types. Frontiers in Human Neuroscience, 0, 16, .	2.0	6
128	Seizure Anticipation: Do Mathematical Measures Correlate with Video-EEG Evaluation?. Epilepsia, 2005, 46, 1335-1336.	5.1	5
129	Estimating Generalized Synchronization in Brain Electrical Activity from Epilepsy Patients with Cellular Nonlinear Networks. , 2006, , .		5
130	Electrodermal Activity Biofeedback Alters Evolving Functional Brain Networks in People With Epilepsy, but in a Non-specific Manner. Frontiers in Neuroscience, 2022, 16, 828283.	2.8	5
131	Synchronization in populations of sparsely connected pulse-coupled oscillators. Europhysics Letters, 2014, 105, 30003.	2.0	4
132	Complexity and irreducibility of dynamics on networks of networks. Chaos, 2018, 28, 106306.	2.5	4
133	Enhancing the accuracy of a data-driven reconstruction of bivariate jump-diffusion models with corrections for higher orders of the sampling interval. Journal of Statistical Mechanics: Theory and Experiment, 2021, 2021, 033406.	2.3	4
134	Towards a Data-Driven Estimation of Resilience in Networked Dynamical Systems: Designing a Versatile Testbed. Frontiers in Network Physiology, 2022, 2, .	1.8	4
135	Effect of inhibitory diffusive coupling on frequency-selectivity of excitable media simulated with Cellular Neural Networks. , 2006, , .		3
136	Performance of a seizure warning algorithm based on the dynamics of intracranial EEG. Epilepsy Research, 2006, 71, 241-242.	1.6	3
137	Analysis of synchronization phenomena in human electroencephalograms with nonlinear excitable media. , 2008, , .		3
138	Analysis of Synchronization Phenomena in Broadband Signals with Nonlinear Excitable Media. Eurasip Journal on Advances in Signal Processing, 2009, 2009, .	1.7	3
139	Testing Jump-Diffusion in Epileptic Brain Dynamics: Impact of Daily Rhythms. Entropy, 2021, 23, 309.	2.2	3
140	Prediction of seizure occurrence by chaos analysis: technique and therapeutic implications. Handbook of Clinical Neurophysiology, 2003, , 491-500.	0.0	2
141	Bivariate and Multivariate Time Series Analysis Techniques and their Potential Impact for Seizure Prediction. , 0, , 189-208.		2
142	Transitions between dynamical behaviors of oscillator networks induced by diversity of nodes and edges. Chaos, 2015, 25, 073101.	2.5	2
143	Predicting Epileptic Seizuresâ€"An Update. Understanding Complex Systems, 2021, , 345-360.	0.6	2
144	Methohexital-induced changes in spectral power of neuromagnetic signals: beta augmentation is smaller over the hemisphere containing the epileptogenic focus. Brain Topography, 1997, 10, 41-47.	1.8	1

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145	Impact of Computational Models for an Improved Understanding of Ictogenesis: From Single Neurons to Networks of Neurons. , 0, , 25-44.		1
146	Time Series Analysis with Cellular Neural Networks. , 0, , 131-148.		1
147	Epileptic Prodromes. , 2012, , 287-296.		1
148	Stimulation-related modifications of evolving functional brain networks in unresponsive wakefulness. Scientific Reports, 2022, 12, .	3.3	1
149	Nonlinear Approaches to Learning and Memory. , 0, , 627-633.		0
150	Characterizing the Epileptic Process with Stochastic Qualifiers of Brain Dynamics. , 0, , 175-188.		0
151	Nichtlineare EEG-Analysen. , 2012, , 455-469.		0