

# 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	A straightforward edge centrality concept derived from generalizing degree and strength. <i>Scientific Reports</i> , 2022, 12, 4407.	3.3	11
2	Towards a Data-Driven Estimation of Resilience in Networked Dynamical Systems: Designing a Versatile Testbed. <i>Frontiers in Network Physiology</i> , 2022, 2, .	1.8	4
3	Electrodermal Activity Biofeedback Alters Evolving Functional Brain Networks in People With Epilepsy, but in a Non-specific Manner. <i>Frontiers in Neuroscience</i> , 2022, 16, 828283.	2.8	5
4	Separating Neural Oscillations from Aperiodic 1/f Activity: Challenges and Recommendations. <i>Neuroinformatics</i> , 2022, 20, 991-1012.	2.8	61
5	Perspectives on Understanding Aberrant Brain Networks in Epilepsy. <i>Frontiers in Network Physiology</i> , 2022, 2, .	1.8	9
6	Modifications of Functional Human Brain Networks by Transcutaneous Auricular Vagus Nerve Stimulation: Impact of Time of Day. <i>Brain Sciences</i> , 2022, 12, 546.	2.3	6
7	Stimulation-related modifications of evolving functional brain networks in unresponsive wakefulness. <i>Scientific Reports</i> , 2022, 12, .	3.3	1
8	Network structure from a characterization of interactions in complex systems. <i>Scientific Reports</i> , 2022, 12, .	3.3	9
9	Predicting Epileptic Seizuresâ€”An Update. <i>Understanding Complex Systems</i> , 2021, , 345-360.	0.6	2
10	Testing Jump-Diffusion in Epileptic Brain Dynamics: Impact of Daily Rhythms. <i>Entropy</i> , 2021, 23, 309.	2.2	3
11	Enhancing the accuracy of a data-driven reconstruction of bivariate jump-diffusion models with corrections for higher orders of the sampling interval. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2021, 2021, 033406.	2.3	4
12	Arbitrary-Order Finite-Time Corrections for the Kramersâ€”Moyal Operator. <i>Entropy</i> , 2021, 23, 517.	2.2	8
13	Transcutaneous auricular vagus nerve stimulation induces stabilizing modifications in large-scale functional brain networks: towards understanding the effects of taVNS in subjects with epilepsy. <i>Scientific Reports</i> , 2021, 11, 7906.	3.3	18
14	Impact of Transcutaneous Auricular Vagus Nerve Stimulation on Large-Scale Functional Brain Networks: From Local to Global. <i>Frontiers in Physiology</i> , 2021, 12, 700261.	2.8	10
15	Time in Brain: How Biological Rhythms Impact on EEG Signals and on EEG-Derived Brain Networks. <i>Frontiers in Network Physiology</i> , 2021, 1, .	1.8	13
16	No evidence for spontaneous crossâ€”frequency phaseâ€”phase coupling in the human hippocampus. <i>European Journal of Neuroscience</i> , 2020, 51, 1735-1742.	2.6	6
17	Identifying edges that facilitate the generation of extreme events in networked dynamical systems. <i>Chaos</i> , 2020, 30, 073113.	2.5	12
18	FitzHughâ€”Nagumo oscillators on complex networks mimic epileptic-seizure-related synchronization phenomena. <i>Chaos</i> , 2020, 30, 123130.	2.5	74

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19	The Human Organism as an Integrated Interaction Network: Recent Conceptual and Methodological Challenges. <i>Frontiers in Physiology</i> , 2020, 11, 598694.	2.8	17
20	Controversies on the network theory of epilepsy: Debates held during the ICTALS 2019 conference. <i>Seizure: the Journal of the British Epilepsy Association</i> , 2020, 78, 78-85.	2.0	17
21	Reconfiguration of human evolving large-scale epileptic brain networks prior to seizures: an evaluation with node centralities. <i>Scientific Reports</i> , 2020, 10, 21921.	3.3	14
22	Precursors of seizures due to specific spatial-temporal modifications of evolving large-scale epileptic brain networks. <i>Scientific Reports</i> , 2019, 9, 10623.	3.3	25
23	No evidence for critical slowing down prior to human epileptic seizures. <i>Chaos</i> , 2019, 29, 091104.	2.5	39
24	Exact enumeration approach to first-passage time distribution of non-Markov random walks. <i>Physical Review E</i> , 2019, 99, 062101.	2.1	7
25	Centrality-based identification of important edges in complex networks. <i>Chaos</i> , 2019, 29, 033115.	2.5	38
26	Traceability and dynamical resistance of precursor of extreme events. <i>Scientific Reports</i> , 2019, 9, 1744.	3.3	21
27	Analysis and data-driven reconstruction of bivariate jump-diffusion processes. <i>Physical Review E</i> , 2019, 100, 062127.	2.1	9
28	A topology-dynamics-based control strategy for multi-dimensional complex networked dynamical systems. <i>Scientific Reports</i> , 2019, 9, 19831.	3.3	6
29	Characterizing abrupt transitions in stochastic dynamics. <i>New Journal of Physics</i> , 2018, 20, 113043.	2.9	22
30	Complexity and irreducibility of dynamics on networks of networks. <i>Chaos</i> , 2018, 28, 106306.	2.5	4
31	Quantitative Pharmaco-Electroencephalography in Antiepileptic Drug Research. <i>CNS Drugs</i> , 2018, 32, 839-848.	5.9	45
32	Impact of type of intracranial EEG sensors on link strengths of evolving functional brain networks. <i>Physiological Measurement</i> , 2018, 39, 074003.	2.1	13
33	Seizure prediction "ready for a new era. <i>Nature Reviews Neurology</i> , 2018, 14, 618-630.	10.1	284
34	Long-term variability of importance of brain regions in evolving epileptic brain networks. <i>Chaos</i> , 2017, 27, 043112.	2.5	29
35	How important are hubs for the generation of extreme events in networks of excitable units?. <i>European Physical Journal: Special Topics</i> , 2017, 226, 1963-1970.	2.6	7
36	Which Brain Regions are Important for Seizure Dynamics in Epileptic Networks? Influence of Link Identification and EEG Recording Montage on Node Centralities. <i>International Journal of Neural Systems</i> , 2017, 27, 1650033.	5.2	30

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37	Surrogate-assisted identification of influences of network construction on evolving weighted functional networks. <i>Chaos</i> , 2017, 27, 123106.	2.5	10
38	Capturing time-varying brain dynamics. <i>EPJ Nonlinear Biomedical Physics</i> , 2017, 5, 2.	0.8	27
39	Distinguishing between direct and indirect directional couplings in large oscillator networks: Partial or non-partial phase analyses?. <i>Chaos</i> , 2016, 26, 093106.	2.5	15
40	Disentangling the stochastic behavior of complex time series. <i>Scientific Reports</i> , 2016, 6, 35435.	3.3	48
41	Predictability of uncontrollable multifocal seizures “ towards new treatment options. <i>Scientific Reports</i> , 2016, 6, 24584.	3.3	28
42	Self-Induced Switchings between Multiple Space-Time Patterns on Complex Networks of Excitable Units. <i>Physical Review X</i> , 2016, 6, .	8.9	37
43	Weighted and directed interactions in evolving large-scale epileptic brain networks. <i>Scientific Reports</i> , 2016, 6, 34824.	3.3	34
44	Evaluation of selected recurrence measures in discriminating pre-ictal and inter-ictal periods from epileptic EEG data. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2016, 380, 1419-1425.	2.1	48
45	Reflex seizures, traits, and epilepsies: from physiology to pathology. <i>Lancet Neurology</i> , The, 2016, 15, 92-105.	10.2	97
46	Time-dependent degree-degree correlations in epileptic brain networks: from assortative to dissortative mixing. <i>Frontiers in Human Neuroscience</i> , 2015, 9, 462.	2.0	31
47	Assessing directionality and strength of coupling through symbolic analysis: an application to epilepsy patients. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2015, 373, 20140094.	3.4	30
48	How important is the seizure onset zone for seizure dynamics?. <i>Seizure: the Journal of the British Epilepsy Association</i> , 2015, 25, 160-166.	2.0	63
49	Bayesian inference of interaction properties of noisy dynamical systems with time-varying coupling: capabilities and limitations. <i>European Physical Journal B</i> , 2015, 88, 1.	1.5	6
50	Transitions between dynamical behaviors of oscillator networks induced by diversity of nodes and edges. <i>Chaos</i> , 2015, 25, 073101.	2.5	2
51	Identifying delayed directional couplings with symbolic transfer entropy. <i>Physical Review E</i> , 2014, 90, 062706.	2.1	22
52	Route to extreme events in excitable systems. <i>Physical Review E</i> , 2014, 90, 022917.	2.1	63
53	Synchronization in populations of sparsely connected pulse-coupled oscillators. <i>Europhysics Letters</i> , 2014, 105, 30003.	2.0	4
54	Evolving networks in the human epileptic brain. <i>Physica D: Nonlinear Phenomena</i> , 2014, 267, 7-15.	2.8	131

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55	A Gaussian graphical model approach to climate networks. Chaos, 2014, 24, 023103.	2.5	41
56	Can spurious indications for phase synchronization due to superimposed signals be avoided?. Chaos, 2014, 24, 033112.	2.5	34
57	Extreme events in excitable systems and mechanisms of their generation. Physical Review E, 2013, 88, 052911.	2.1	79
58	Assortative mixing in functional brain networks during epileptic seizures. Chaos, 2013, 23, 033139.	2.5	58
59	Incidental and Intentional Learning of Verbal Episodic Material Differentially Modifies Functional Brain Networks. PLoS ONE, 2013, 8, e80273.	2.5	21
60	Identifying important nodes in weighted functional brain networks: A comparison of different centrality approaches. Chaos, 2012, 22, 023142.	2.5	44
61	Conedy: A scientific tool to investigate complex network dynamics. Chaos, 2012, 22, 013125.	2.5	17
62	Surrogate-assisted analysis of weighted functional brain networks. Journal of Neuroscience Methods, 2012, 208, 165-172.	2.5	29
63	Epileptic Prodromes. , 2012, , 287-296.		1
64	Nichtlineare EEG-Analysen. , 2012, , 455-469.		0
65	Assessing directed interactions from neurophysiological signals—an overview. Physiological Measurement, 2011, 32, 1715-1724.	2.1	60
66	Inferring directional interactions from transient signals with symbolic transfer entropy. Physical Review E, 2011, 83, 011919.	2.1	42
67	Identification of Preseizure States in Epilepsy: A Data-Driven Approach for Multichannel EEG Recordings. Frontiers in Computational Neuroscience, 2011, 5, 32.	2.1	21
68	Recurrent events of synchrony in complex networks of pulse-coupled oscillators. Europhysics Letters, 2011, 95, 38001.	2.0	22
69	Constrained randomization of weighted networks. Physical Review E, 2011, 84, 026103.	2.1	23
70	Unraveling Spurious Properties of Interaction Networks with Tailored Random Networks. PLoS ONE, 2011, 6, e22826.	2.5	47
71	Long-term variability of global statistical properties of epileptic brain networks. Chaos, 2010, 20, 043126.	2.5	68
72	Sleep-dependent directional coupling between human neocortex and hippocampus. Cortex, 2010, 46, 256-263.	2.4	37

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73	State dependent properties of epileptic brain networks: Comparative graph-theoretical analyses of simultaneously recorded EEG and MEG. <i>Clinical Neurophysiology</i> , 2010, 121, 172-185.	1.5	173
74	Controversies in epilepsy: Debates held during the Fourth International Workshop on Seizure Prediction. <i>Epilepsy and Behavior</i> , 2010, 19, 4-16.	1.7	61
75	From brain to earth and climate systems: Small-world interaction networks or not?. <i>Chaos</i> , 2010, 20, 013134.	2.5	81
76	Analysis of Synchronization Phenomena in Broadband Signals with Nonlinear Excitable Media. <i>Eurasip Journal on Advances in Signal Processing</i> , 2009, 2009, .	1.7	3
77	Multistability, local pattern formation, and global collective firing in a small-world network of nonleaky integrate-and-fire neurons. <i>Chaos</i> , 2009, 19, 015109.	2.5	20
78	Symbolic transfer entropy: inferring directionality in biosignals. <i>Biomedizinische Technik</i> , 2009, 54, 323-328.	0.8	39
79	Kernel-based regression of drift and diffusion coefficients of stochastic processes. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 2009, 373, 3507-3512.	2.1	56
80	Synchronization phenomena in human epileptic brain networks. <i>Journal of Neuroscience Methods</i> , 2009, 183, 42-48.	2.5	200
81	Epilepsy and Nonlinear Dynamics. <i>Journal of Biological Physics</i> , 2008, 34, 253-266.	1.5	97
82	A cellular neural network based method for classification of magnetic resonance images: Towards an automated detection of hippocampal sclerosis. <i>Journal of Neuroscience Methods</i> , 2008, 170, 324-331.	2.5	21
83	Symbolic Transfer Entropy. <i>Physical Review Letters</i> , 2008, 100, 158101.	7.8	456
84	Measuring interdependences in dissipative dynamical systems with estimated Fokker-Planck coefficients. <i>Physical Review E</i> , 2008, 77, 041914.	2.1	46
85	A CNN-based synchronization analysis for epileptic seizure prediction: Inter- and intraindividual generalization properties. , 2008, , .		10
86	Analysis of synchronization phenomena in human electroencephalograms with nonlinear excitable media. , 2008, , .		3
87	Detecting directional coupling in the human epileptic brain: Limitations and potential pitfalls. <i>Physical Review E</i> , 2008, 77, 011914.	2.1	29
88	Evolving functional network properties and synchronizability during human epileptic seizures. <i>Chaos</i> , 2008, 18, 033119.	2.5	251
89	Independent delta/theta rhythms in the human hippocampus and entorhinal cortex. <i>Frontiers in Human Neuroscience</i> , 2008, 2, 3.	2.0	64
90	MEASURING SYNCHRONIZATION WITH NONLINEAR EXCITABLE MEDIA. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2007, 17, 3425-3429.	1.7	12

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91	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
92	NONLINEAR TIME SERIES ANALYSIS IN EPILEPSY. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3305-3323.	1.7	9
93	Estimating nonlinear interdependences in dynamical systems using cellular nonlinear networks. Physical Review E, 2007, 76, 041916.	2.1	22
94	How generalised are secondarily "generalised" tonic clonic seizures?. Journal of Neurology, Neurosurgery and Psychiatry, 2007, 78, 993-996.	1.9	49
95	State-of-the-Art of Seizure Prediction. Journal of Clinical Neurophysiology, 2007, 24, 147-153.	1.7	72
96	Increasing synchronization may promote seizure termination: Evidence from status epilepticus. Clinical Neurophysiology, 2007, 118, 1955-1968.	1.5	144
97	Stochastic Qualifiers of Epileptic Brain Dynamics. Physical Review Letters, 2007, 98, 138103.	7.8	57
98	Seizure prediction: the long and winding road. Brain, 2007, 130, 314-333.	7.6	919
99	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
100	PARAMETER SELECTION FOR PERMUTATION ENTROPY MEASUREMENTS. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2007, 17, 3729-3733.	1.7	92
101	Changes of EEG synchronization during low-frequency electric stimulation of the seizure onset zone. Epilepsy Research, 2007, 77, 108-119.	1.6	29
102	Measuring synchronization in coupled model systems: A comparison of different approaches. Physica D: Nonlinear Phenomena, 2007, 225, 29-42.	2.8	171
103	Effect of inhibitory diffusive coupling on frequency-selectivity of excitable media simulated with Cellular Neural Networks. , 2006, , .		3
104	Estimating Generalized Synchronization in Brain Electrical Activity from Epilepsy Patients with Cellular Nonlinear Networks. , 2006, , .		5
105	Seizure anticipation: from algorithms to clinical practice. Current Opinion in Neurology, 2006, 19, 187-193.	3.6	64
106	Improved spatial characterization of the epileptic brain by focusing on nonlinearity. Epilepsy Research, 2006, 69, 30-44.	1.6	74
107	Performance of a seizure warning algorithm based on the dynamics of intracranial EEG. Epilepsy Research, 2006, 71, 241-242.	1.6	3
108	A distributed computing system for multivariate time series analyses of multichannel neurophysiological data. Journal of Neuroscience Methods, 2006, 152, 190-201.	2.5	18

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109	Assessing seizure dynamics by analysing the correlation structure of multichannel intracranial EEG. <i>Brain</i> , 2006, 130, 65-77.	7.6	292
110	Identifying phase synchronization clusters in spatially extended dynamical systems. <i>Physical Review E</i> , 2006, 74, 051909.	2.1	50
111	Epilepsy: Extreme Events in the Human Brain. <i>The Frontiers Collection</i> , 2006, , 123-143.	0.2	16
112	Seizure Anticipation: Do Mathematical Measures Correlate with Video-EEG Evaluation?. <i>Epilepsia</i> , 2005, 46, 1335-1336.	5.1	5
113	Phase/amplitude reset and theta-gamma interaction in the human medial temporal lobe during a continuous word recognition memory task. <i>Hippocampus</i> , 2005, 15, 890-900.	1.9	344
114	Estimating phase synchronization in dynamical systems using cellular nonlinear networks. <i>Physical Review E</i> , 2005, 71, 061926.	2.1	23
115	On the predictability of epileptic seizures. <i>Clinical Neurophysiology</i> , 2005, 116, 569-587.	1.5	442
116	EEG analysis with nonlinear excitable media. <i>Journal of Clinical Neurophysiology</i> , 2005, 22, 314-29.	1.7	9
117	Improved statistical test for nonstationarity using recurrence time statistics. <i>Physical Review E</i> , 2004, 69, 046111.	2.1	15
118	Measure profile surrogates: A method to validate the performance of epileptic seizure prediction algorithms. <i>Physical Review E</i> , 2004, 69, 061915.	2.1	66
119	Seizure prediction by nonlinear EEG analysis. <i>IEEE Engineering in Medicine and Biology Magazine</i> , 2003, 22, 57-63.	0.8	127
120	Discerning nonstationarity from nonlinearity in seizure-free and pre-seizure EEG recordings from epilepsy patients. <i>IEEE Transactions on Biomedical Engineering</i> , 2003, 50, 634-639.	4.2	32
121	Epileptic seizures are preceded by a decrease in synchronization. <i>Epilepsy Research</i> , 2003, 53, 173-185.	1.6	407
122	Heterotopias, cortical dysplasias and glioneuronal tumors participate in cognitive processing in patients with temporal lobe epilepsy. <i>Neuroscience Letters</i> , 2003, 338, 237-241.	2.1	22
123	Testing the null hypothesis of the nonexistence of a pre-seizure state. <i>Physical Review E</i> , 2003, 67, 010901.	2.1	122
124	Automated detection of a pre-seizure state based on a decrease in synchronization in intracranial electroencephalogram recordings from epilepsy patients. <i>Physical Review E</i> , 2003, 67, 021912.	2.1	184
125	Prediction of seizure occurrence by chaos analysis: technique and therapeutic implications. <i>Handbook of Clinical Neurophysiology</i> , 2003, , 491-500.	0.0	2
126	Measuring Nonstationarity by Analyzing the Loss of Recurrence in Dynamical Systems. <i>Physical Review Letters</i> , 2002, 88, 244102.	7.8	47



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127	Seizure prediction and the pre-seizure period. <i>Current Opinion in Neurology</i> , 2002, 15, 173-177.	3.6	131
128	Indications of nonlinear deterministic and finite-dimensional structures in time series of brain electrical activity: Dependence on recording region and brain state. <i>Physical Review E</i> , 2001, 64, 061907.	2.1	2,068
129	Its Possible Use for Interictal Focus Localization, Seizure Anticipation, and Prevention. <i>Journal of Clinical Neurophysiology</i> , 2001, 18, 209-222.	1.7	173
130	Inferior temporal stream for word processing with integrated mnemonic function. <i>Human Brain Mapping</i> , 2001, 14, 251-260.	3.6	26
131	Human memory formation is accompanied by rhinalâ€“hippocampal coupling and decoupling. <i>Nature Neuroscience</i> , 2001, 4, 1259-1264.	14.8	637
132	Nonlinear noise reduction using reference data. <i>Physical Review E</i> , 2001, 63, 036209.	2.1	14
133	POSSIBLE CLINICAL AND RESEARCH APPLICATIONS OF NONLINEAR EEG ANALYSIS IN HUMANS. , 2000, , .		12
134	Mean phase coherence as a measure for phase synchronization and its application to the EEG of epilepsy patients. <i>Physica D: Nonlinear Phenomena</i> , 2000, 144, 358-369.	2.8	1,099
135	Prediction of Postoperative Seizure Control by Hippocampal Event-Related Potentials. <i>Epilepsia</i> , 1999, 40, 303-306.	5.1	30
136	Reduced signal complexity of intracellular recordings: a precursor for epileptiform activity?. <i>Brain Research</i> , 1999, 836, 156-163.	2.2	20
137	Real-Time Tracking of Memory Formation in the Human Rhinal Cortex and Hippocampus. <i>Science</i> , 1999, 285, 1582-1585.	12.6	285
138	Properties of advanced headmodelling and source reconstruction for the localization of epileptiform activity. <i>Brain Topography</i> , 1998, 10, 283-290.	1.8	44
139	Seizure prediction by nonâ€“linear time series analysis of brain electrical activity. <i>European Journal of Neuroscience</i> , 1998, 10, 786-789.	2.6	256
140	Can Epileptic Seizures be Predicted? Evidence from Nonlinear Time Series Analysis of Brain Electrical Activity. <i>Physical Review Letters</i> , 1998, 80, 5019-5022.	7.8	468
141	Limbic ERPs predict verbal memory after left-sided hippocampectomy. <i>NeuroReport</i> , 1998, 9, 3375-3378.	1.2	54
142	Human temporal lobe potentials in verbal learning and memory processes. <i>Neuropsychologia</i> , 1997, 35, 657-667.	1.6	147
143	Methohexital-induced changes in spectral power of neuromagnetic signals: beta augmentation is smaller over the hemisphere containing the epileptogenic focus. <i>Brain Topography</i> , 1997, 10, 41-47.	1.8	1
144	Tinnitus remission objectified by neuromagnetic measurements. <i>Hearing Research</i> , 1989, 40, 261-264.	2.0	37

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145	Nonlinear Approaches to Learning and Memory. , 0, , 627-633.		0
146	Impact of Computational Models for an Improved Understanding of Ictogenesis: From Single Neurons to Networks of Neurons. , 0, , 25-44.		1
147	Bivariate and Multivariate Time Series Analysis Techniques and their Potential Impact for Seizure Prediction. , 0, , 189-208.		2
148	Time Series Analysis with Cellular Neural Networks. , 0, , 131-148.		1
149	Characterizing the Epileptic Process with Stochastic Qualifiers of Brain Dynamics. , 0, , 175-188.		0
150	Transcutaneous Auricular Vagus Nerve Stimulation Differently Modifies Functional Brain Networks of Subjects With Different Epilepsy Types. <i>Frontiers in Human Neuroscience</i> , 0, 16, .	2.0	6
151	What Models and Tools can Contribute to a Better Understanding of Brain Activity?. <i>Frontiers in Network Physiology</i> , 0, 2, .	1.8	8