Boris S Kerner

List of Publications by Year
in descending order

126 papers	7,103 citations	71102 41 h-index	88630 70 g-index
134 all docs	134 docs citations	134 times ranked	1706 citing authors

#	Article	IF	Citations
1	Effect of autonomous driving on traffic breakdown in mixed traffic flow: A comparison of classical ACC with three-traffic-phase-ACC (TPACC). Physica A: Statistical Mechanics and Its Applications, 2021, 562, 125315.	2.6	30
2	How Can Empirical Spatiotemporal Traffic Dynamics Be Reconstructed Through Traffic Measurements?. , 2021, , 27-37.		0
3	Empirical Induced Traffic Breakdownâ€"Understanding Stochastic Highway Capacity. , 2021, , 85-99.		0
4	Empirical Induced Traffic Breakdownâ€"Nucleation Nature of Traffic Breakdown. , 2021, , 69-83.		0
5	Empirical Spontaneous Traffic Breakdownâ€"Fundamental Problem for Understanding Real Traffic. , 2021, , 47-67.		0
6	Empirical Nucleation Nature of Traffic Breakdownâ€"Emergence of Three-Phase Traffic Theory. , 2021, , 101-117.		0
7	Basic Empirical Spatiotemporal Phenomena in Real Traffic. , 2021, , 15-26.		0
8	Basic Types of Empirical Spatiotemporal Congested Traffic Patterns at Bottlenecks. , 2021, , 145-161.		0
9	Empirical random phase transitions between free flow and synchronized flow at highway bottlenecks. Journal of Intelligent Transportation Systems: Technology, Planning, and Operations, 2020, 24, 539-555.	4.2	8
10	Prediction of moving bottleneck through the use of probe vehicles: a simulation approach in the framework of three-phase traffic theory. Journal of Intelligent Transportation Systems: Technology, Planning, and Operations, 2020, 24, 598-616.	4.2	11
11	Statistical physics of synchronized traffic flow: Spatiotemporal competition between Sâ†'F and Sâ†'J instabilities. Physical Review E, 2019, 100, 012303.	2.1	19
12	Mathematical Probabilistic Approaches to Traffic Breakdown. , 2019, , 285-312.		0
13	Modeling Approaches to Traffic Breakdown. , 2019, , 195-283.		4
14	Spatiotemporal Features of Traffic Congestion. , 2019, , 387-500.		3
15	Breakdown in Traffic Networks. , 2019, , 21-77.		5
16	Autonomous Driving in the Framework of Three-Phase Traffic Theory. , 2019, , 343-385.		3
17	Complex Dynamics of Traffic Management: Introduction. , 2019, , 1-19.		1
18	Complex Dynamics of Traffic Management: Introduction. , 2019, , 1-19.		5

#	Article	IF	Citations
19	F â†' S â†' F Transitions in Vehicle Probe Data. , 2019, , 71-78.		0
20	Microscopic Jam Tail Warning for Automated Driving. , 2019, , 79-86.		0
21	Prediction of Moving Bottleneck and Associated Traffic Phenomena for Automated Driving. , 2019, , 61-69.		0
22	Physics of automated driving in framework of three-phase traffic theory. Physical Review E, 2018, 97, 042303.	2.1	38
23	Aerial observations of moving synchronized flow patterns in over-saturated city traffic. Transportation Research Part C: Emerging Technologies, 2018, 86, 393-406.	7.6	60
24	Autonomous driving in framework of three-phase traffic theory. Procedia Computer Science, 2018, 130, 785-790.	2.0	15
25	Traffic Breakdown, Mathematical Probabilistic Approaches to. , 2018, , 1-29.		4
26	Traffic Breakdown, Modeling Approaches to. , 2018, , 1-89.		6
27	Traffic Congestion, Spatiotemporal Features of. , 2018, , 1-116.		4
28	Autonomous Driving in the Framework of Three-Phase Traffic Theory. , 2018, , 1-44.		4
29	Breakdown minimization principle versus Wardropâ€™s equilibria for dynamic traffic assignment and control in traffic and transportation networks: A critical mini-review. Physica A: Statistical Mechanics and Its Applications, 2017, 466, 626-662.	2.6	37
30	Analysis of speed disturbances in empirical single vehicle probe data before traffic breakdown. IET Intelligent Transport Systems, 2017, 11, 604-612.	3.0	18
31	Breakdown in Traffic Networks. , 2017, , .		67
32	Achievements of Empirical Studies of Traffic Breakdown at Highway Bottlenecks. , 2017, , 73-86.		2
33	Effect of Automatic Driving on Probability ofÂBreakdown in Traffic Networks. , 2017, , 275-295.		1
34	Time-Delayed Breakdown at Traffic Signal in City Traffic. , 2017, , 367-438.		1
35	Introductionâ€"The Reason for Paradigm Shift in Transportation Science. , 2017, , 1-71.		1
36	The Reason for Incommensurability of Three-Phase Theory with Classical Traffic Flow Theories. , 2017, , 307-366.		0

#	Article	IF	Citations
37	Minimization of Traffic Congestion in Networks. , 2017, , 473-502.		0
38	Failure of Generally Accepted Classical Traffic Flow Theories. , 2017, , 123-186.		0
39	Nucleation Nature of Traffic Breakdownâ€"Empirical Fundamental of Transportation Science. , 2017, , 87-122.		1
40	Deterioration of Traffic System Through Standard Dynamic Traffic Assignment in Networks. , 2017, , 503-531.		0
41	Future Automatic Driving Based on Three-Phase Theory. , 2017, , 297-306.		0
42	Maximization of Network Throughput Ensuring Free Flow Conditions in Network. , 2017, , 449-471.		0
43	Theoretical Fundamental of Transportation Scienceâ€"Breakdown Minimization (BM) Principle. , 2017, , 439-447.		0
44	Theoretical Fundamental of Transportation Scienceâ€"The Three-Phase Theory. , 2017, , 187-274.		0
45	Microscopic Simulations of Oversaturated City Traffic: Features of Synchronised Flow Patterns. , 2016, , 483-490.		0
46	The maximization of the network throughput ensuring free flow conditions in traffic and transportation networks: Breakdown minimization (BM) principle versus Wardropâ€™s equilibria. European Physical Journal B, 2016, 89, 1.	1.5	16
47	Failure of classical traffic flow theories: Stochastic highway capacity and automatic driving. Physica A: Statistical Mechanics and Its Applications, 2016, 450, 700-747.	2.6	116
48	Fuel consumption in empirical synchronised flow in urban traffic. IET Intelligent Transport Systems, 2016, 10, 122-129.	3.0	19
49	Impact of Synchronised Flow in Oversaturated City Traffic on Energy Efficiency of Conventional and Electrical Vehicles. , 2016, , 539-546.		2
50	Traffic Phase Dependent Fuel Consumption. , 2016, , 571-578.		0
51	Microscopic theory of traffic-flow instability governing traffic breakdown at highway bottlenecks: Growing wave of increase in speed in synchronized flow. Physical Review E, 2015, 92, 062827.	2.1	46
52	Microscopic Simulation of Synchronized Flow in Oversaturated City Traffic. Transportation Research Record, 2015, 2490, 47-55.	1.9	16
53	Test bed for simulations of the effect of a vehicle ad hoc networkÂon traffic flow. , 2015, , 223-254.		8
54	Failure of classical traffic flow theories: a critical review. Elektrotechnik Und Informationstechnik, 2015, 132, 417-433.	1.1	49

#	Article	IF	Citations
55	The physics of empirical nuclei for spontaneous traffic breakdown in free flow at highway bottlenecks. Physica A: Statistical Mechanics and Its Applications, 2015, 438, 365-397.	2.6	36
56	Criticism of generally accepted fundamentals and methodologies of traffic and transportation theory. AIP Conference Proceedings, 2015, , .	0.4	0
57	Traffic breakdown at a signal: classical theory versus the three-phase theory of city traffic. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P03001.	2.3	29
58	Three-phase theory of city traffic: Moving synchronized flow patterns in under-saturated city traffic at signals. Physica A: Statistical Mechanics and Its Applications, 2014, 397, 76-110.	2.6	70
59	Empirical synchronized flow in oversaturated city traffic. Physical Review E, 2014, 90, 032810.	2.1	32
60	Probabilistic physical characteristics of phase transitions at highway bottlenecks: Incommensurability of three-phase and two-phase traffic-flow theories. Physical Review E, 2014, 89, 052807.	2.1	45
61	Increased Consumption in Oversaturated City Traffic Based on Empirical Vehicle Data. Lecture Notes in Mobility, 2014, , 71-79.	0.2	3
62	Effect of driver over-acceleration on traffic breakdown in three-phase cellular automaton traffic flow models. Physica A: Statistical Mechanics and Its Applications, 2013, 392, 4083-4105.	2.6	84
63	Synchronized flow in oversaturated city traffic. Physical Review E, 2013, 88, 054801.	2.1	28
64	Criticism of generally accepted fundamentals and methodologies of traffic and transportation theory: A brief review. Physica A: Statistical Mechanics and Its Applications, 2013, 392, 5261-5282.	2.6	134
65	Traffic dynamics in empirical probe vehicle data studied with three-phase theory: Spatiotemporal reconstruction of traffic phases and generation of jam warning messages. Physica A: Statistical Mechanics and Its Applications, 2013, 392, 221-251.	2.6	78
66	The physics of green-wave breakdown in a city. Europhysics Letters, 2013, 102, 28010.	2.0	51
67	Complexity of spatiotemporal traffic phenomena in flow of identical drivers: Explanation based on fundamental hypothesis of three-phase theory. Physical Review E, 2012, 85, 036110.	2.1	56
68	Traffic Jam Warning Messages from Measured Vehicle Data with the Use of Three-Phase Traffic Theory. , 2012, , 241-250.		5
69	Optimum principle for a vehicular traffic network: Minimum probability of congestion. , 2011, , .		1
70	Physics of traffic gridlock in a city. Physical Review E, 2011, 84, 045102.	2.1	42
71	Optimum principle for a vehicular traffic network: minimum probability of congestion. Journal of Physics A: Mathematical and Theoretical, 2011, 44, 092001.	2.1	45
72	Simple cellular automaton model for traffic breakdown, highway capacity, and synchronized flow. Physical Review E, 2011, 84, 046110.	2.1	81

#	Article	IF	Citations
73	A theory of traffic congestion at moving bottlenecks. Journal of Physics A: Mathematical and Theoretical, 2010, 43, 425101.	2.1	53
74	Three-Phase Traffic Flow Models. , 2009, , 221-243.		2
75	Phase transitions in traffic flow on multilane roads. Physical Review E, 2009, 80, 056101.	2.1	98
76	Introduction to Modern Traffic Flow Theory and Control. , 2009, , .		359
77	A Study of Phase Transitions on Multilane Roads in the Framework of Three-Phase Traffic Theory. Transportation Research Record, 2009, 2124, 67-77.	1.9	7
78	Traffic Breakdown, Probabilistic Theory of. , 2009, , 9282-9302.		8
79	Traffic Congestion, Modeling Approaches to. , 2009, , 9302-9355.		25
80	Linking of Three-Phase Traffic Theory and Fundamental Diagram Approach to Traffic Flow Modeling. , 2009, , 245-252.		1
81	Spatiotemporal Traffic Congested Patterns. , 2009, , 107-135.		0
82	Nature of Traffic Breakdown at Bottleneck. , 2009, , 41-72.		0
83	Freeway Traffic Control based on Three-Phase Traffic Theory. , 2009, , 143-172.		2
84	Introduction to Part II:Compendium of Three-Phase Traffic Theory. , 2009, , 139-142.		0
85	Origin of Hypotheses and Terms of Three-Phase Traffic Theory. , 2009, , 99-106.		0
86	Nature of Moving Jam Emergence. , 2009, , 81-98.		0
87	Earlier Theoretical Basis of Transportation Engineering: Fundamental Diagram Approach. , 2009, , 173-219.		1
88	A theory of traffic congestion at heavy bottlenecks. Journal of Physics A: Mathematical and Theoretical, 2008, 41, 215101.	2.1	53
89	A theory of traffic congestion at heavy bottleneckss. Journal of Physics A: Mathematical and Theoretical, 2008, 41, 369801.	2.1	4
90	On-Ramp Metering Based on Three-Phase Traffic Theory Downstream Off-Ramp and Upstream On-Ramp Bottlenecks. Transportation Research Record, 2008, 2088, 80-89.	1.9	20

#	Article	IF	Citations
91	Study of Freeway Speed Limit Control Based on Three-Phase Traffic Theory. Transportation Research Record, 2007, 1999, 30-39.	1.9	30
92	Control of Spatiotemporal Congested Traffic Patterns at Highway Bottlenecks. IEEE Transactions on Intelligent Transportation Systems, 2007, 8, 308-320.	8.0	38
93	Empirical test of a microscopic three-phase traffic theory. Nonlinear Dynamics, 2007, 49, 525-553.	5.2	49
94	Microscopic features of moving traffic jams. Physical Review E, 2006, 73, 046107.	2.1	73
95	Deterministic microscopic three-phase traffic flow models. Journal of Physics A, 2006, 39, 1775-1809.	1.6	125
96	Probabilistic Breakdown Phenomenon at On-Ramp Bottlenecks in Three-Phase Traffic Theory. Transportation Research Record, 2006, 1965, 70-78.	1.9	10
97	Probabilistic breakdown phenomenon at on-ramp bottlenecks in three-phase traffic theory: Congestion nucleation in spatially non-homogeneous traffic. Physica A: Statistical Mechanics and Its Applications, 2006, 364, 473-492.	2.6	27
98	Criterion for traffic phases in single vehicle data and empirical test of a microscopic three-phase traffic theory. Journal of Physics A, 2006, 39, 2001-2020.	1.6	49
99	Probabilistic Breakdown Phenomenon at On-Ramp Bottlenecks in Three-Phase Traffic Theory. Transportation Research Record, 2006, 1965, 70-78.	1.9	17
100	Control of spatiotemporal congested traffic patterns at highway bottlenecks. Physica A: Statistical Mechanics and Its Applications, 2005, 355, 565-601.	2.6	65
101	Microscopic Three-phase Traffic Theory and Its Applications for Freeway Traffic Control. , 2005, , 181-203.		7
102	Spatialâ€“temporal patterns in heterogeneous traffic flow with a variety of driver behavioural characteristics and vehicle parameters. Journal of Physics A, 2004, 37, 8753-8788.	1.6	75
103	Three-phase traffic theory and highway capacity. Physica A: Statistical Mechanics and Its Applications, 2004, 333, 379-440.	2.6	241
104	Recognition and tracking of spatialâ€“temporal congested traffic patterns on freeways. Transportation Research Part C: Emerging Technologies, 2004, 12, 369-400.	7.6	106
105	The Physics of Traffic. Understanding Complex Systems, 2004, , .	0.6	520
106	Methods for Automatic Tracing and Forecasting of Spatial-Temporal Congested Patterns: A Review. , 2004, , 251-284.		2
107	Microscopic theory of spatial-temporal congested traffic patterns at highway bottlenecks. Physical Review E, 2003, 68, 036130.	2.1	179
108	Empirical Features of Congested Patterns at Highway Bottlenecks. Transportation Research Record, 2002, 1802, 145-154.	1.9	43

#	Article	IF	Citations
109	Empirical macroscopic features of spatial-temporal traffic patterns at highway bottlenecks. Physical Review E, 2002, 65, 046138.	2.1	251
110	Cellular automata approach to three-phase traffic theory. Journal of Physics A, 2002, 35, 9971-10013.	1.6	383
111	A microscopic model for phase transitions in traffic flow. Journal of Physics A, 2002, 35, L31-L43.	1.6	225
112	Theory of Congested Highway Traffic: Empirical Features and Methods of Tracing and Prediction. , 2002, , 417-439.		5
113	Complexity of Synchronized Flow and Related Problems for Basic Assumptions of Traffic Flow Theories. Networks and Spatial Economics, 2001, 1, 35-76.	1.6	124
114	Theory of Breakdown Phenomenon at Highway Bottlenecks. Transportation Research Record, 2000, 1710, 136-144.	1.9	87
115	Experimental features of the emergence of moving jams in free traffic flow. Journal of Physics A, 2000, 33, L221-L228.	1.6	108
116	The physics of traffic. Physics World, 1999, 12, 25-30.	0.0	314
117	Congested Traffic Flow: Observations and Theory. Transportation Research Record, 1999, 1678, 160-167.	1.9	170
118	Local cluster effect in different traffic flow models. Physica A: Statistical Mechanics and Its Applications, 1998, 255, 163-188.	2.6	185
119	Deterministic spontaneous appearance of traffic jams in slightly inhomogeneous traffic flow. Physical Review E, 1995, 51, 6243-6246.	2.1	141
120	Structure and parameters of clusters in traffic flow. Physical Review E, 1994, 50, 54-83.	2.1	453
121	Transition from pulsating to rocking localized structures in nonlinear dissipative distributive media with global inhibition. Physica D: Nonlinear Phenomena, 1993, 69, 425-435.	2.8	21
122	Cluster effect in initially homogeneous traffic flow. Physical Review E, 1993, 48, R2335-R2338.	2.1	598
123	Spontaneous appearance of rocking localized current filaments in a nonequilibrium distributive system. Physical Review B, 1992, 46, 7559-7570.	3.2	71
124	Thermodiffusional autosolitons in nonequilibrium electron-hole plasma in Ge. Journal of Physics Condensed Matter, 1990, 2, 2863-2866.	1.8	16
125	Self-organization in active distributed media: scenarios for the spontaneous formation and evolution of dissipative structures. Uspekhi Fizicheskikh Nauk, 1990, 33, 679-719.	0.3	88
126	Autosolitons. Uspekhi Fizicheskikh Nauk, 1989, 32, 101-138.	0.3	122