Atsushi Uchida

List of Publications by Year
in descending order

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114	4,023	117625	123424
papers	citations	34 h-index	61 g-index

132	132	132	1646
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Fast physical random bit generation with chaotic semiconductor lasers. Nature Photonics, 2008, 2, 728-732.	31.4	808
2	Fast random bit generation with bandwidth-enhanced chaos in semiconductor lasers. Optics Express, 2010, 18, 5512.	3.4	168
3	Laser dynamical reservoir computing with consistency: an approach of a chaos mask signal. Optics Express, 2016, 24, 8679.	3.4	155
4	Consistency of Nonlinear System Response to Complex Drive Signals. Physical Review Letters, 2004, 93, 244102.	7.8	144
5	Tb/s physical random bit generation with bandwidth-enhanced chaos in three-cascaded semiconductor lasers. Optics Express, 2015, 23, 1470.	3.4	130
6	Novel frontier of photonics for data processingâ€"Photonic accelerator. APL Photonics, 2019, 4, 090901.	5.7	127
7	Secure Key Distribution Using Correlated Randomness in Lasers Driven by Common Random Light. Physical Review Letters, 2012, 108, 070602.	7.8	119
8	Impact of input mask signals on delay-based photonic reservoir computing with semiconductor lasers. Optics Express, 2018, 26, 5777.	3.4	101
9	Compact reservoir computing with a photonic integrated circuit. Optics Express, 2018, 26, 29424.	3.4	96
10	Fast nondeterministic random-bit generation using on-chip chaos lasers. Physical Review A, 2011, 83, .	2.5	88
11	Ultrafast photonic reinforcement learning based on laser chaos. Scientific Reports, 2017, 7, 8772.	3.3	79
12	Common-chaotic-signal induced synchronization in semiconductor lasers. Optics Express, 2007, 15, 3974.	3.4	68
13	Fast Random Number Generation With Bandwidth-Enhanced Chaotic Semiconductor Lasers at 8$,imes,$50 Gb/s. IEEE Photonics Technology Letters, 2012, 24, 1042-1044.	2.5	68
14	Characteristics of Fast Physical Random Bit Generation Using Chaotic Semiconductor Lasers. IEEE Journal of Quantum Electronics, 2009, 45, 1367-1379.	1.9	65
15	Reservoir Computing Using Multiple Lasers With Feedback on a Photonic Integrated Circuit. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-9.	2.9	65
16	Synchronization of bandwidth-enhanced chaos in semiconductor lasers with optical feedback and injection. Optics Express, 2009, 17, 19536.	3.4	60
17	Experiment on synchronization of semiconductor lasers by common injection of constant-amplitude random-phase light. Optics Express, 2012, 20, 11813.	3.4	60
18	Information-theoretic secure key distribution based on common random-signal induced synchronization in unidirectionally-coupled cascades of semiconductor lasers. Optics Express, 2013, 21, 17869.	3.4	60

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19	Real-time fast physical random number generator with a photonic integrated circuit. Optics Express, 2017, 25, 6511.	3.4	60
20	Synchronization and communication with chaotic laser systems. Progress in Optics, 2005, , 203-341.	0.6	59
21	Chaos laser chips with delayed optical feedback using a passive ring waveguide. Optics Express, 2011, 19, 5713.	3.4	59
22	Generalized Synchronization of Chaos in Identical Systems with Hidden Degrees of Freedom. Physical Review Letters, 2003, 91, 174101.	7.8	54
23	Fast physical random bit generation with photonic integrated circuits with different external cavity lengths for chaos generation. Optics Express, 2014, 22, 11727.	3.4	53
24	Performance of Random Number Generators Using Noise-Based Superluminescent Diode and Chaos-Based Semiconductor Lasers. IEEE Journal of Selected Topics in Quantum Electronics, 2013, 19, 0600309-0600309.	2.9	51
25	Recommendations and illustrations for the evaluation of photonic random number generators. APL Photonics, 2017, 2, .	5.7	49
26	Scalable photonic reinforcement learning by time-division multiplexing of laser chaos. Scientific Reports, 2018, 8, 10890.	3.3	46
27	Generalized Synchronization of Spatiotemporal Chaos in a Liquid Crystal Spatial Light Modulator. Physical Review Letters, 2004, 93, 084101.	7.8	44
28	Differential-phase-shift quantum key distribution experiment using fast physical random bit generator with chaotic semiconductor lasers. Optics Express, 2009, 17, 9053.	3.4	41
29	Consistency and complexity in coupled semiconductor lasers with time-delayed optical feedback. Physical Review E, 2012, 86, 066202.	2.1	39
30	Dynamic channel selection in wireless communications via a multi-armed bandit algorithm using laser chaos time series. Scientific Reports, 2020, 10, 1574.	3.3	39
31	Synchronization by injection of common chaotic signal in semiconductor lasers with optical feedback. Optics Express, 2009, 17, 10025.	3.4	38
32	Estimation of entropy rate in a fast physical random-bit generator using a chaotic semiconductor laser with intrinsic noise. Physical Review E, 2012, 85, 016211.	2.1	38
33	Leader-laggard relationship of chaos synchronization in mutually coupled vertical-cavity surface-emitting lasers with time delay. Physical Review E, 2009, 79, 026210.	2.1	35
34	Random optical pulse generation with bistable semiconductor ring lasers. Optics Express, 2011, 19, 7439.	3.4	34
35	Theory of fast nondeterministic physical random-bit generation with chaotic lasers. Physical Review E, 2012, 85, 046215.	2.1	34
36	Laser network decision making by lag synchronization of chaos in a ring configuration. Optics Express, 2020, 28, 40112.	3.4	33

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37	Common-signal-induced synchronization in photonic integrated circuits and its application to secure key distribution. Optics Express, 2017, 25, 26029.	3.4	32
38	Using multidimensional speckle dynamics for high-speed, large-scale, parallel photonic computing. Optics Express, 2020, 28, 30349.	3.4	32
39	Photonic reservoir computing based on nonlinear wave dynamics at microscale. Scientific Reports, 2019, 9, 19078.	3.3	29
40	Photonic neural field on a silicon chip: large-scale, high-speed neuro-inspired computing and sensing. Optica, 2021, 8, 1388.	9.3	28
41	Noise amplification by chaotic dynamics in a delayed feedback laser system and its application to nondeterministic random bit generation. Chaos, 2012, 22, 047513.	2.5	26
42	Decision making for the multi-armed bandit problem using lag synchronization of chaos in mutually coupled semiconductor lasers. Optics Express, 2019, 27, 26989.	3.4	25
43	Local conditional Lyapunov exponent characterization of consistency of dynamical response of the driven Lorenz system. Physical Review E, 2008, 78, 036203.	2.1	24
44	Complexity and bandwidth enhancement in unidirectionally coupled semiconductor lasers with time-delayed optical feedback. Physical Review E, 2016, 93, 032206.	2.1	24
45	Photonic integrated circuits unveil crisis-induced intermittency. Optics Express, 2016, 24, 22198.	3.4	22
46	On-chip photonic decision maker using spontaneous mode switching in a ring laser. Scientific Reports, 2019, 9, 9429.	3.3	22
47	Spontaneous exchange of leader-laggard relationship in mutually coupled synchronized semiconductor lasers. Physical Review E, 2017, 95, 052212.	2.1	19
48	Synchronized Laser Chaos Communication: Statistical Investigation of an Experimental System. IEEE Journal of Quantum Electronics, 2017, 53, 1-10.	1.9	18
49	Finite-time Lyapunov exponents in time-delayed nonlinear dynamical systems. Physical Review E, 2014, 89, 032918.	2.1	17
50	Entropy rate of chaos in an optically injected semiconductor laser for physical random number generation. Optics Express, 2021, 29, 2442.	3.4	17
51	Reliability and synchronization in a delay-coupled neuronal network with synaptic plasticity. Physical Review E, 2011, 83, 061915.	2.1	16
52	Memory Effect on Adaptive Decision Making with a Chaotic Semiconductor Laser. Complexity, 2018, 2018, 1-8.	1.6	16
53	Entropy evaluation of white chaos generated by optical heterodyne for certifying physical random number generators. Optics Express, 2020, 28, 3686.	3.4	16
54	Secret-Key Distribution Based on Bounded Observability. Proceedings of the IEEE, 2015, 103, 1762-1780.	21.3	15

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55	High-entropy chaos generation using semiconductor lasers subject to intensity-modulated optical injection for certified physical random number generation. Optics Letters, 2021, 46, 3384.	3.3	15
56	Inphase and Antiphase Dynamics of Spatially-Resolved Light Intensities Emitted by a Chaotic Broad-Area Semiconductor Laser. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 522-530.	2.9	14
57	Decision Making Photonics: Solving Bandit Problems Using Photons. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-10.	2.9	14
58	Generative adversarial network based on chaotic time series. Scientific Reports, 2019, 9, 12963.	3.3	13
59	Cycles of self-pulsations in a photonic integrated circuit. Physical Review E, 2015, 92, 062905.	2.1	11
60	Dynamics Versus Feedback Delay Time in Photonic Integrated Circuits: Mapping the Short Cavity Regime. IEEE Photonics Journal, 2017, 9, 1-12.	2.0	11
61	Random Number Generation From Intermittent Optical Chaos. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 1-8.	2.9	11
62	Nonlinear dynamics and chaos synchronization in Mackey-Glass electronic circuits with multiple time-delayed feedback. Nonlinear Theory and Its Applications IEICE, 2012, 3, 155-164.	0.6	10
63	Common-Signal-Induced Synchronization in Semiconductor Lasers With Broadband Optical Noise Signal. IEEE Journal of Selected Topics in Quantum Electronics, 2017, 23, 1-10.	2.9	10
64	Dynamics-dependent synchronization in on-chip coupled semiconductor lasers. Physical Review E, 2017, 96, 032216.	2.1	9
65	Effect of bandwidth limitation of optical noise injection on common-signal-induced synchronization in multi-mode semiconductor lasers. Optics Express, 2018, 26, 13521.	3.4	7
66	Adaptive model selection in photonic reservoir computing by reinforcement learning. Scientific Reports, 2020, 10, 10062.	3.3	7
67	Photonic reinforcement learning based on optoelectronic reservoir computing. Scientific Reports, 2022, 12, 3720.	3.3	7
68	Decision making for large-scale multi-armed bandit problems using bias control of chaotic temporal waveforms in semiconductor lasers. Scientific Reports, 2022, 12, 8073.	3.3	7
69	Chaotic dynamics and synchronization in microchip solid-state lasers with optoelectronic feedback. Physical Review E, 2006, 74, 066206.	2.1	6
70	Synchronization of chaotic semiconductor lasers by optical injection with random phase modulation. Optical and Quantum Electronics, 2009, 41, 137-149.	3.3	6
71	Reservoir computing and decision making using laser dynamics for photonic accelerator. Japanese Journal of Applied Physics, 2020, 59, 040601.	1.5	6
72	Physical implementation of oblivious transfer using optical correlated randomness. Scientific Reports, 2017, 7, 8444.	3.3	5

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73	Fast dynamics of low-frequency fluctuations in a quantum-dot laser with optical feedback. Optics Express, 2021, 29, 17962.	3.4	5
74	Lotkaâ€“Volterra Competition Mechanism Embedded in a Decision-Making Method. Journal of the Physical Society of Japan, 2020, 89, 014801.	1.6	4
75	Synchronization of chaos in mutually coupled vertical-cavity surface-emitting lasers with time delay. , 2009, , .		3
76	Generalized synchronization and complexity in unidirectionally coupled dynamical systems. Nonlinear Theory and Its Applications IEICE, 2012, 3, 143-154.	0.6	3
77	Adaptive decision making using a chaotic semiconductor laser for multi-armed bandit problem with time-varying hit probabilities. Nonlinear Theory and Its Applications IEICE, 2022, 13, 112-122.	0.6	3
78	Complexity Analysis in A Semiconductor Laser with Time-Delayed Optical Feedback. The Review of Laser Engineering, 2011, 39, 543-549.	0.0	2
79	Review on Ultra-Fast Physical Random Number Generators Based on Optical Random Phenomena. The Review of Laser Engineering, 2011, 39, 508-514.	0.0	2
80	Photonic decision making for solving competitive multi-armed bandit problem using semiconductor laser networks. Nonlinear Theory and Its Applications IEICE, 2022, 13, 582-597.	0.6	2
81	Consistency in Lasers. The Review of Laser Engineering, 2007, 35, 38-42.	0.0	1
82	Performance Improvement of Delay-Based Photonic Reservoir Computing. Natural Computing Series, 2021, , 377-396.	2.2	1
83	Progress in Fast Physical Random Number Generation with Complex Photonics. The Review of Laser Engineering, 2019, 47, 310.	0.0	1
84	Separation of mixed chaotic signals in microchip lasers by independent component analysis. , 2007, , .		0
85	Synchronization of chaos in mutually coupled VCSELs: numerical study. , 2007, , .		0
86	Analysis of fractal dimension of light scattering in polyhedral mirror-ball structures. , 2007, , .		0
87	Experimental evaluation of fast random bit sequence generation using chaotic semiconductor lasers. , 2009, , .		0
88	Chaotic polarization dynamics and chaos synchronization in VCSELs. , 2009, , .		0
89	Fast physical random bit generator based on chaotic semiconductor lasers: Application to quantum cryptography. , 2009, , .		0
90	Efficient physical random bit generation with lasers. , 2009, , .		0

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91	Complexity and frequency bandwidth in unidirectionally-coupled semiconductor lasers with optical feedback. , 2013, , .		0
92	Multiple basins of consistency in noise-driven dynamical system. Nonlinear Theory and Its Applications IEICE, 2014, 5, 436-444.	0.6	0
93	Numerical study on dynamics-dependent synchronization in mutually-coupled lasers with asymmetric feedback. Nonlinear Theory and Its Applications IEICE, 2019, 10, 60-73.	0.6	0
94	Photonic Artificial Intelligence Using Complex Photonics: Reservoir Computing and Decision Making. , 2021, , .		0
95	Recent Progress in Quantum Optics. Secure Communications Using Laser Chaos.. The Review of Laser Engineering, 2000, 28, 682-689.	0.0	0
96	Numerical Analysis on Chaos Synchronization in Semiconductor Lasers Subject to a Common Drive Signal. IEEJ Transactions on Electronics, Information and Systems, 2008, 128, 768-774.	0.2	0
97	Secure key distribution using correlated randomness in optical devices. IEICE Proceeding Series, 2014, 1, 336-339.	0.0	0
98	Spontaneous exchange of leader-laggard relationship in mutually-coupled semiconductor lasers. IEICE Proceeding Series, 2014, 1, 399-402.	0.0	0
99	Noise Effects on Generalized Chaos Synchronization in Semiconductor Lasers. IEICE Proceeding Series, 2014, 2, 413-416.	0.0	0
100	Nonlinear dynamics in a photonic integrated circuit for fast chaos generation. IEICE Proceeding Series, 2014, 1, 134-137.	0.0	0
101	Finite-time Lyapunov exponents in nonlinear dynamical systems with time-delayed feedback. IEICE Proceeding Series, 2014, 1, 276-279.	0.0	0
102	Estimation of maximum Lyapunov exponent using generalized synchronization in semiconductor lasers with optical feedback. IEICE Proceeding Series, 2014, 2, 405-408.	0.0	0
103	Random number generation with a photonic integrated circuit for fast chaos generation. IEICE Proceeding Series, 2014, 1, 138-141.	0.0	0
104	Fast random number generation with bandwidth-enhanced chaos and post-processing. IEICE Proceeding Series, 2014, 1, 142-145.	0.0	0
105	Experiment on secure key distribution using correlated random phenomenon in semiconductor lasers. IEICE Proceeding Series, 2014, 1, 340-343.	0.0	0
106	Reservoir Computing: Novel Optical Computing Using Laser Dynamics. The Review of Laser Engineering, 2015, 43, 365.	0.0	0
107	Numerical Analysis of Antiphase Dynamics of Spatiotemporal Chaos in a Broad-Area Semiconductor Laser. The Review of Laser Engineering, 2015, 43, 393.	0.0	0
108	Estimation of the Lyapunov Exponent Using Transient of Generalized Synchronization in Semiconductor Lasers with Optical Feedback. The Review of Laser Engineering, 2015, 43, 387.	0.0	0

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109	Performance Improvement of Optical Reservoir Computing Based on Complex Transient Dynamics of a Laser with Time-Delayed Feedback. The Review of Laser Engineering, 2017, 45, 148.	0.0	0
110	Implementation of optical feedback modulation in photonic reservoir computing. , 2019, , .		0
111	Decision making using lag synchronization of chaos in mutually-coupled semiconductor lasers. , 2019, , .		0
112	Experimental demonstration of adaptive model selection based on reinforcement learning in photonic reservoir computing. Nonlinear Theory and Its Applications IEICE, 2022, 13, 123-138.	0.6	0
113	Photonic accelerator based on optical chaos. , 2022, , .		0
114	Photonic Computing Highlighting Ultimate Nature of Light: Decision Making by Photonics. Ieice Ess Fundamentals Review, 2022, 15, 310-317.	0.1	0