

Frank R Kschischang

List of Publications by Year in descending order

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159
papers

6,936
citations

109137

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77
g-index

160
all docs

160
docs citations

160
times ranked

3573
citing authors

#	ARTICLE	IF	CITATIONS
1	Coding for Errors and Erasures in Random Network Coding. IEEE Transactions on Information Theory, 2008, 54, 3579-3591.	1.5	683
2	A Rank-Metric Approach to Error Control in Random Network Coding. IEEE Transactions on Information Theory, 2008, 54, 3951-3967.	1.5	436
3	Roadmap of optical communications. Journal of Optics (United Kingdom), 2016, 18, 063002.	1.0	402
4	The Factor Graph Approach to Model-Based Signal Processing. Proceedings of the IEEE, 2007, 95, 1295-1322.	16.4	391
5	A Simplified Successive-Cancellation Decoder for Polar Codes. IEEE Communications Letters, 2011, 15, 1378-1380.	2.5	343
6	Staircase Codes With 6% to 33% Overhead. Journal of Lightwave Technology, 2014, 32, 1999-2002.	2.7	308
7	Staircase Codes: FEC for 100 Gb/s OTN. Journal of Lightwave Technology, 2012, 30, 110-117.	2.7	283
8	Information Transmission Using the Nonlinear Fourier Transform, Part I: Mathematical Tools. IEEE Transactions on Information Theory, 2014, 60, 4312-4328.	1.5	242
9	Information Transmission Using the Nonlinear Fourier Transform, Part II: Numerical Methods. IEEE Transactions on Information Theory, 2014, 60, 4329-4345.	1.5	225
10	In-building power lines as high-speed communication channels: channel characterization and a test channel ensemble. International Journal of Communication Systems, 2003, 16, 381-400.	1.6	166
11	Capacity-Achieving Probability Measure for Conditionally Gaussian Channels With Bounded Inputs. IEEE Transactions on Information Theory, 2005, 51, 2073-2088.	1.5	152
12	An Algebraic Approach to Physical-Layer Network Coding. IEEE Transactions on Information Theory, 2013, 59, 7576-7596.	1.5	147
13	Digital signal processing for fiber nonlinearities [Invited]. Optics Express, 2017, 25, 1916.	1.7	134
14	A pixelated MIMO wireless optical communication system. IEEE Journal of Selected Topics in Quantum Electronics, 2006, 12, 859-874.	1.9	127
15	Information Transmission Using the Nonlinear Fourier Transform, Part III: Spectrum Modulation. IEEE Transactions on Information Theory, 2014, 60, 4346-4369.	1.5	126
16	Universal Secure Network Coding via Rank-Metric Codes. IEEE Transactions on Information Theory, 2011, 57, 1124-1135.	1.5	124
17	Power Reduction Techniques for LDPC Decoders. IEEE Journal of Solid-State Circuits, 2008, 43, 1835-1845.	3.5	106
18	Nonlinear Frequency Division Multiplexed Transmissions Based on NFT. IEEE Photonics Technology Letters, 2015, 27, 1621-1623.	1.3	100

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19	On Metrics for Error Correction in Network Coding. IEEE Transactions on Information Theory, 2009, 55, 5479-5490.	1.5	99
20	Probabilistic 16-QAM Shaping in WDM Systems. Journal of Lightwave Technology, 2016, 34, 4285-4292.	2.7	92
21	On the Effective Weights of Pseudocodewords for Codes Defined on Graphs with Cycles. The IMA Volumes in Mathematics and Its Applications, 2001, , 101-112.	0.5	86
22	A factor graph approach to link loss monitoring in wireless sensor networks. IEEE Journal on Selected Areas in Communications, 2005, 23, 820-829.	9.7	76
23	Coding for Errors and Erasures in Random Network Coding. , 2007, , .		72
24	A bit-serial approximate min-sum LDPC decoder and FPGA implementation. , 0, , .		67
25	Multieigenvalue Communication. Journal of Lightwave Technology, 2016, 34, 3110-3117.	2.7	65
26	Sparse network coding with overlapping classes. , 2009, , .		63
27	A Pragmatic Coded Modulation Scheme for High-Spectral-Efficiency Fiber-Optic Communications. Journal of Lightwave Technology, 2012, 30, 2047-2053.	2.7	63
28	Universal and Dynamic Locally Repairable Codes With Maximal Recoverability via Sum-Rank Codes. IEEE Transactions on Information Theory, 2019, 65, 7790-7805.	1.5	58
29	An algebraic approach to physical-layer network coding. , 2010, , .		57
30	Block-Interlaced LDPC Decoders With Reduced Interconnect Complexity. IEEE Transactions on Circuits and Systems II: Express Briefs, 2008, 55, 74-78.	2.2	56
31	Communication Over Finite-Field Matrix Channels. IEEE Transactions on Information Theory, 2010, 56, 1296-1305.	1.5	53
32	Future Prospects for FEC in Fiber-Optic Communications. IEEE Journal of Selected Topics in Quantum Electronics, 2010, 16, 1245-1257.	1.9	52
33	Analysis of Low-Density Parity-Check Codes for the Gilbert–Elliott Channel. IEEE Transactions on Information Theory, 2005, 51, 3872-3889.	1.5	50
34	Universal weakly secure network coding. , 2009, , .		50
35	Applications of algebraic soft-decision decoding of Reed-Solomon codes. IEEE Transactions on Communications, 2006, 54, 1224-1234.	4.9	49
36	Design of irregular LDPC codes with optimized performance-complexity tradeoff. IEEE Transactions on Communications, 2010, 58, 489-499.	4.9	48

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37	Reliable and Secure Multishot Network Coding Using Linearized Reed-Solomon Codes. IEEE Transactions on Information Theory, 2019, 65, 4785-4803.	1.5	48
38	Security for wiretap networks via rank-metric codes. , 2008, , .		46
39	Towards a VLSI Architecture for Interpolation-Based Soft-Decision Reed-Solomon Decoders. Journal of Signal Processing Systems, 2005, 39, 93-111.	1.0	44
40	Upper bound on the capacity of a cascade of nonlinear and noisy channels. , 2015, , .		43
41	On the Per-Sample Capacity of Nondispersive Optical Fibers. IEEE Transactions on Information Theory, 2011, 57, 7522-7541.	1.5	42
42	Bi-Directional Algorithm for Computing Discrete Spectral Amplitudes in the NFT. Journal of Lightwave Technology, 2016, 34, 3529-3537.	2.7	41
43	Fast encoding and decoding of Gabidulin codes. , 2009, , .		40
44	Low-Complexity Concatenated LDPC-Staircase Codes. Journal of Lightwave Technology, 2018, 36, 2443-2449.	2.7	36
45	A 3.3-Gbps bit-serial block-interlaced min-sum LDPC decoder in 0.13- μ m CMOS. , 2007, , .		32
46	Subspace Codes. Lecture Notes in Computer Science, 2009, , 1-21.	1.0	32
47	Using Rank-Metric Codes for Error Correction in Random Network Coding. , 2007, , .		31
48	On Designing Good LDPC Codes for Markov Channels. IEEE Transactions on Information Theory, 2007, 53, 5-21.	1.5	30
49	Low-Complexity Soft-Decision Concatenated LDGM-Staircase FEC for High-Bit-Rate Fiber-Optic Communication. Journal of Lightwave Technology, 2017, 35, 3991-3999.	2.7	28
50	A Rank-Metric Approach to Error Control in Random Network Coding. , 2007, , .		27
51	On Factor Graphs and the Fourier Transform. IEEE Transactions on Information Theory, 2005, 51, 1635-1649.	1.5	26
52	Implications of information theory in optical fibre communications. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2016, 374, 20140438.	1.6	26
53	Applications of Algebraic Soft-Decision Decoding of Reed-Solomon Codes. IEEE Transactions on Communications, 2006, 54, 1143-1143.	4.9	25
54	Gear-shift decoding. IEEE Transactions on Communications, 2006, 54, 1235-1242.	4.9	25

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55	Rank-Metric Codes for Priority Encoding Transmission with Network Coding. , 2007, , .		22
56	Performance-Complexity Tradeoffs of Concatenated FEC for Higher-Order Modulation. Journal of Lightwave Technology, 2020, , 1-1.	2.7	22
57	Zipper Codes: Spatially-Coupled Product-Like Codes with Iterative Algebraic Decoding. , 2019, , .		21
58	Optical Nonlinear Phase Noise Compensation for γ -Gbaud PolDM-16 QAM Transmission Using a Code-Aided Expectation-Maximization Algorithm. Journal of Lightwave Technology, 2015, 33, 3679-3686.	2.7	20
59	Upper bound on the capacity of the nonlinear Schrödinger channel. , 2015, , .		19
60	Multi-eigenvalue communication via the nonlinear Fourier transform. , 2014, , .		18
61	Communication Over Finite-Chain-Ring Matrix Channels. IEEE Transactions on Information Theory, 2014, 60, 5899-5917.	1.5	18
62	Feedback Quantization Strategies for Multiuser Diversity Systems. IEEE Transactions on Information Theory, 2007, 53, 1386-1400.	1.5	17
63	Energy Consumption of VLSI Decoders. IEEE Transactions on Information Theory, 2015, 61, 3185-3198.	1.5	17
64	Incremental Redundancy via Check Splitting. , 0, , .		16
65	Rateless Coding for Arbitrary Channel Mixtures With Decoder Channel State Information. IEEE Transactions on Information Theory, 2009, 55, 4119-4133.	1.5	16
66	Capacity of random network coding under a probabilistic error model. , 2008, , .		15
67	Universal secure error-correcting schemes for network coding. , 2010, , .		15
68	Design criteria for lattice network coding. , 2011, , .		15
69	K�ttner interpolation in skew polynomial rings. Designs, Codes, and Cryptography, 2014, 72, 593-608.	1.0	15
70	Projective space codes for the injection metric. , 2009, , .		14
71	Multi-Edge-Type Low-Density Parity-Check Codes for Bandwidth-Efficient Modulation. IEEE Transactions on Communications, 2013, 61, 43-52.	4.9	14
72	Iterative Decoding of Tail-Biting Trellises and Connections with Symbolic Dynamics. The IMA Volumes in Mathematics and Its Applications, 2001, , 239-264.	0.5	13

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73	Properties of Optimum Binary Message-Passing Decoders. IEEE Transactions on Information Theory, 2005, 51, 3658-3665.	1.5	12
74	Robust Network Coding in the Presence of Untrusted Nodes. IEEE Transactions on Information Theory, 2010, 56, 4532-4538.	1.5	12
75	Spatially Coupled Split-Component Codes With Iterative Algebraic Decoding. IEEE Transactions on Information Theory, 2018, 64, 205-224.	1.5	12
76	An Introduction to Network Coding. , 2012, , 1-37.		11
77	Correlation-Aided Nonlinear Spectrum Detection. Journal of Lightwave Technology, 2021, 39, 4923-4931.	2.7	11
78	On the VLSI Energy Complexity of LDPC Decoder Circuits. IEEE Transactions on Information Theory, 2017, , 1-1.	1.5	10
79	Evaluation and interpolation over multivariate skew polynomial rings. Journal of Algebra, 2019, 525, 111-139.	0.4	10
80	Construction and decoding of generalized skew-evaluation codes. , 2015, , .		9
81	Modeling and Energy Optimization of LDPC Decoder Circuits With Timing Violations. IEEE Transactions on Communications, 2018, 66, 932-946.	4.9	9
82	Rate-Diversity Optimal Multiblock Space-Time Codes via Sum-Rank Codes. , 2020, , .		9
83	Low-Density Parity-Check Codes for Discretized Min-Sum Decoding. , 0, , .		8
84	Constrained Coding for Quasi-Linear Optical Data Transmission Systems. Journal of Lightwave Technology, 2006, 24, 4895-4902.	2.7	8
85	Architecture and Implementation of an Interpolation Processor for Soft-Decision Reed-Solomon Decoding. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2007, 15, 309-318.	2.1	8
86	Coset-based lattice detection for MIMO systems. , 2007, , .		8
87	Lattice network coding over finite rings. , 2011, , .		8
88	Improved Soliton Amplitude Estimation via the Continuous Spectrum. Journal of Lightwave Technology, 2019, 37, 3087-3099.	2.7	8
89	Adversarial Network Coding. IEEE Transactions on Information Theory, 2019, 65, 198-219.	1.5	8
90	Two-dimensional barcodes for mobile phones. , 2010, , .		7

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91	Secure-broadcast codes over linear-deterministic channels. , 2010, , .		7
92	A Two-Dimensional Signal Space for Intensity-Modulated Channels. IEEE Communications Letters, 2012, 16, 1361-1364.	2.5	7
93	A Constrained Coding Approach to Error-Free Half-Duplex Relay Networks. IEEE Transactions on Information Theory, 2013, 59, 6258-6260.	1.5	7
94	Energy optimization of LDPC decoder circuits with timing violations. , 2015, , .		7
95	Reliable and Secure Multishot Network Coding using Linearized Reed-Solomon Codes. , 2018, , .		7
96	Low-Complexity Rate- and Channel-Configurable Concatenated Codes. Journal of Lightwave Technology, 2021, 39, 1976-1983.	2.7	7
97	Trellis-based decoding of binary linear block codes. Lecture Notes in Computer Science, 1994, , 270-286.	1.0	7
98	Adversarial error correction for network coding: Models and metrics. , 2008, , .		6
99	Blind compute-and-forward. , 2012, , .		6
100	Higher bit rates for dispersion-managed soliton communication systems via constrained coding. Journal of Lightwave Technology, 2006, 24, 1149-1158.	2.7	5
101	Gear-Shift Decoding. IEEE Transactions on Communications, 2006, 54, 1143-1143.	4.9	5
102	A key-based error control scheme for network coding. , 2009, , .		5
103	Trellis detection for random lattices. , 2011, , .		5
104	Energy of decoding algorithms. , 2013, , .		5
105	Spatially-coupled split-component codes with bounded-distance component decoding. , 2015, , .		5
106	Matroidal structure of skew polynomial rings with application to network coding. Finite Fields and Their Applications, 2017, 46, 326-346.	0.6	5
107	Lattice network coding via signal codes. , 2011, , .		4
108	A Constrained-Coding Alternative to MPPM. IEEE Transactions on Communications, 2012, 60, 1013-1019.	4.9	4

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109	Decoding analysis accounting for mis-corrections for spatially-coupled split-component codes. , 2016, , .		4
110	Near-Capacity Coding for Discrete Multitone Systems with Impulse Noise. Eurasip Journal on Advances in Signal Processing, 2006, 2006, 1.	1.0	3
111	Higher bit rates for quasi-linear optical data transmission systems via constrained coding. , 2006, , .		3
112	A Partial Ordering of General Finite-State Markov Channels Under LDPC Decoding. IEEE Transactions on Information Theory, 2007, 53, 2072-2087.	1.5	3
113	Pseudolinear optical system reach enhancement via runlength-limited coding. IEEE Journal on Selected Areas in Communications, 2008, 26, 66-72.	9.7	3
114	Coding for MPPM-like systems. , 2010, , .		3
115	Communication over fiber-optic channels using the nonlinear Fourier transform. , 2013, , .		3
116	Coded-Aided Phase Tracking for Coherent Fiber Channels. Journal of Lightwave Technology, 2014, 32, 1041-1047.	2.7	3
117	Slotted ALOHA with compute-and-forward. , 2015, , .		3
118	Complexity-optimized concatenated LDGM-staircase codes. , 2017, , .		3
119	Reduced-Complexity Nonlinear Soliton Amplitude Estimators. IEEE Photonics Technology Letters, 2019, 31, 1933-1935.	1.3	3
120	On the Capacity of Waveform Channels Under Square-Law Detection of Time-Limited Signals. IEEE Transactions on Information Theory, 2020, 66, 6682-6687.	1.5	3
121	Direct Detection Under Tukey Signalling. Journal of Lightwave Technology, 2021, 39, 6845-6857.	2.7	3
122	Wireless Network Reliability Analysis for Arbitrary Network Topologies. IEEE Transactions on Vehicular Technology, 2022, 71, 2788-2797.	3.9	3
123	An augmented orthogonal code design for the noncoherent MIMO channel. , 2008, , .		2
124	A Fokker-Planck differential equation approach for the zero-dispersion optical fiber channel. , 2010, , .		2
125	Forward Error Correction (FEC) in Optical Communication. , 2010, , .		2
126	A probabilistic model for optical fiber channels with zero dispersion. , 2010, , .		2

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127	The per-sample capacity of zero-dispersion optical fibers. , 2011, , .		2
128	Design of multi-edge-type LDPC codes for high-order coded modulation. , 2011, , .		2
129	Energy complexity of polar codes. , 2016, , .		2
130	Blind Compute-and-Forward. IEEE Transactions on Communications, 2016, 64, 1451-1463.	4.9	2
131	Energy, Latency, and Reliability Tradeoffs in Coding Circuits. IEEE Transactions on Information Theory, 2019, 65, 935-946.	1.5	2
132	Sequential Decoding of Short Length Binary Codes: Performance versus Complexity. IEEE Communications Letters, 2021, , 1-1.	2.5	2
133	Multistage Soliton Phase and Amplitude Estimation. Journal of Lightwave Technology, 2022, 40, 93-100.	2.7	2
134	Cooperative Content Distribution Using Information Droplets. , 0, , .		1
135	Constrained Coding for WDM Systems. , 2006, , .		1
136	Ghost Pulse Suppression in Quasi-Linear Optical Data Transmission Systems via Constrained Coding. , 0, , .		1
137	Subspace codes and network coding. , 2011, , .		1
138	Integrable communication channels and the nonlinear fourier transform. , 2013, , .		1
139	Scaling Rules for the Energy of Decoder Circuits. , 2015, , .		1
140	Information-theoretic Limits on Coherent Nonlinear Optical-fiber Communication. , 2015, , .		1
141	Maximum Likelihood Detection in a Four-Dimensional Stokes-Space Receiver. IEEE Transactions on Communications, 2019, 67, 7016-7026.	4.9	1
142	Upper and Lower Bounds on the Computational Complexity of Polar Encoding and Decoding. IEEE Transactions on Information Theory, 2019, 65, 5656-5673.	1.5	1
143	Corrections to "Low-Complexity Concatenated LDPC-Staircase Codes" [Jun 18 2443-2449]. Journal of Lightwave Technology, 2019, 37, 1070-1070.	2.7	1
144	A Bounded-Noise Model for Nondispersive Optical Fiber. , 2019, , .		1

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145	Information Storage in Multilayer Resistive Memories. , 2019, , .		1
146	Information Density in Multi-Layer Resistive Memories. IEEE Transactions on Information Theory, 2021, 67, 1446-1460.	1.5	1
147	Space-Time Codes From Sum-Rank Codes. IEEE Transactions on Information Theory, 2022, 68, 1614-1637.	1.5	1
148	Complexity/performance tradeoffs in multistage decoders. European Transactions on Telecommunications, 1994, 5, 665-679.	1.2	0
149	Analysis of a Dual-Rate Transmission Scheme for Gaussian Broadcast Channels. European Transactions on Telecommunications, 2000, 11, 161-172.	1.2	0
150	Keynote 2 - Network Coding: A Revolution in the Making?. , 2008, , .		0
151	Operating Points for Low-Density Parity-Check Codes in On-off Keyed Fiber-Optic Transmission Systems. , 2009, , .		0
152	Differential polarization time coding for PolDM systems without PMD compensator. , 2010, , .		0
153	The Scientific Legacy of Ralf Koetter. IEEE Transactions on Information Theory, 2011, 57, 589-592.	1.5	0
154	Continuous-amplitude modulation for optical wireless channels. , 2012, , .		0
155	Efficient Koetter-Kschischang Decoder Architectures for Noncoherent Error Control in Random Linear Network Coding. , 2012, , .		0
156	Communication over finite-ring matrix channels. , 2013, , .		0
157	A fast displacement-based Peterson decoder. , 2015, , .		0
158	A Variational Signal-Space Distance Measure for Nondispersive Optical Fiber. , 2019, , .		0
159	A Signal-Space Distance Measure for Nondispersive Optical Fiber. IEEE Transactions on Information Theory, 2021, 67, 5903-5921.	1.5	0