Ruediger L Urbanke

List of Publications by Year
in descending order

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80 papers	14,832 citations	126708 33 h-index	189595 50 g-index
82 all docs	82 docs citations	82 times ranked	3765 citing authors

#	Article	IF	Citations
1	Guest Editorial Recent Advances in Capacity Approaching Codes. IEEE Journal on Selected Areas in Communications, 2016, 34, 205-208.	9.7	7
2	Wave-Like Solutions of General 1-D Spatially Coupled Systems. IEEE Transactions on Information Theory, 2015, 61, 4117-4157.	1.5	24
3	Achieving Martonâ€™s Region for Broadcast Channels Using Polar Codes. IEEE Transactions on Information Theory, 2015, 61, 783-800.	1.5	51
4	A Scaling Law to Predict the Finite-Length Performance of Spatially-Coupled LDPC Codes. IEEE Transactions on Information Theory, 2015, 61, 3164-3184.	1.5	51
5	Scaling Exponent of List Decoders With Applications to Polar Codes. IEEE Transactions on Information Theory, 2015, 61, 4838-4851.	1.5	25
6	Analysis of coupled scalar systems by displacement convexity. , 2014, , .		5
7	High Symbol Rate Coherent Optical Transmission Systems: 80 and 107 Gbaud. Journal of Lightwave Technology, 2014, 32, 824-831.	2.7	70
8	From Polar to Reed-Muller Codes: A Technique to Improve the Finite-Length Performance. IEEE Transactions on Communications, 2014, 62, 3084-3091.	4.9	91
9	Linear Programming Decoding of Spatially Coupled Codes. IEEE Transactions on Information Theory, 2014, 60, 4677-4698.	1.5	11
10	Finite-Length Scaling for Polar Codes. IEEE Transactions on Information Theory, 2014, 60, 5875-5898.	1.5	106
11	Threshold Saturation in Spatially Coupled Constraint Satisfaction Problems. Journal of Statistical Physics, 2013, 150, 807-850.	0.5	16
12	Windowed Decoding of Spatially Coupled Codes. IEEE Transactions on Information Theory, 2013, 59, 2277-2292.	1.5	62
13	Displacement convexity — A useful framework for the study of spatially coupled codes. , 2013, , .		6
14	Rate-Dependent Analysis of the Asymptotic Behavior of Channel Polarization. IEEE Transactions on Information Theory, 2013, 59, 2267-2276.	1.5	45
15	Spatially Coupled Ensembles Universally Achieve Capacity Under Belief Propagation. IEEE Transactions on Information Theory, 2013, 59, 7761-7813.	1.5	315
16	Iterative Coding for Network Coding. IEEE Transactions on Information Theory, 2013, 59, 1563-1572.	1.5	11
17	Chains of mean-field models. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P02011.	0.9	25
18	Exchange of Limits: Why Iterative Decoding Works. IEEE Transactions on Information Theory, 2011, 57, 2169-2187.	1.5	7

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19	Threshold Saturation via Spatial Coupling: Why Convolutional LDPC Ensembles Perform So Well over the BEC. IEEE Transactions on Information Theory, 2011, 57, 803-834.	1.5	518
20	Polar Codes are Optimal for Lossy Source Coding. IEEE Transactions on Information Theory, 2010, 56, 1751-1768.	1.5	216
21	Polar Codes: Characterization of Exponent, Bounds, and Constructions. IEEE Transactions on Information Theory, 2010, 56, 6253-6264.	1.5	259
22	On the scaling of polar codes: I. The behavior of polarized channels. , 2010, , .		32
23	An empirical scaling law for polar codes. , 2010, , .		40
24	On the scaling of polar codes: II. The behavior of un-polarized channels. , 2010, , .		17
25	Threshold saturation via spatial coupling: Why convolutional LDPC ensembles perform so well over the BEC. , 2010, , .		53
26	Coupled graphical models and their thresholds. , 2010, , .		41
27	Waterfall region performance of punctured LDPC codes over the BEC. , 2009, , .		5
28	Finite-Length Scaling for Iteratively Decoded LDPC Ensembles. IEEE Transactions on Information Theory, 2009, 55, 473-498.	1.5	101
29	The Generalized Area Theorem and Some of its Consequences. IEEE Transactions on Information Theory, 2009, 55, 4793-4821.	1.5	80
30	Performance of polar codes for channel and source coding. , 2009, , .		225
31	Polar codes: Characterization of exponent, bounds, and constructions. , 2009, , .		32
32	The compound capacity of polar codes. , 2009, , .		39
33	Guest editorial capacity approaching codes. IEEE Journal on Selected Areas in Communications, 2009, 27, 825-830.	9.7	1
34	New directions in information theory. European Transactions on Telecommunications, 2008, 19, 329-332.	1.2	2
35	Maxwell Construction: The Hidden Bridge Between Iterative and Maximuma PosterioriDecoding. IEEE Transactions on Information Theory, 2008, 54, 5277-5307.	1.5	114
36	Turbo Codes in Binary Erasure Channel. IEEE Transactions on Information Theory, 2008, 54, 1765-1773.	1.5	4

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37	Lower bounds on the rate-distortion function of individual LDGM codes. , 2008, , .		11
38	Exchange of limits: Why iterative decoding works. , 2008, , .		3
39	Computing the threshold shift for general channels. , 2008, , .		5
40	The slope scaling parameter for general channels, decoders, and ensembles. , 2008, , .		13
41	Asymptotic Rate versus Design Rate. , 2007, , .		7
42	Existence Proofs of Some EXIT Like Functions. , 2007, , .		1
43	A Generalization of the Finite-Length Scaling Approach Beyond the BEC. , 2007, , .		13
44	On the performance of turbo codes over the binary erasure channel. IEEE Communications Letters, 2007, 11, 67-69.	2.5	9
45	Degree Optimization and Stability Condition for the Min-Sum Decoder. , 2007, , .		3
46	How to find good finite-length codes: from art towards science. European Transactions on Telecommunications, 2007, 18, 491-508.	1.2	49
47	Correction to â€œMultiple-Antenna Signal Constellations for Fading Channelsâ€• IEEE Transactions on Information Theory, 2007, 53, 440-440.	1.5	0
48	Analytic Determination of Scaling Parameters. , 2006, , .		11
49	Weight Distribution of Low-Density Parity-Check Codes. IEEE Transactions on Information Theory, 2006, 52, 4839-4855.	1.5	149
50	Density evolution, thresholds and the stability condition for non-binary LDPC codes. IET Communications, 2005, 152, 1069.	1.0	76
51	Complexity Versus Performance of Capacity-Achieving Irregular Repeatâ€“Accumulate Codes on the Binary Erasure Channel. IEEE Transactions on Information Theory, 2004, 50, 1247-1256.	1.5	32
52	Exact Thresholds and Optimal Codes for the Binary-Symmetric Channel and Gallager's Decoding Algorithm A. IEEE Transactions on Information Theory, 2004, 50, 2010-2021.	1.5	70
53	Parity-check density versus performance of binary linear block codes over memoryless symmetric channels. IEEE Transactions on Information Theory, 2003, 49, 1611-1635.	1.5	85
54	On wide-band broadcast channels. IEEE Transactions on Information Theory, 2003, 49, 3250-3258.	1.5	53

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55	The renaissance of gallager's low-density parity-check codes. , 2003, 41, 126-131.		141
56	Finite-length analysis of low-density parity-check codes on the binary erasure channel. IEEE Transactions on Information Theory, 2002, 48, 1570-1579.	1.5	643
57	On the asymptotic input-output weight distributions and thresholds of convolutional and turbo-like encoders. IEEE Transactions on Information Theory, 2002, 48, 3052-3061.	1.5	35
58	On the design of low-density parity-check codes within 0.0045 dB of the Shannon limit. IEEE Communications Letters, 2001, 5, 58-60.	2.5	1,152
59	Multiple-antenna signal constellations for fading channels. IEEE Transactions on Information Theory, 2001, 47, 2618-2626.	1.5	121
60	The capacity of low-density parity-check codes under message-passing decoding. IEEE Transactions on Information Theory, 2001, 47, 599-618.	1.5	2,297
61	Design of capacity-approaching irregular low-density parity-check codes. IEEE Transactions on Information Theory, 2001, 47, 619-637.	1.5	2,578
62	Efficient encoding of low-density parity-check codes. IEEE Transactions on Information Theory, 2001, 47, 638-656.	1.5	804
63	Analysis of sum-product decoding of low-density parity-check codes using a Gaussian approximation. IEEE Transactions on Information Theory, 2001, 47, 657-670.	1.5	874
64	Rate-splitting multiple access for discrete memoryless channels. IEEE Transactions on Information Theory, 2001, 47, 873-890.	1.5	98
65	Systematic design of unitary space-time constellations. IEEE Transactions on Information Theory, 2000, 46, 1962-1973.	1.5	568
66	Lattice codes can achieve capacity on the AWGN channel. IEEE Transactions on Information Theory, 1998, 44, 273-278.	1.5	84
67	Twist points of the von Koch snowflake. Proceedings of the American Mathematical Society, 1998, 126, 1487-1490.	0.4	2
68	A rate-splitting approach to the Gaussian multiple-access channel. IEEE Transactions on Information Theory, 1996, 42, 364-375.	1.5	319
69	A counterexample to a Voronoi region conjecture. IEEE Transactions on Information Theory, 1995, 41, 1195-1196.	1.5	1
70	Smoothed pseudo-Wigner distribution, Choi-Williams distribution, and cone-kernel representation: Ambiguity-domain analysis and experimental comparison. Signal Processing, 1995, 43, 149-168.	2.1	70
71	Bilinear time-frequency representations of signals: the shift-scale invariant class. IEEE Transactions on Signal Processing, 1994, 42, 357-366.	3.2	30
72	Lattice codes can achieve capacity on the AWGN channel. , 0, , .		2

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73	Single user coding for the discrete memoryless multiple access channel. , 0, , .		12
74	The zero-error capacity region of the 2-user synchronous BAC is strictly smaller than its Shannon capacity region. , 0, , .		13
75	Gaussian approximation for sum-product decoding of low-density parity-check codes. , 0, , .		9
76	Exact thresholds and optimal codes for the binary symmetric channel and Gallager's decoding algorithm A. , 0, , .		10
77	Thresholds for turbo codes. , 0, , .		22
78	Design of provably good low-density parity check codes. , 0, , .		72
79	Multiple-antenna signal constellations for fading channels. , 0, , .		7
80	Capacity-achieving ensembles for the binary erasure channel with bounded complexity. , 0, , .		4