Jehoshua Bruck

List of Publications by Year
in descending order

219	10,337	57631	43802
papers	citations	44 h-index	91 g-index

222	222	222	6470
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Efficient Exact Stochastic Simulation of Chemical Systems with Many Species and Many Channels. Journal of Physical Chemistry A, 2000, 104, 1876-1889.	1.1	1,392
2	Neural network computation with DNA strand displacement cascades. Nature, 2011, 475, 368-372.	13.7	931
3	Localization and routing in sensor networks by local angle information. ACM Transactions on Sensor Networks, 2009, 5, 1-31.	2.3	452
4	Scaffold proteins may biphasically affect the levels of mitogen-activated protein kinase signaling and reduce its threshold properties. Proceedings of the National Academy of Sciences of the United States of America, 2000, 97, 5818-5823.	3.3	435
5	Graphene-Based Atomic-Scale Switches. Nano Letters, 2008, 8, 3345-3349.	4.5	327
6	X-code: MDS array codes with optimal encoding. IEEE Transactions on Information Theory, 1999, 45, 272-276.	1.5	298
7	Zigzag Codes: MDS Array Codes With Optimal Rebuilding. IEEE Transactions on Information Theory, 2013, 59, 1597-1616.	1.5	264
8	Rank Modulation for Flash Memories. IEEE Transactions on Information Theory, 2009, 55, 2659-2673.	1.5	210
9	Computation with finite stochastic chemical reaction networks. Natural Computing, 2008, 7, 615-633.	1.8	201
10	Efficient algorithms for all-to-all communications in multiport message-passing systems. IEEE Transactions on Parallel and Distributed Systems, 1997, 8, 1143-1156.	4.0	200
11	Construction of asymptotically good low-rate error-correcting codes through pseudo-random graphs. IEEE Transactions on Information Theory, 1992, 38, 509-516.	1.5	190
12	MDS array codes with independent parity symbols. IEEE Transactions on Information Theory, 1996, 42, 529-542.	1.5	177
13	Harmonic Analysis of Polynomial Threshold Functions. SIAM Journal on Discrete Mathematics, 1990, 3, 168-177.	0.4	152
14	An automated system for measuring parameters of nematode sinusoidal movement. BMC Genetics, 2005, 6, 5.	2.7	147
15	Low-density MDS codes and factors of complete graphs. IEEE Transactions on Information Theory, 1999, 45, 1817-1826.	1.5	137
16	The encoding complexity of network coding. IEEE Transactions on Information Theory, 2006, 52, 2386-2397.	1.5	117
17	Codes for Asymmetric Limited-Magnitude Errors With Application to Multilevel Flash Memories. IEEE Transactions on Information Theory, 2010, 56, 1582-1595.	1.5	117
18	A generalized convergence theorem for neural networks. IEEE Transactions on Information Theory, 1988, 34, 1089-1092.	1.5	114

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19	Neural networks, error-correcting codes, and polynomials over the binary n-cube. IEEE Transactions on Information Theory, 1989, 35, 976-987.	1.5	101
20	An on-line algorithm for checkpoint placement. IEEE Transactions on Computers, 1997, 46, 976-985.	2.4	98
21	On the Power of Threshold Circuits with Small Weights. SIAM Journal on Discrete Mathematics, 1991, 4, 423-435.	0.4	91
22	Correcting Charge-Constrained Errors in the Rank-Modulation Scheme. IEEE Transactions on Information Theory, 2010, 56, 2112-2120.	1.5	91
23	Covering algorithms, continuum percolation and the geometry of wireless networks. Annals of Applied Probability, 2003, 13, .	0.6	91
24	On the power of neural networks for solving hard problems. Journal of Complexity, 1990, 6, 129-135.	0.7	84
25	Localization and routing in sensor networks by local angle information. , 2005, , .		84
26	Programmability ofÂChemical Reaction Networks. Natural Computing Series, 2009, , 543-584.	2.2	83
27	MAP: Medial axis based geometric routing in sensor networks. Wireless Networks, 2007, 13, 835-853.	2.0	81
28	Interleaving schemes for multidimensional cluster errors. IEEE Transactions on Information Theory, 1998, 44, 730-743.	1.5	77
29	The hardness of decoding linear codes with preprocessing. IEEE Transactions on Information Theory, 1990, 36, 381-385.	1.5	76
30	Efficient algorithms for reconfiguration in VLSI/WSI arrays. IEEE Transactions on Computers, 1990, 39, 480-489.	2.4	76
31	Polynomial Threshold Functions, $AC^0 $ Functions, and Spectral Norms. SIAM Journal on Computing, 1992, 21, 33-42.	0.8	74
32	Floating Codes for Joint Information Storage in Write Asymmetric Memories. , 2007, , .		72
33	On codes for optimal rebuilding access. , 2011, , .		71
34	Duplication-Correcting Codes for Data Storage in the DNA of Living Organisms. IEEE Transactions on Information Theory, 2017, 63, 4996-5010.	1.5	70
35	Logic operations in memory using a memristive Akers array. Microelectronics Journal, 2014, 45, 1429-1437.	1.1	68
36	Continuum Percolation with Unreliable and Spread-Out Connections. Journal of Statistical Physics, 2005, 118, 721-734.	0.5	65

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37	Depth efficient neural networks for division and related problems. IEEE Transactions on Information Theory, 1993, 39, 946-956.	1.5	63
38	Weighted Bloom Filter. , 2006, , .		62
39	Constructions and Decoding of Cyclic Codes Over <inline-formula> <tex-math notation="LaTeX">b </tex-math> </inline-formula>-Symbol Read Channels. IEEE Transactions on Information Theory, 2016, 62, 1541-1551.	1.5	62
40	CCL: a portable and tunable collective communication library for scalable parallel computers. IEEE Transactions on Parallel and Distributed Systems, 1995, 6, 154-164.	4.0	61
41	Can computers help to explain biology?. Nature, 2006, 440, 416-417.	13.7	61
42	Rebuilding for array codes in distributed storage systems. , 2010, , .		59
43	Access Versus Bandwidth in Codes for Storage. IEEE Transactions on Information Theory, 2014, 60, 2028-2037.	1.5	59
44	Tolerating multiple faults in multistage interconnection networks with minimal extra stages. IEEE Transactions on Computers, 2000, 49, 998-1004.	2.4	58
45	Cyclic Lowest Density MDS Array Codes. IEEE Transactions on Information Theory, 2009, 55, 1721-1729.	1.5	55
46	Efficient algorithms for all-to-all communications in multi-port message-passing systems. , 1994, , .		54
47	Long MDS codes for optimal repair bandwidth. , 2012, , .		54
48	Communication Efficient Secret Sharing. IEEE Transactions on Information Theory, 2016, 62, 7195-7206.	1.5	51
49	Explicit Minimum Storage Regenerating Codes. IEEE Transactions on Information Theory, 2016, 62, 4466-4480.	1.5	51
50	MDS array codes with optimal rebuilding. , 2011, , .		50
51	The IBM external user interface for scalable parallel systems. Parallel Computing, 1994, 20, 445-462.	1.3	49
52	Transforming Probabilities With Combinational Logic. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2011, 30, 1279-1292.	1.9	49
53	Rewriting Codes for Joint Information Storage in Flash Memories. IEEE Transactions on Information Theory, 2010, 56, 5300-5313.	1.5	48
54	Performance optimization of checkpointing schemes with task duplication. IEEE Transactions on Computers, 1997, 46, 1381-1386.	2.4	46

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55	Error-correcting codes for rank modulation. , 2008, , .		44
56	On the number of spurious memories in the Hopfield model (neural network). IEEE Transactions on Information Theory, 1990, 36, 393-397.	1.5	42
57	Efficient Message Passing Interface (MPI) for Parallel Computing on Clusters of Workstations. Journal of Parallel and Distributed Computing, 1997, 40, 19-34.	2.7	42
58	Joint coding for flash memory storage. , 2008, , .		42
59	Tolerating faults in hypercubes using subcube partitioning. IEEE Transactions on Computers, 1992, 41, 599-605.	2.4	41
60	Systematic Error-Correcting Codes for Rank Modulation. IEEE Transactions on Information Theory, 2015, 61, 17-32.	1.5	40
61	Probabilistic switching circuits in DNA. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 903-908.	3.3	37
62	On Optimal k-Deletion Correcting Codes. IEEE Transactions on Information Theory, 2021, 67, 3360-3375.	1.5	37
63	Error-correcting schemes with dynamic thresholds in nonvolatile memories. , 2011, , .		36
64	Decoding of cyclic codes over symbol-pair read channels. , 2012, , .		36
65	Network Coding: A Computational Perspective. IEEE Transactions on Information Theory, 2009, 55, 147-157.	1.5	35
66	Optimal k-Deletion Correcting Codes. , 2019, , .		35
67	Optimal Systematic t-Deletion Correcting Codes. , 2020, , .		34
68	A study on neural networks. International Journal of Intelligent Systems, 1988, 3, 59-75.	3.3	33
69	Computing in the RAIN: a reliable array of independent nodes. IEEE Transactions on Parallel and Distributed Systems, 2001, 12, 99-114.	4.0	33
70	Codes for Multi-Level Flash Memories: Correcting Asymmetric Limited-Magnitude Errors. , 2007, , .		30
71	On the uncertainty of information retrieval in associative memories. , 2012, , .		30
72	Two Deletion Correcting Codes From Indicator Vectors. IEEE Transactions on Information Theory, 2020, 66, 2375-2391.	1.5	30

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73	The Capacity of String-Duplication Systems. IEEE Transactions on Information Theory, 2016, 62, 811-824.	1.5	29
74	Analysis of checkpointing schemes with task duplication. IEEE Transactions on Computers, 1998, 47, 222-227.	2.4	28
75	Buffer Coding for Asymmetric Multi-Level Memory. , 2007, , .		28
76	Universal rewriting in constrained memories. , 2009, , .		28
77	Fault-Tolerant Meshes with Small Degree. SIAM Journal on Computing, 1997, 26, 1764-1784.	0.8	27
78	On the design and implementation of broadcast and global combine operations using the postal model. IEEE Transactions on Parallel and Distributed Systems, 1996, 7, 256-265.	4.0	26
79	Constant-Weight Gray Codes for Local Rank Modulation. IEEE Transactions on Information Theory, 2011, 57, 7431-7442.	1.5	26
80	Wildcard dimensions, coding theory and fault-tolerant meshes and hypercubes. IEEE Transactions on Computers, 1995, 44, 150-155.	2.4	25
81	Constrained Codes as Networks of Relations. IEEE Transactions on Information Theory, 2008, 54, 2179-2195.	1.5	24
82	Capacity and Expressiveness of Genomic Tandem Duplication. IEEE Transactions on Information Theory, 2017, 63, 6129-6138.	1.5	24
83	Codes for network switches. , 2013, , .		23
84	Explicit Constructions of Depth-2 Majority Circuits for Comparison and Addition. SIAM Journal on Discrete Mathematics, 1994, 7, 1-8.	0.4	22
85	A geometric theorem for network design. IEEE Transactions on Computers, 2004, 53, 483-489.	2.4	22
86	Stochastic switching circuit synthesis. , 2008, , .		22
87	Sequence reconstruction for Grassmann graphs and permutations. , 2013, , .		21
88	Asymmetric Error Correction and Flash-Memory Rewriting Using Polar Codes. IEEE Transactions on Information Theory, 2016, 62, 4024-4038.	1.5	21
89	Joint rewriting and error correction in write-once memories. , 2013, , .		20
90	Codes Correcting Erasures and Deletions for Rank Modulation. IEEE Transactions on Information Theory, 2016, 62, 136-150.	1.5	20

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91	Network file storage with graceful performance degradation. ACM Transactions on Storage, 2005, 1, 171-189.	1.4	18
92	Optimal Rebuilding of Multiple Erasures in MDS Codes. IEEE Transactions on Information Theory, 2017, 63, 1084-1101.	1.5	18
93	On the capacity of bounded rank modulation for flash memories. , 2009, , .		17
94	On the Uncertainty of Information Retrieval in Associative Memories. IEEE Transactions on Information Theory, 2019, 65, 2155-2165.	1.5	17
95	Fault-tolerant meshes with small degree. , 1993, , .		16
96	Programmable neural logic. IEEE Transactions on Advanced Packaging, 1998, 21, 346-351.	0.7	16
97	Partial-sum queries in OLAP data cubes using covering codes. IEEE Transactions on Computers, 1998, 47, 1326-1340.	2.4	16
98	Synthesizing stochasticity in biochemical systems. Proceedings - Design Automation Conference, 2007, , .	0.0	16
99	Rank modulation for flash memories. , 2008, , .		16
100	Error-correcting codes for multipermutations. , 2013, , .		16
101	Optimal Codes for the q-ary Deletion Channel. , 2020, , .		16
102	Partial rank modulation for flash memories. , 2010, , .		15
103	Efficient Generation of Random Bits From Finite State Markov Chains. IEEE Transactions on Information Theory, 2012, 58, 2490-2506.	1.5	15
104	A stochastic model for genomic interspersed duplication. , 2015, , .		15
105	Compressed encoding for rank modulation. , 2011, , .		14
106	Duplication-correcting codes for data storage in the DNA of living organisms. , 2016, , .		14
107	Coding for Optimized Writing Rate in DNA Storage. , 2020, , .		14
108	Switch Codes: Codes for Fully Parallel Reconstruction. IEEE Transactions on Information Theory, 2017, 63, 2061-2075.	1.5	13

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109	Noise and uncertainty in string-duplication systems. , 2017, , .		13
110	On Coding Over Sliced Information. , 2019, , .		13
111	Trade-offs between instantaneous and total capacity in multi-cell flash memories. , 2012, , .		12
112	Secure RAID schemes for distributed storage. , 2016, , .		12
113	Secret sharing with optimal decoding and repair bandwidth. , 2017, , .		12
114	Syndrome Compression for Optimal Redundancy Codes. , 2020, , .		12
115	The robustness of stochastic switching networks. , 2009, , .		11
116	Constrained codes for phase-change memories. , 2010, , .		11
117	Access vs. bandwidth in codes for storage. , 2012, , .		11
118	Content-assisted file decoding for nonvolatile memories. , 2012, , .		11
119	Duplication Distance to the Root for Binary Sequences. IEEE Transactions on Information Theory, 2017, 63, 7793-7803.	1.5	11
120	Estimation of duplication history under a stochastic model for tandem repeats. BMC Bioinformatics, 2019, 20, 64.	1.2	11
121	Tolerating faults in a mesh with a row of spare nodes. Theoretical Computer Science, 1994, 128, 241-252.	0.5	10
122	On the expressibility of stochastic switching circuits. , 2009, , .		10
123	On the Capacity and Programming of Flash Memories. IEEE Transactions on Information Theory, 2012, 58, 1549-1564.	1.5	10
124	Nonuniform Codes for Correcting Asymmetric Errors in Data Storage. IEEE Transactions on Information Theory, 2013, 59, 2988-3002.	1.5	10
125	Generalized Gray Codes for Local Rank Modulation. IEEE Transactions on Information Theory, 2013, 59, 6664-6673.	1.5	10
126	Trajectory Codes for Flash Memory. IEEE Transactions on Information Theory, 2013, 59, 4530-4541.	1.5	10

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127	Capacity and expressiveness of genomic tandem duplication. , 2015, , .		10
128	Error correction through language processing. , 2015, , .		10
129	On Coding Over Sliced Information. IEEE Transactions on Information Theory, 2021, 67, 2793-2807.	1.5	10
130	Optimal Interleaving on Tori. SIAM Journal on Discrete Mathematics, 2006, 20, 841-879.	0.4	9
131	Cyclic Low-Density MDS Array Codes. , 2006, , .		9
132	Information representation and coding for flash memories. , 2009, , .		9
133	On the Average Complexity of Reedâ€“Solomon List Decoders. IEEE Transactions on Information Theory, 2013, 59, 2336-2351.	1.5	9
134	Rank-modulation rewriting codes for flash memories. , 2013, , .		9
135	Polar coding for noisy write-once memories. , 2014, , .		9
136	Rewriting flash memories by message passing. , 2015, , .		9
137	Algebraic Techniques for Constructing Minimal Weight Threshold Functions. SIAM Journal on Discrete Mathematics, 2002, 16, 114-126.	0.4	8
138	Cyclic Boolean circuits. Discrete Applied Mathematics, 2012, 160, 1877-1900.	0.5	8
139	Low-Complexity Array Codes for Random and Clustered 4-Erasures. IEEE Transactions on Information Theory, 2012, 58, 146-158.	1.5	8
140	Secure RAID schemes from EVENODD and STAR codes. , 2017, , .		8
141	How to Best Share a Big Secret. , 2018, , .		8
142	On optimal broadcasting in faulty hypercubes. Discrete Applied Mathematics, 1994, 53, 3-13.	0.5	7
143	On the capacity of flash memories. , 2008, , .		7
144	Storage coding for wear leveling in flash memories. , 2009, , .		7

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145	On the Capacity of the Precision-Resolution System. IEEE Transactions on Information Theory, 2010, 56, 1028-1037.	1.5	7
146	Systematic Error-Correcting Codes for Permutations and Multi-Permutations. IEEE Transactions on Information Theory, 2016, 62, 3113-3124.	1.5	7
147	Bounds for Permutation Rate-Distortion. IEEE Transactions on Information Theory, 2016, 62, 703-712.	1.5	7
148	Correcting Deletions in Multiple-Heads Racetrack Memories. , 2019, , .		7
149	How to play bowling in parallel on the grid. Journal of Algorithms, 1991, 12, 516-529.	0.9	6
150	Shortening Array Codes and the Perfect 1-Factorization Conjecture. , 2006, , .		6
151	On a construction for constant-weight Gray codes for local rank modulation. , 2010, , .		6
152	Generating probability distributions using multivalued stochastic relay circuits. , 2011, , .		6
153	Patterned cells for phase change memories. , 2011, , .		6
154	The capacity of string-duplication systems. , 2014, , .		6
155	Codes correcting erasures and deletions for rank modulation. , 2014, , .		6
156	Single-deletion-correcting codes over permutations. , 2014, , .		6
157	Robust Indexing - Optimal Codes for DNA Storage. , 2020, , .		6
158	Evolution of k -Mer Frequencies and Entropy in Duplication and Substitution Mutation Systems. IEEE Transactions on Information Theory, 2020, 66, 3171-3186.	1.5	6
159	Trace Reconstruction with Bounded Edit Distance. , 2021, , .		6
160	PCODE. , 1994, , .		5
161	Network Coding: A Computational Perspective. , 2006, , .		5
162	Nonuniform codes for correcting asymmetric errors. , 2011, , .		5

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163	Building consensus via iterative voting. , 2013, , .		5
164	Synthesis of Stochastic Flow Networks. IEEE Transactions on Computers, 2014, 63, 1234-1247.	2.4	5
165	Download and Access Trade-offs in Lagrange Coded Computing. , 2019, , .		5
166	Generator based approach to analyze mutations in genomic datasets. Scientific Reports, 2021, 11, 21084.	1.6	5
167	Anti-Jamming Schedules for Wireless Data Broadcast Systems. , 2006, , .		4
168	Data movement in flash memories. , 2009, , .		4
169	Interleaving schemes on circulant graphs with two offsets. Discrete Mathematics, 2009, 309, 4384-4398.	0.4	4
170	Generalized Gray codes for local rank modulation. , 2011, , .		4
171	In-memory computing of Akers logic array. , 2013, , .		4
172	Systematic codes for rank modulation. , 2014, , .		4
173	Bounds for permutation rate-distortion. , 2014, , .		4
174	Error correction and partial information rewriting for flash memories. , 2014, , .		4
175	Rank-Modulation Rewrite Coding for Flash Memories. IEEE Transactions on Information Theory, 2015, 61, 4209-4226.	1.5	4
176	Approximate sorting of data streams with limited storage. Journal of Combinatorial Optimization, 2016, 32, 1133-1164.	0.8	4
177	Attaining the 2nd Chargaff Rule by Tandem Duplications. , 2018, , .		4
178	Two Deletion Correcting Codes from Indicator Vectors. , 2018, , .		4
179	Stash in a Flash. , 2018, , .		4
180	CodNN â€“ Robust Neural Networks From Coded Classification. , 2020, , .		4

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181	Constrained Codes as Networks of Relations. , 2007, , .		3
182	Shortening Array Codes and the Perfect 1-Factorization Conjecture. IEEE Transactions on Information Theory, 2009, 55, 507-513.	1.5	3
183	Generalizing the Blum-Elias method for generating random bits from Markov chains. , 2010, , .		3
184	Error characterization and mitigation for 16nm MLC NAND flash memory under total ionizing dose effect. , 2016, , .		3
185	Data archiving in 1x-nm NAND flash memories: Enabling long-term storage using rank modulation and scrubbing. , 2016, , .		3
186	The capacity of some PÃ³lya string models. , 2016, , .		3
187	Stopping set elimination for LDPC codes. , 2017, , .		3
188	Neural Network Computations with DOMINATION Functions. , 2021, , .		3
189	Distributed broadcasting and mapping protocols in directed anonymous networks. , 2007, , .		2
190	Optimal Universal Schedules for Discrete Broadcast. IEEE Transactions on Information Theory, 2008, 54, 4365-4372.	1.5	2
191	Data movement and aggregation in flash memories. , 2010, , .		2
192	On the synthesis of stochastic flow networks. , 2010, , .		2
193	Linear extractors for extracting randomness from noisy sources. , 2011, , .		2
194	Variable-level cells for nonvolatile memories. , 2011, , .		2
195	Algorithms for Generating Probabilities with Multivalued Stochastic Relay Circuits. IEEE Transactions on Computers, 2015, 64, 3376-3388.	2.4	2
196	Iterative Programming of Noisy Memory Cells. , 2019, , .		2
197	What is the Value of Data? on Mathematical Methods for Data Quality Estimation. , 2020, , .		2
198	Glioblastoma signature in the DNA of blood-derived cells. PLoS ONE, 2021, 16, e0256831.	1.1	2

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199	Synthesizing Stochasticity in Biochemical Systems. Proceedings - Design Automation Conference, 2007, , .	0.0	2
200	On the Capacity of Precision-Resolution Constrained Systems. , 2006, , .		1
201	Modeling biological circuits with urn functions. , 2012, , .		1
202	Variable-length extractors. , 2012, , .		1
203	Bit-fixing codes for multi-level cells. , 2012, , .		1
204	Guest Editorial Communication Methodologies for the Next-Generation Storage Systems. IEEE Journal on Selected Areas in Communications, 2014, 32, 809-814.	9.7	1
205	On the duplication distance of binary strings. , 2016, , .		1
206	Correcting errors by natural redundancy. , 2017, , .		1
207	The Entropy Rate of Some PÃ³lya String Models. IEEE Transactions on Information Theory, 2019, 65, 8180-8193.	1.5	1
208	Approximate Sorting of Data Streams with Limited Storage. Lecture Notes in Computer Science, 2014, , 465-476.	1.0	1
209	Reflections on ?Representations of sets of Boolean functions by commutative rings? by Roman Smolensky. Computational Complexity, 1996, 6, 209-212.	0.2	0
210	Array codes for clustered column erasures. , 2008, , .		0
211	Fourier Transforms and Threshold Circuit Complexity. , 0, , 531-553.		0
212	Maximizing the storage capacity of nonvolatile memories. , 2011, , .		0
213	Error correcting code for flash memories. , 2013, , .		0
214	Information-theoretic study of voting systems. , 2013, , .		0
215	Reliability and hardware implementation of rank modulation flash memory. , 2015, , .		0
216	Is there a new way to correct errors. , 2015, , .		0

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217	Synthesizing New Expertise via Collaboration. , 2021, , .		0
218	Simple Combinatorial Decoding of the [23,12,7] Golay Code. , 1990, , 433-448.		0
219	Iterative Programming of Noisy Memory Cells. IEEE Transactions on Communications, 2022, 70, 769-782.	4.9	0