

Giovanni De Micheli

List of Publications by Year in descending order

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160
papers

3,731
citations

159525

30
h-index

189801

50
g-index

161
all docs

161
docs citations

161
times ranked

3476
citing authors

#	ARTICLE	IF	CITATIONS
1	Majority-Inverter Graph: A New Paradigm for Logic Optimization. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2016, 35, 806-819.	1.9	153
2	Energy Harvesting and Remote Powering for Implantable Biosensors. IEEE Sensors Journal, 2011, 11, 1573-1586.	2.4	137
3	Dynamic simulation of regulatory networks using SQUAD. BMC Bioinformatics, 2007, 8, 462.	1.2	136
4	Majority-Inverter Graph. , 2014, , .		132
5	Doping-Free Complementary Logic Gates Enabled by Two-Dimensional Polarity-Controllable Transistors. ACS Nano, 2018, 12, 7039-7047.	7.3	104
6	Configurable Logic Gates Using Polarity-Controlled Silicon Nanowire Gate-All-Around FETs. IEEE Electron Device Letters, 2014, 35, 880-882.	2.2	98
7	Top-Down Fabrication of Gate-All-Around Vertically Stacked Silicon Nanowire FETs With Controllable Polarity. IEEE Nanotechnology Magazine, 2014, 13, 1029-1038.	1.1	88
8	Label-Free Ultrasensitive Memristive Aptasensor. Nano Letters, 2016, 16, 4472-4476.	4.5	87
9	Multi-panel drugs detection in human serum for personalized therapy. Biosensors and Bioelectronics, 2011, 26, 3914-3919.	5.3	86
10	A survey of Boolean matching techniques for library binding. ACM Transactions on Design Automation of Electronic Systems, 1997, 2, 193-226.	1.9	83
11	Configurable Circuits Featuring Dual-Threshold-Voltage Design With Three-Independent-Gate Silicon Nanowire FETs. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 2851-2861.	3.5	72
12	Polarity-Controllable Silicon Nanowire Transistors With Dual Threshold Voltages. IEEE Transactions on Electron Devices, 2014, 61, 3654-3660.	1.6	68
13	Fully Integrated Biochip Platforms for Advanced Healthcare. Sensors, 2012, 12, 11013-11060.	2.1	64
14	Highly-stable Li ⁺ ion-selective electrodes based on noble metal nanostructured layers as solid-contacts. Analytica Chimica Acta, 2018, 1027, 22-32.	2.6	64
15	Analysis and Optimization of MPSoC Reliability. Journal of Low Power Electronics, 2006, 2, 56-69.	0.6	64
16	Synthesis of networks on chips for 3D systems on chips. , 2009, , .		63
17	Polarity control in WSe ₂ double-gate transistors. Scientific Reports, 2016, 6, 29448.	1.6	63
18	Exact Synthesis of Majority-Inverter Graphs and Its Applications. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2017, 36, 1842-1855.	1.9	62

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19	Energy/Reliability Trade-Offs in Low-Voltage ReRAM-Based Non-Volatile Flip-Flop Design. IEEE Transactions on Circuits and Systems I: Regular Papers, 2014, 61, 3155-3164.	3.5	60
20	Fast synthesis of platinum nanopetals and nanospheres for highly-sensitive non-enzymatic detection of glucose and selective sensing of ions. Scientific Reports, 2015, 5, 15277.	1.6	60
21	New Logic Synthesis as Nanotechnology Enabler. Proceedings of the IEEE, 2015, 103, 2168-2195.	16.4	53
22	Temperature control of high-performance multi-core platforms using convex optimization. , 2008, , .		52
23	Mapping and configuration methods for multi-use-case networks on chips. , 2006, , .		49
24	A buffer-sizing algorithm for networks on chip using TDMA and credit-based end-to-end flow control. , 2006, , .		48
25	Carbon nanotube correlation. , 2010, , .		48
26	Wearable multifunctional sweat-sensing system for efficient healthcare monitoring. Sensors and Actuators B: Chemical, 2021, 328, 129017.	4.0	48
27	Bringing NoCs to 65 nm. IEEE Micro, 2007, 27, 75-85.	1.8	47
28	Do Carbon Nanotubes contribute to Electrochemical Biosensing?. Electrochimica Acta, 2014, 128, 102-112.	2.6	43
29	A high-performance low-power near-V _t RRAM-based FPGA. , 2014, , .		41
30	Design and Architectural Assessment of 3-D Resistive Memory Technologies in FPGAs. IEEE Nanotechnology Magazine, 2013, 12, 40-50.	1.1	39
31	A Study on the Programming Structures for RRAM-Based FPGA Architectures. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 503-516.	3.5	38
32	Automatic technology mapping for generalized fundamental-mode asynchronous designs. , 1993, , .		37
33	CELONCEL: Effective design technique for 3-D monolithic integration targeting high performance integrated circuits. , 2011, , .		36
34	Full Fabrication and Packaging of an Implantable Multi-Panel Device for Monitoring of Metabolites in Small Animals. IEEE Transactions on Biomedical Circuits and Systems, 2014, 8, 636-647.	2.7	34
35	An Integrated Control and Readout Circuit for Implantable Multi-Target Electrochemical Biosensing. IEEE Transactions on Biomedical Circuits and Systems, 2014, 8, 891-898.	2.7	34
36	Computing Accurate Performance Bounds for Best Effort Networks-on-Chip. IEEE Transactions on Computers, 2013, 62, 452-467.	2.4	33

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37	Memristive Biosensors Under Varying Humidity Conditions. IEEE Transactions on Nanobioscience, 2014, 13, 19-30.	2.2	33
38	Superior sensing performance of multi-walled carbon nanotube-based electrodes to detect unconjugated bilirubin. Thin Solid Films, 2013, 548, 546-550.	0.8	32
39	Nanowire systems: technology and design. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130102.	1.6	31
40	Devices and Circuits Using Novel 2-D Materials: A Perspective for Future VLSI Systems. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 1486-1503.	2.1	30
41	Design, development, and validation of an in-situ biosensor array for metabolite monitoring of cell cultures. Biosensors and Bioelectronics, 2014, 61, 251-259.	5.3	29
42	BDS-MAJ., 2013, , .		28
43	Memristive sensors for pH measure in dry conditions. Surface Science, 2014, 624, 76-79.	0.8	28
44	An Outlook on Design Technologies for Future Integrated Systems. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2009, 28, 777-790.	1.9	27
45	A Novel FPGA Architecture Based on Ultrafine Grain Reconfigurable Logic Cells. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2015, 23, 2187-2197.	2.1	27
46	On the use of inexact, pruned hardware in atmospheric modelling. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130276.	1.6	25
47	A Subcutaneous Biochip for Remote Monitoring of Human Metabolism: Packaging and Biocompatibility Assessment. IEEE Sensors Journal, 2015, 15, 417-424.	2.4	25
48	A System for Wireless Power Transfer and Data Communication of Long-Term Bio-Monitoring. IEEE Sensors Journal, 2015, 15, 6559-6569.	2.4	24
49	Cleaning strategy for carbon-based electrodes: Long-term propofol monitoring in human serum. Sensors and Actuators B: Chemical, 2018, 269, 304-313.	4.0	24
50	An IoT Solution for Online Monitoring of Anesthetics in Human Serum Based on an Integrated Fluidic Bioelectronic System. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 1056-1064.	2.7	24
51	LUT-Based Hierarchical Reversible Logic Synthesis. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2019, 38, 1675-1688.	1.9	24
52	Logic Synthesis for Established and Emerging Computing. Proceedings of the IEEE, 2019, 107, 165-184.	16.4	24
53	Efficient Sample Delay Calculation for 2-D and 3-D Ultrasound Imaging. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 815-831.	2.7	23
54	SAT-Based Exact Synthesis: Encodings, Topology Families, and Parallelism. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2020, 39, 871-884.	1.9	23

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55	Efficient voltammetric discrimination of free bilirubin from uric acid and ascorbic acid by a CVD nanographite-based microelectrode. <i>Talanta</i> , 2014, 130, 423-426.	2.9	22
56	Top-down fabrication of very-high density vertically stacked silicon nanowire arrays with low temperature budget. <i>Microelectronic Engineering</i> , 2011, 88, 3127-3127.	1.1	21
57	Design automation and design space exploration for quantum computers. , 2017, , .		21
58	Scalable Generic Logic Synthesis. , 2019, , .		20
59	Reversible Pebbling Game for Quantum Memory Management. , 2019, , .		20
60	Computational Study on the Electrical Behavior of Silicon Nanowire Memristive Biosensors. <i>IEEE Sensors Journal</i> , 2015, 15, 6208-6217.	2.4	19
61	New Approaches for Carbon Nanotubes-Based Biosensors and Their Application to Cell Culture Monitoring. <i>IEEE Transactions on Biomedical Circuits and Systems</i> , 2012, 6, 479-485.	2.7	18
62	Circuit Designs of High-Performance and Low-Power RRAM-Based Multiplexers Based on 4T1R1RAM Programming Structure. <i>IEEE Transactions on Circuits and Systems I: Regular Papers</i> , 2017, 64, 1173-1186.	3.5	18
63	TSPC Flip-Flop circuit design with three-independent-gate silicon nanowire FETs. , 2014, , .		17
64	High-Performance Multipanel Biosensors Based on a Selective Integration of Nanographite Petals. <i>Nano Letters</i> , 2014, 14, 3180-3184.	4.5	17
65	Algebraic and Boolean Optimization Methods for AQFP Superconducting Circuits. , 2021, , .		17
66	A Survey on Low-Power Techniques with Emerging Technologies. <i>ACM Journal on Emerging Technologies in Computing Systems</i> , 2015, 12, 1-26.	1.8	16
67	Hierarchical Reversible Logic Synthesis Using LUTs. , 2017, , .		16
68	Simulated Biological Cells for Receptor Counting in Fluorescence Imaging. <i>BioNanoScience</i> , 2012, 2, 94-103.	1.5	15
69	Self-checking ripple-carry adder with Ambipolar Silicon NanoWire FET. , 2013, , .		15
70	Electrochemical nanostructured biosensors: carbon nanotubes versus conductive and semi-conductive nanoparticles. <i>Chemical Papers</i> , 2015, 69, .	1.0	15
71	A Flexible Front-End for Wearable Electrochemical Sensing. , 2018, , .		15
72	Practical exact synthesis. , 2018, , .		15

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73	Biconditional Binary Decision Diagrams: A Novel Canonical Logic Representation Form. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2014, 4, 487-500.	2.7	14
74	SAT-based {CNOT, T} Quantum Circuit Synthesis. Lecture Notes in Computer Science, 2018, , 175-188.	1.0	14
75	Nonsilicon, Non-von Neumann Computing Part I [Scanning the Issue]. Proceedings of the IEEE, 2019, 107, 11-18.	16.4	14
76	Scaling trends and performance evaluation of 2-dimensional polarity-controllable FETs. Scientific Reports, 2017, 7, 45556.	1.6	13
77	Performance of Carbon Nano-Scale Allotropes in Detecting Midazolam and Paracetamol in Undiluted Human Serum. IEEE Sensors Journal, 2018, 18, 5073-5081.	2.4	13
78	FPGA-SPICE: A Simulation-Based Architecture Evaluation Framework for FPGAs. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 637-650.	2.1	13
79	Advanced Functional Decomposition Using Majority and Its Applications. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2020, 39, 1621-1634.	1.9	12
80	Continuous monitoring of propofol in human serum with fouling compensation by support vector classifier. Biosensors and Bioelectronics, 2021, 171, 112666.	5.3	12
81	All-Solid-State Ion-Selective Electrodes: A Tutorial for Correct Practice. IEEE Sensors Journal, 2021, 21, 22143-22154.	2.4	12
82	Reversible Logic Synthesis via Biconditional Binary Decision Diagrams. , 2015, , .		11
83	Post-P&R Performance and Power Analysis for RRAM-Based FPGAs. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2018, 8, 639-650.	2.7	11
84	Multichannel Front-End for Electrochemical Sensing of Metabolites, Drugs, and Electrolytes. IEEE Sensors Journal, 2020, 20, 3636-3645.	2.4	11
85	A Wearable Electrochemical Sensing System for Non-Invasive Monitoring of Lithium Drug in Bipolar Disorder. IEEE Sensors Journal, 2021, 21, 9649-9656.	2.4	11
86	An implantable bio-micro-system for drug monitoring. , 2013, , .		10
87	A Ultra-Low-Power FPGA Based on Monolithically Integrated RRAMs. , 2015, , .		10
88	Layout Technique for Double-Gate Silicon Nanowire FETs With an Efficient Sea-of-Tiles Architecture. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2015, 23, 2103-2115.	2.1	10
89	Fast Procedures for the Electrodeposition of Platinum Nanostructures on Miniaturized Electrodes for Improved Ion Sensing. Sensors, 2019, 19, 2260.	2.1	10
90	Evaluating ESOP Optimization Methods in Quantum Compilation Flows. Lecture Notes in Computer Science, 2019, , 191-206.	1.0	10

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91	Enumeration of Reversible Functions and Its Application to Circuit Complexity. Lecture Notes in Computer Science, 2016, , 255-270.	1.0	10
92	A current-mode potentiostat for multi-target detection tested with different lactate biosensors. , 2012, , .		9
93	Micro-fabrication of high-thickness spiral inductors for the remote powering of implantable biosensors. Microelectronic Engineering, 2014, 113, 130-135.	1.1	9
94	Majority Logic Synthesis for Spin Wave Technology. , 2014, , .		9
95	Fault Modeling in Controllable Polarity Silicon Nanowire Circuits. , 2015, , .		9
96	Towards Ultrasound Everywhere: A Portable 3D Digital Back-End Capable of Zone and Compound Imaging. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 968-981.	2.7	9
97	Compiling Permutations for Superconducting QPUs. , 2019, , .		9
98	Three-Input Gates for Logic Synthesis. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2021, 40, 2184-2188.	1.9	9
99	Boolean satisfiability in quantum compilation. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2020, 378, 20190161.	1.6	9
100	A Circuit Synthesis Flow for Controllable-Polarity Transistors. IEEE Nanotechnology Magazine, 2014, 13, 1074-1083.	1.1	8
101	System Level Benchmarking with Yield-Enhanced Standard Cell Library for Carbon Nanotube VLSI Circuits. ACM Journal on Emerging Technologies in Computing Systems, 2014, 10, 1-19.	1.8	8
102	Wireless monitoring in intensive care units by a 3D-printed system with embedded electronic. , 2015, , .		8
103	Optimized electrochemical detection of anti-cancer drug by carbon nanotubes or gold nanoparticles. , 2015, , .		8
104	Fast generation of lexicographic satisfiable assignments. , 2016, , .		8
105	Multiple Independent Gate FETs: How many gates do we need?. , 2015, , .		7
106	Computationally Efficient Multiple-Independent-Gate Device Model. IEEE Nanotechnology Magazine, 2016, 15, 2-14.	1.1	7
107	Flexible sweat sensors for non-invasive optimization of lithium dose in psychiatric disorders. , 2019, , .		7
108	Xor-And-Inverter Graphs for Quantum Compilation. Npj Quantum Information, 2022, 8, .	2.8	7

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109	Representation of Medical Guidelines with a Computer Interpretable Model. International Journal on Artificial Intelligence Tools, 2014, 23, 1460003.	0.7	6
110	Effect of O ₂ - migration in Pt/HfO ₂ /Ti/Pt structure. Journal of Electroceramics, 2017, 39, 137-142.	0.8	6
111	Multi-Target Electrolyte Sensing Front-End for Wearable Physical Monitoring. , 2019, , .		6
112	Efficient Boolean Methods for Preparing Uniform Quantum States. IEEE Transactions on Quantum Engineering, 2021, 2, 1-12.	2.9	6
113	A Simulation-Guided Paradigm for Logic Synthesis and Verification. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022, 41, 2573-2586.	1.9	6
114	Exact Synthesis of ESOP Forms. , 2020, , 177-194.		6
115	A Versatile Mapping Approach for Technology Mapping and Graph Optimization. , 2022, , .		6
116	A fast pruning technique for low-power inexact Circuit design. , 2015, , .		5
117	Exploiting the Expressive Power of Graphene Reconfigurable Gates via Post-Synthesis Optimization. , 2015, , .		5
118	From Defect Analysis to Gate-Level Fault Modeling of Controllable-Polarity Silicon Nanowires. IEEE Nanotechnology Magazine, 2015, 14, 1117-1126.	1.1	5
119	Operation regimes and electrical transport of steep slope Schottky Si-FinFETs. Journal of Applied Physics, 2017, 121, .	1.1	5
120	Mapping Monotone Boolean Functions into Majority. IEEE Transactions on Computers, 2019, 68, 791-797.	2.4	5
121	Automatic Uniform Quantum State Preparation Using Decision Diagrams. , 2020, , .		5
122	Polysilicon Nanowire Transistors and Arrays Fabricated With the Multispacer Technique. IEEE Nanotechnology Magazine, 2011, 10, 891-899.	1.1	4
123	Implantable devices: the future of blood monitoring?. Clinical Practice (London, England), 2013, 10, 385-388.	0.1	4
124	Unlocking Controllable-Polarity Transistors Opportunities by Exclusive-OR and Majority Logic Synthesis. , 2014, , .		4
125	Cost-Effective Design of Mesh-of-Tree Interconnect for Multicore Clusters With 3-D Stacked L2 Scratchpad Memory. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2015, 23, 1828-1841.	2.1	4
126	Cyber-Medical Systems: Requirements, Components and Design Examples. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 2226-2236.	3.5	4

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127	Multi-Ion-Sensing Emulator and Multivariate Calibration Optimization by Machine Learning Models. IEEE Access, 2021, 9, 46821-46836.	2.6	4
128	The Emerging Majority: Technology and Design for Superconducting Electronics. IEEE Design and Test, 2021, 38, 79-87.	1.1	4
129	Extending Boolean Methods for Scalable Logic Synthesis. IEEE Access, 2020, 8, 226828-226844.	2.6	4
130	Multiwalled Carbon Nanotubes for Amperometric Array-Based Biosensors. BioNanoScience, 2012, 2, 185-195.	1.5	3
131	Full system for translational studies of personalized medicine with free-moving mice. , 2015, , .		3
132	Accurate power analysis for near-V _t RRAM-based FPGA. , 2015, , .		3
133	A Fault-Tolerant Ripple-Carry Adder with Controllable-Polarity Transistors. ACM Journal on Emerging Technologies in Computing Systems, 2017, 13, 1-13.	1.8	3
134	Safe and Efficient Deployment of Data-Parallelizable Applications on Many-Core Platforms: Theory and Practice. IEEE Design and Test, 2018, 35, 7-15.	1.1	3
135	Multi-Panel, On-Single-Chip Memristive Biosensing. IEEE Sensors Journal, 2019, 19, 5769-5774.	2.4	3
136	ROS: Resource-constrained Oracle Synthesis for Quantum Computers. Electronic Proceedings in Theoretical Computer Science, EPTCS, 0, 318, 119-130.	0.8	3
137	Utilizing XMG-Based Synthesis to Preserve Self-Duality for RFET-Based Circuits. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2023, 42, 914-927.	1.9	3
138	Personalized Drug Administrations Using Support Vector Machine. BioNanoScience, 2013, 3, 378-393.	1.5	2
139	A study on buffer distribution for RRAM-based FPGA routing structures. , 2015, , .		2
140	Conformal Deposition of Conductive Single-Crystalline Cobalt Silicide Layer on Si Wafer via a Molecular Approach. Chemistry of Materials, 2018, 30, 2168-2173.	3.2	2
141	An FPGA-Based Test System for RRAM Technology Characterization. IEEE Nanotechnology Magazine, 2018, 17, 177-183.	1.1	2
142	Nonsilicon, Non-von Neumann Computing—Part II. Proceedings of the IEEE, 2020, 108, 1211-1218.	16.4	2
143	Emulator Design and Generation of Synthetic Dataset in Multi-Ion Sensing. , 2020, , .		2
144	From Boolean functions to quantum circuits: A scalable quantum compilation flow in C++. , 2021, , .		2

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145	Design Technologies for Networks on Chips. , 2007, , .		1
146	A neural approach to drugs monitoring for personalized medicine. , 2015, , .		1
147	E-health: From sensors to systems. , 2015, , .		1
148	Low-Temperature Wet Conformal Nickel Silicide Deposition for Transistor Technology through an Organometallic Approach. ACS Applied Materials & Interfaces, 2017, 9, 4948-4955.	4.0	1
149	Functionality-Enhanced Devices: From Transistors to Circuit-Level Opportunities. , 2019, , 21-42.		1
150	Real-Time Multi-Ion-Monitoring Front-End With Interference Compensation by Multi-Output Support Vector Regressor. IEEE Transactions on Biomedical Circuits and Systems, 2021, 15, 1093-1106.	2.7	1
151	What is a 3D Network-on-Chip?. ACM SIGDA Newsletter, 2009, 39, 1-1.	0.0	0
152	Plenary speaker. , 2011, , .		0
153	Introduction to the special section on functionality-enhanced devices. IEEE Nanotechnology Magazine, 2014, 13, 1019-1019.	1.1	0
154	NEM relay design with biconditional binary decision diagrams. , 2015, , .		0
155	Nano-Tera.ch: Information Technology for Health, Environment, and Energy. IEEE Design and Test, 2017, 34, 109-118.	1.1	0
156	2019 DAC Roundtable. IEEE Design and Test, 2020, 37, 100-114.	1.1	0
157	An Enhanced Design Methodology for Resonant Clock Trees. Journal of Low Power Electronics, 2013, 9, 198-206.	0.6	0
158	Towards More Efficient Logic Blocks By Exploiting Biconditional Expansion (Abstract Only). , 2015, , .		0
159	Efficient Preparation of Cyclic Quantum States. , 2022, , .		0
160	Design and Optimization of Quantum Electronic Circuits. , 2022, , .		0