Soumyajit Mandal

List of Publications by Year
in descending order

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135 papers	2,699 citations	471509 17 h-index	197818 49 g-index
137 all docs	137 docs citations	137 times ranked	2670 citing authors

#	Article	IF	Citations
1	A Wearable Skin Temperature Monitoring System for Early Detection of Infections. IEEE Sensors Journal, 2022, 22, 1670-1679.	4.7	10
2	High-Sensitivity Electric Potential Sensors for Non-Contact Monitoring of Physiological Signals. IEEE Access, 2022, 10, 19096-19111.	4.2	1
3	A Smart Mask for Active Defense Against Coronaviruses and Other Airborne Pathogens. IEEE Consumer Electronics Magazine, 2021, 10, 72-79.	2.3	25
4	A Radio Frequency Analog Computer for Computational Electromagnetics. IEEE Journal of Solid-State Circuits, 2021, 56, 440-454.	5.4	6
5	Encrypted Physical Layer Communications Using Synchronized Hyperchaotic Maps. IEEE Access, 2021, 9, 13286-13303.	4.2	10
6	Bio-Inspired Radio-Frequency Source Localization Based on Cochlear Cross-Correlograms. Frontiers in Neuroscience, 2021, 15, 623316.	2.8	2
7	Fundamental Trade-Offs Between Power and Data Transfer in Inductive Links for Biomedical Implants. IEEE Transactions on Biomedical Circuits and Systems, 2021, 15, 235-247.	4.0	3
8	A Broadband Multistage Self-Interference Canceller for Full-Duplex MIMO Radios. IEEE Transactions on Microwave Theory and Techniques, 2021, 69, 2253-2266.	4.6	9
9	A Compact GaNFET-Based Power Amplifier for ASIC-Based Miniature NMR Spectrometers. , 2021, , .		1
10	Analog Switched-Capacitor Circuits for Solving the SchrÃ¶dinger Equation. , 2021, , .		0
11	Analytical models of probe dynamics effects on NMR measurements. Journal of Magnetic Resonance, 2021, 327, 106975.	2.1	5
12	A high-dynamic-range digital RF-over-fiber link for MRI receive coils using deltaâ€“sigma modulation. Review of Scientific Instruments, 2021, 92, 064708.	1.3	0
13	NQR sensitive embedded signatures for authenticating additively manufactured objects. Scientific Reports, 2021, 11, 12207.	3.3	3
14	A Fast and Fully Parallel Analog CMOS Solver for Nonlinear PDEs. IEEE Transactions on Circuits and Systems I: Regular Papers, 2021, 68, 3363-3376.	5.4	4
15	A Comparison of AI-Enabled Digital Twins for DSP-based Self-Interference Cancellation in Wideband Full-Duplex Communications. , 2021, , .		0
16	Homonuclear Jâ€Coupling Spectroscopy at Low Magnetic Fields using Spinâ€Lock Induced Crossing**. ChemPhysChem, 2021, 22, 2128-2137.	2.1	12
17	A Fully-Integrated CMOS Hyperchaotic Map for Obfuscated IoT Communications. , 2021, , .		1
18	A Compact and Power-Efficient Noise Generator for Stochastic Simulations. , 2021, , .		2

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19	Spacetime Frequency-Multiplexed Digital-RF Array Receivers With Reduced ADC Count. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 2840-2844.	3.0	1
20	Detecting Dye-Contaminated Vegetables Using Low-Field NMR Relaxometry. Foods, 2021, 10, 2232.	4.3	12
21	An Offset-Cancelling Discrete-Time Analog Computer for Solving 1-D Wave Equations. IEEE Journal of Solid-State Circuits, 2021, 56, 2881-2894.	5.4	7
22	A smart mask for active defense against airborne pathogens. Scientific Reports, 2021, 11, 19910.	3.3	13
23	Towards a Low-SWaP 1024-Beam Digital Array: A 32-Beam Subsystem at 5.8 GHz. IEEE Transactions on Antennas and Propagation, 2020, 68, 900-912.	5.1	4
24	A Fast-Settling Integer-N Frequency Synthesizer Using Switched-Gain Control. IEEE Transactions on Circuits and Systems I: Regular Papers, 2020, 67, 1344-1357.	5.4	5
25	Single-shot spatially-localized NQR using field-dependent relaxation rates. Journal of Magnetic Resonance, 2020, 311, 106660.	2.1	1
26	Flexible Body-Conformal Ultrasound Patches for Image-Guided Neuromodulation. IEEE Transactions on Biomedical Circuits and Systems, 2020, 14, 305-318.	4.0	42
27	Implementation and Testing of a Switching Circulator for Twin-Pair STAR Radio Architectures. , 2020, , .		1
28	A High-Speed Charge Injection Circuit for Nanosecond-Scale Electrochemical Measurements. , 2020, , .		0
29	A Monolithic CMOS Realization of the Double-Quadrature Image-Reject Weaver Receiver. , 2020, , .		0
30	RF-Rate Hybrid CNN Accelerator Based on Analog-CMOS and Xilinx RFSoC. , 2020, , .		2
31	A Switched-Capacitor-Based Analog Computer for Solving the 1-D Wave Equation. , 2020, , .		1
32	A Broadband CMOS Receiver for Multi-Channel Ground-Penetrating Radar (GPR) Systems. , 2020, , .		0
33	A Fully-Integrated 27.12 MHz Inductive Power and Data Telemetry Link for Biomedical Implants. , 2020, , .		3
34	A Scalable Pavement Sensing, Data Analytics, and Visualization Platform for Lean Governance in Smart Communities. , 2020, , .		2
35	Xilinx RF-SoC-based Digital Multi-Beam Array Processors for 28/60 GHz Wireless Testbeds. , 2020, , .		1
36	A 1.0-8.3 GHz Cochlea-Based Real-Time Spectrum Analyzer With Î”-Î£-Modulated Digital Outputs. IEEE Transactions on Circuits and Systems I: Regular Papers, 2020, 67, 2934-2947.	5.4	4

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37	Fast Radix-32 Approximate DFTs for 1024-Beam Digital RF Beamforming. IEEE Access, 2020, 8, 96613-96627.	4.2	10
38	A Highly Digital Multiantenna Ground-Penetrating Radar (GPR) System. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 7422-7436.	4.7	32
39	Power-Efficient ELF Wireless Communications Using Electro-Mechanical Transmitters. IEEE Access, 2020, 8, 2455-2471.	4.2	38
40	Self-Optimizing Wireless Networks on Structures. IEEE Transactions on Circuits and Systems II: Express Briefs, 2020, 67, 911-915.	3.0	2
41	Noninvasive Vascular Blood Sound Monitoring Through Flexible Microphone. , 2020, , 35-67.		1
42	A Dual-Ring Breath-Mode MEMS-Based 10.00 MHz GPS-Disciplined Reference Oscillator. , 2020, , .		0
43	Direct Antenna Modulation for Wide-Band HF Communications. , 2020, , .		2
44	Physics-Aware Processing of Rotational Micro-Doppler Signatures for DBN-Based UAS Classification Radar. , 2020, , .		1
45	Magnetic Ophthalmic Realignment System for Extra-Ocular Muscle Loss Treatment. , 2020, , .		1
46	A Digitally Programmable CMOS Feedback ASIC for Highly Stable MEMS-Referenced Oscillators. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 4158-4171.	5.4	7
47	Autonomous Monitoring of Fat, Water, and Sodium Content in Cheese Products using Low-Field NMR. , 2019, , .		1
48	Interface electronics: State-of-the-art, opportunities and needs. Sensors and Actuators A: Physical, 2019, 296, 24-30.	4.1	5
49	An easily reproducible, hand-held, single-sided, MRI sensor. Journal of Magnetic Resonance, 2019, 308, 106591.	2.1	16
50	Digital RF-over-Fiber Links Based on Continuous-Time Delta-Sigma Modulation. , 2019, , .		1
51	A Self-Sustained Frequency Comb Oscillator via Tapping Mode Comb-Drive Resonator Integrated with a Feedback ASIC. , 2019, , .		5
52	Early Detection of Cardiovascular Diseases Using Wearable Ultrasound Device. IEEE Consumer Electronics Magazine, 2019, 8, 12-21.	2.3	5
53	Flexible, Skin Coupled Microphone Array for Point of Care Vascular Access Monitoring. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 1494-1505.	4.0	10
54	MillimeTera. , 2019, , .		17

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55	Countering counterfeit drugs: A technique used for detecting explosives can also verify the integrity of medicines. IEEE Spectrum, 2019, 56, 38-43.	0.7	2
56	Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. IEEE Transactions on Instrumentation and Measurement, 2019, 68, 4535-4549.	4.7	26
57	Continuous-Time Algorithms for Solving Maxwellâ€™s Equations Using Analog Circuits. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 3941-3954.	5.4	13
58	Wireless Communications and Applications Above 100 GHz: Opportunities and Challenges for 6G and Beyond. IEEE Access, 2019, 7, 78729-78757.	4.2	1,228
59	Electropermanent magnets for variable-field NMR. Journal of Magnetic Resonance, 2019, 303, 82-90.	2.1	9
60	Robust Authentication of Consumables With Extrinsic Tags and Chemical Fingerprinting. IEEE Access, 2019, 7, 14396-14409.	4.2	10
61	Towards Automated Positioning of Ultrasonic Probes. , 2019, , .		1
62	An Open-Source Ultrasound Imaging System with Wearable Active Probes. , 2019, , .		0
63	ReRAM-Based Intrinsically Secure Memory: A Feasibility Analysis. , 2019, , .		2
64	A Direct-Conversion Digital Beamforming Array Receiver with 800 MHz Channel Bandwidth at 28 GHz using Xilinx RF SoC. , 2019, , .		16
65	Spectral Attention-Driven Intelligent Target Signal Identification on a Wideband Spectrum. , 2019, , .		0
66	Trade-Offs Between Data and Power Transfer in Near-Field Inductive Links. , 2019, , .		2
67	An Integrated Chaotic Transceiver for Spread-Spectrum Radar and Communications. , 2019, , .		3
68	AI - Driven Self-Optimizing Receivers for Cognitive Radio Networks. , 2019, , .		2
69	Software-defined Radios to Accelerate mmWave Wireless Innovation. , 2019, , .		10
70	A Sub-Î¼A Quiescent Current Power Management System with SAR-based Adaptive MPPT for Piezoelectric Energy Harvesting. , 2019, , .		0
71	An autonomous, highly portable NMR spectrometer based on a low-cost System-on-Chip (SoC). Journal of Magnetic Resonance, 2019, 299, 74-92.	2.1	21
72	$$varvec{varDelta }$$â€“$$varvec{varSigma }$$ noise-shaping in 3-D spaceâ€“time for 2-D wideband antenna array receivers. Multidimensional Systems and Signal Processing, 2019, 30, 1609-1631.	2.6	0

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73	Eat, but Verify: Low-Cost Portable Devices for Food Safety Analysis. IEEE Consumer Electronics Magazine, 2019, 8, 12-18.	2.3	8
74	An Adaptive Low-Complexity Abnormality Detection Scheme for Wearable Ultrasonography. IEEE Transactions on Circuits and Systems II: Express Briefs, 2019, 66, 1466-1470.	3.0	3
75	A switched-capacitor-based low-power receiver for electrocardiogram and respiration rate detection. Analog Integrated Circuits and Signal Processing, 2019, 99, 437-446.	1.4	1
76	A Programmable Sustaining Amplifier for Flexible Multimode MEMS-Referenced Oscillators. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 1405-1418.	5.4	8
77	<inline-formula> <tex-math notation="LaTeX">$Delta-Sigma$ </tex-math> </inline-formula> Noise-Shaping in 2-D Space-Time for Wideband Antenna Array Receivers. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 569-582.	5.4	8
78	Towards deep convolutional neural network-based transfer learning for structural health monitoring with partial wavefield scans (Conference Presentation). , 2019, , .		0
79	Analog Approximate-FFT 8/16-Beam Algorithms, Architectures and CMOS Circuits for 5G Beamforming MIMO Transceivers. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2018, 8, 466-479.	3.6	24
80	Real-Time Data Inversion Methods for Low-Field Nuclear Magnetic Resonance (NMR). , 2018, , .		2
81	An Open-Source Test-Bench for Autonomous Ultrasound Imaging. , 2018, , .		4
82	Live Demonstration: An Open-Source Test-Bench for Autonomous Ultrasound Imaging. , 2018, , .		1
83	Acoustic Wireless Power and Data Telemetry for Structural Health Monitoring. , 2018, , .		4
84	A Temperature-Compensated Single-Crystal Silicon-on-Insulator (SOI) MEMS Oscillator with a CMOS Amplifier Chip. Micromachines, 2018, 9, 559.	2.9	12
85	Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. , 2018, , .		2
86	Conformal Ultrasound Transducer Array for Image-Guided Neural Therapy. , 2018, , .		5
87	A Real-Time Automatic Stability Optimization Loop (SOL) for MEMS-Referenced Oscillators. , 2018, , .		1
88	An Integrated Low-Power Multi-Modal Wide-Dynamic-Range Potentiostat. , 2018, , .		0
89	Power-Efficient Data Modulation for All-Mechanical ULF/VLF Transmitters. , 2018, , .		9
90	Bruit-enhancing phonoangiogram filter using sub-band autoregressive linear predictive coding. , 2018, 2018, 1416-1419.		7

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91	An FPGA-based Flexible and MIMO-capable GPR System. , 2018, , .		1
92	An automated instrument for polarization-enhanced broadband nuclear quadrupole resonance (NQR) spectroscopy. Review of Scientific Instruments, 2018, 89, 093106.	1.3	8
93	Multiport ADCs for Microwave Focal Plane Array Dish Receivers. , 2018, , .		1
94	Automated classification of food products using 2D low-field NMR. Journal of Magnetic Resonance, 2018, 294, 44-58.	2.1	16
95	A programmable CMOS transceiver for structural health monitoring. , 2018, , .		4
96	Authentication of dietary supplements through Nuclear Quadrupole Resonance (NQR) spectroscopy. International Journal of Food Science and Technology, 2018, 53, 2796-2809.	2.7	4
97	An Offset-Canceling Approximate-DFT Beamforming Architecture for Wireless Transceivers. , 2018, , .		3
98	Wideband <inline-formula> <tex-math notation="LaTeX">N</tex-math> </inline-formula>-Beam Arrays Using Low-Complexity Algorithms and Mixed-Signal Integrated Circuits. IEEE Journal on Selected Topics in Signal Processing, 2018, 12, 368-382.	10.8	38
99	Quantifying Gas Content in Coals Using Resonance Borehole Magnetic. ASEG Extended Abstracts, 2018, 2018, 1-5.	0.1	0
100	Broadband quantitative NQR for authentication of vitamins and dietary supplements. Journal of Magnetic Resonance, 2017, 278, 67-79.	2.1	13
101	Cochlear signal analysis for broadband spectrum sensing in cognitive radio networks. , 2017, , .		3
102	Improving ADC figure-of-merit in wideband antenna array receivers using multidimensional space-time delta-sigma multiport circuits. , 2017, , .		11
103	An â€œInternet of Earsâ€•for crowd-aware smart buildings based on sparse sensor networks. , 2017, , .		8
104	Authentication and traceability of food products through the supply chain using NQR spectroscopy. , 2017, , .		7
105	A Simple Model for the Thermal Noise of Saturated MOSFETs at All Inversion Levels. IEEE Journal of the Electron Devices Society, 2017, 5, 458-465.	2.1	5
106	Embedded silicon odometers for monitoring the aging of high-temperature integrated circuits. , 2017, , .		3
107	N-port LNAs for mmW array processors using 2-D spatio-temporal Î” â€” Î£ noise-shaping. , 2017, , .		4
108	A programmable sustaining amplifier for reconfigurable MEMS-referenced oscillators. , 2017, , .		5

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109	Automated design and optimization of integrated inductors and transformers. , 2016, , .		3
110	A 1.3mA biphasic current stimulator IC with active charge balancing for nerve interfacing applications. , 2016, , .		3
111	An 11.5 nW broadband wake-up RF receiver with â˜'60 dBm sensitivity at 50 MHz. , 2016, , .		5
112	A low-power receiver for simultaneous electrocardiogram and respiration rate detection. , 2016, , .		1
113	A programmable CMOS feedback IC for reconfigurable MEMS-referenced oscillators. , 2016, , .		4
114	Authentication of Medicines Using Nuclear Quadrupole Resonance Spectroscopy. IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2016, 13, 417-430.	3.0	22
115	Switched-gain feedback amplifiers. , 2015, , .		2
116	Output encoding for cochlear signal analysis. , 2015, , .		2
117	Absolute phase effects on CPMG-type pulse sequences. Journal of Magnetic Resonance, 2015, 261, 121-132.	2.1	13
118	Dispersion of T₁ and T₂ Nuclear Magnetic Resonance Relaxation in Crude Oils. ChemPhysChem, 2014, 15, 2676-2681.	2.1	21
119	An extremely broadband low-frequency MR system. Microporous and Mesoporous Materials, 2013, 178, 53-55.	4.4	10
120	Axis-matching excitation pulses for CPMG-like sequences in inhomogeneous fields. Journal of Magnetic Resonance, 2013, 237, 1-10.	2.1	14
121	Broadband CPMG sequence with short composite refocusing pulses. Journal of Magnetic Resonance, 2013, 230, 64-75.	2.1	25
122	Transformer-coupled NMR probe. Journal of Magnetic Resonance, 2012, 216, 128-133.	2.1	6
123	A Bio-Inspired Cochlear Heterodyning Architecture for an RF Fovea. IEEE Transactions on Circuits and Systems I: Regular Papers, 2011, 58, 1647-1660.	5.4	6
124	Low-frequency NMR with a non-resonant circuit. Journal of Magnetic Resonance, 2011, 210, 69-74.	2.1	16
125	A cochlear heterodyning architecture for an RF fovea. , 2010, , .		1
126	A Low-Power, Battery-Free Tag for Body Sensor Networks. IEEE Pervasive Computing, 2010, 9, 71-77.	1.3	47

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127	Log-domain circuit models of chemical reactions. , 2009, , .		22
128	Dynamic-range analysis and maximization of micropower G<inf>m</inf>-C bandpass filters by adaptive biasing. , 2009, , .		3
129	A Battery-Free Tag for Wireless Monitoring of Heart Sounds. , 2009, , .		13
130	A Bio-Inspired Active Radio-Frequency Silicon Cochlea. IEEE Journal of Solid-State Circuits, 2009, 44, 1814-1828.	5.4	47
131	Circuit models of stochastic genetic networks. , 2009, , .		17
132	Power-Efficient Impedance-Modulation Wireless Data Links for Biomedical Implants. IEEE Transactions on Biomedical Circuits and Systems, 2008, 2, 301-315.	4.0	144
133	Low-Power Circuits for Brainâ€“Machine Interfaces. IEEE Transactions on Biomedical Circuits and Systems, 2008, 2, 173-183.	4.0	76
134	A Bidirectional Wireless Link for Neural Prostheses that Minimizes Implanted Power Consumption. , 2007, , .		12
135	Low-Power CMOS Rectifier Design for RFID Applications. IEEE Transactions on Circuits and Systems Part 1: Regular Papers, 2007, 54, 1177-1188.	0.1	234