

# Luis Fonseca

## List of Publications by Year in descending order

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128  
papers

2,314  
citations

257450

24  
h-index

233421

45  
g-index

129  
all docs

129  
docs citations

129  
times ranked

2658  
citing authors

#	ARTICLE	IF	CITATIONS
1	Radiation hard silicon detectors developments by the RD48 (ROSE) collaboration. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2001, 466, 308-326.	1.6	377
2	Multi-range silicon micromachined flow sensor. Sensors and Actuators A: Physical, 2004, 110, 282-288.	4.1	112
3	Soft breakdown conduction in ultrathin (3-5 nm) gate dielectrics. IEEE Transactions on Electron Devices, 2000, 47, 82-89.	3.0	103
4	Monolithically integrated thermoelectric energy harvester based on silicon nanowire arrays for powering micro/nanodevices. Nano Energy, 2012, 1, 812-819.	16.0	103
5	Developments for radiation hard silicon detectors by defect engineering results by the CERN RD48 (ROSE) Collaboration. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2001, 465, 60-69.	1.6	88
6	An RFID reader with onboard sensing capability for monitoring fruit quality. Sensors and Actuators B: Chemical, 2007, 127, 143-149.	7.8	81
7	Full ceramic micro solid oxide fuel cells: towards more reliable MEMS power generators operating at high temperatures. Energy and Environmental Science, 2014, 7, 3617-3629.	30.8	76
8	SiGe nanowire arrays based thermoelectric microgenerator. Nano Energy, 2019, 57, 492-499.	16.0	71
9	Non-selective NDIR array for gas detection. Sensors and Actuators B: Chemical, 2007, 127, 69-73.	7.8	67
10	Detection of low NO <sub>2</sub> concentrations with low power micromachined tin oxide gas sensors. Sensors and Actuators B: Chemical, 1999, 58, 325-329.	7.8	50
11	Sub-ppm gas sensor detection via spiral 1/4-preconcentrator. Sensors and Actuators B: Chemical, 2008, 132, 149-154.	7.8	49
12	Influence of current collectors design on the performance of a silicon-based passive micro direct methanol fuel cell. Journal of Power Sources, 2009, 194, 391-396.	7.8	44
13	Porous La <sub>0.6</sub> Sr <sub>0.4</sub> CoO <sub>3</sub> thin film cathodes for large area micro solid oxide fuel cell power generators. Journal of Power Sources, 2014, 248, 1042-1049.	7.8	42
14	Detection of gases with arrays of micromachined tin oxide gas sensors. Sensors and Actuators B: Chemical, 2000, 65, 244-246.	7.8	40
15	Sensitivity improvement of a microcantilever based mass sensor. Microelectronic Engineering, 2009, 86, 1187-1189.	2.4	40
16	Silicon nanowire arrays as thermoelectric material for a power microgenerator. Journal of Micromechanics and Microengineering, 2011, 21, 104007.	2.6	39
17	Towards a full integration of vertically aligned silicon nanowires in MEMS using silane as a precursor. Nanotechnology, 2015, 26, 195302.	2.6	37
18	A micromachined thermoelectric sensor for natural gas analysis: Thermal model and experimental results. Sensors and Actuators B: Chemical, 2008, 134, 551-558.	7.8	36

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19	Ethylene optical spectrometer for apple ripening monitoring in controlled atmosphere store-houses. <i>Sensors and Actuators B: Chemical</i> , 2009, 136, 546-554.	7.8	36
20	Performance optimization of a passive silicon-based micro-direct methanol fuel cell. <i>Sensors and Actuators B: Chemical</i> , 2008, 132, 540-544.	7.8	35
21	Smart integration of silicon nanowire arrays in all-silicon thermoelectric micro-nanogenerators. <i>Semiconductor Science and Technology</i> , 2016, 31, 084001.	2.0	35
22	Development of a CMOS-compatible PCR chip: comparison of design and system strategies. <i>Journal of Micromechanics and Microengineering</i> , 2004, 14, 1558-1568.	2.6	34
23	Enhanced thermoelectric figure of merit of individual Si nanowires with ultralow contact resistances. <i>Nano Energy</i> , 2020, 67, 104191.	16.0	28
24	All-silicon thermoelectric micro/nanogenerator including a heat exchanger for harvesting applications. <i>Journal of Power Sources</i> , 2019, 413, 125-133.	7.8	27
25	Electrical transport properties of V <sub>2</sub> O <sub>5</sub> thin films obtained by thermal annealing of layers grown by RF magnetron sputtering at room temperature. <i>Thin Solid Films</i> , 2015, 589, 730-734.	1.8	25
26	Planar Thermoelectric Microgenerators Based on Silicon Nanowires. <i>Journal of Electronic Materials</i> , 2011, 40, 851-855.	2.2	24
27	Transitioning from Si to SiGe Nanowires as Thermoelectric Material in Silicon-Based Microgenerators. <i>Nanomaterials</i> , 2021, 11, 517.	4.1	24
28	Improvement of the gas sensor response via silicon $\hat{1}/4$ -preconcentrator. <i>Sensors and Actuators B: Chemical</i> , 2007, 127, 288-294.	7.8	23
29	A surface micromachining process for the development of a medium-infrared tuneable Fabry-Pérot interferometer. <i>Sensors and Actuators A: Physical</i> , 2004, 113, 39-47.	4.1	22
30	A micromachined thermoelectric sensor for natural gas analysis: Multivariate calibration results. <i>Sensors and Actuators B: Chemical</i> , 2012, 166-167, 338-348.	7.8	21
31	A compact optical multichannel system for ethylene monitoring. <i>Microsystem Technologies</i> , 2008, 14, 637-644.	2.0	19
32	Design and fabrication of silicon-based mid infrared multi-lenses for gas sensing applications. <i>Sensors and Actuators B: Chemical</i> , 2008, 132, 498-507.	7.8	19
33	Stress-profile characterization and test-structure analysis of single and double ion-implanted LPCVD polycrystalline silicon. <i>Sensors and Actuators A: Physical</i> , 1996, 54, 718-723.	4.1	18
34	Assessment of the final metrological characteristics of a MOEMS-based NDIR spectrometer through system modeling and data processing. <i>IEEE Sensors Journal</i> , 2003, 3, 587-594.	4.7	18
35	Exploration of the metrological performance of a gas detector based on an array of unspecific infrared filters. <i>Sensors and Actuators B: Chemical</i> , 2006, 116, 183-191.	7.8	18
36	Limits to the integration of filters and lenses on thermoelectric IR detectors by flip-chip techniques. <i>Sensors and Actuators A: Physical</i> , 2009, 149, 65-73.	4.1	18

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37	Improved Thermal Behavior of Multiple Linked Arrays of Silicon Nanowires Integrated into Planar Thermoelectric Microgenerators. <i>Journal of Electronic Materials</i> , 2013, 42, 1918-1925.	2.2	17
38	$\hat{I}^2$ -SiC on SiO <sub>2</sub> formed by ion implantation and bonding for micromechanics applications. <i>Sensors and Actuators A: Physical</i> , 1999, 74, 169-173.	4.1	16
39	Silicon wafer oxygenation from SiO <sub>2</sub> layers for radiation hard detectors. <i>Microelectronics Reliability</i> , 2000, 40, 791-794.	1.7	15
40	Qualitative and quantitative substance discrimination using a CMOS compatible non-specific NDIR microarray. <i>Sensors and Actuators B: Chemical</i> , 2009, 141, 396-403.	7.8	15
41	New approach for batch microfabrication of silicon-based micro fuel cells. <i>Microsystem Technologies</i> , 2014, 20, 341-348.	2.0	15
42	AFM thermal imaging as an optimization tool for a bulk micromachined thermopile. <i>Sensors and Actuators A: Physical</i> , 2004, 115, 440-446.	4.1	14
43	Finite-element analysis of a miniaturized ion mobility spectrometer for security applications. <i>Sensors and Actuators B: Chemical</i> , 2012, 170, 13-20.	7.8	14
44	Breakdown characteristics of RTO 10 nm SiO <sub>2</sub> /sub 2/ films grown at different temperatures. <i>IEEE Electron Device Letters</i> , 1994, 15, 449-451.	3.9	13
45	Feasibility of a flip-chip approach to integrate an IR filter and an IR detector in a future gas detection cell. <i>Microsystem Technologies</i> , 2004, 10, 382-386.	2.0	13
46	Characterization of thermal conductivity in thin film multilayered membranes. <i>Thin Solid Films</i> , 2005, 484, 328-333.	1.8	13
47	Influence of the silicon wafer cleaning treatment on the Si/SiO <sub>2</sub> interfaces analyzed by infrared spectroscopy. <i>Applied Surface Science</i> , 1992, 56-58, 861-865.	6.1	12
48	Bottom-up Silicon Nanowire Arrays for Thermoelectric Harvesting. <i>Materials Today: Proceedings</i> , 2015, 2, 675-679.	1.8	12
49	Use of boron heavily doped silicon slabs for gas sensors based on free-standing membranes. <i>Sensors and Actuators B: Chemical</i> , 2008, 130, 538-545.	7.8	11
50	Thermal dry oxidation of Si <sub>1-x-y</sub> GexCy strained layers grown on silicon. <i>Microelectronic Engineering</i> , 1999, 48, 207-210.	2.4	10
51	Oxidation of Si <sub>1-x-y</sub> GexCy strained layers grown on Si: kinetics and interface properties. <i>Microelectronics Reliability</i> , 2000, 40, 829-832.	1.7	10
52	Mirror electrostatic actuation of a medium-infrared tuneable Fabry-Perot interferometer based on a surface micromachining process. <i>Sensors and Actuators A: Physical</i> , 2005, 123-124, 584-589.	4.1	10
53	Mechanical characterization of thermal flow sensors membranes. <i>Sensors and Actuators A: Physical</i> , 2006, 125, 260-266.	4.1	10
54	Thermal Test of an Improved Platform for Silicon Nanowire-Based Thermoelectric Micro-generators. <i>Journal of Electronic Materials</i> , 2016, 45, 1689-1694.	2.2	10

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55	Thermal conductivity of individual Si and SiGe epitaxially integrated NWs by scanning thermal microscopy. <i>Nanoscale</i> , 2021, 13, 7252-7265.	5.6	10
56	<title>A highly sensitive IR-optical sensor for ethylene-monitoring</title>. , 2005, 5836, 452.		9
57	Power Response of a Planar Thermoelectric Microgenerator Based on Silicon Nanowires at Different Convection Regimes. <i>Energy Harvesting and Systems</i> , 2016, 3, 335-342.	2.7	9
58	Optical characterization of thermally oxidized Si <sub>1-x</sub> Ge <sub>x</sub> C layers. <i>Thin Solid Films</i> , 2000, 364, 233-238.	1.8	8
59	A MEMS-based thermal infrared emitter for an integrated NDIR spectrometer. <i>Microsystem Technologies</i> , 2012, 18, 1147-1154.	2.0	8
60	Tuning the Thermoelectric Properties of Boron-Doped Silicon Nanowires Integrated into a Micro-Harvester. <i>Advanced Materials Technologies</i> , 2022, 7, .	5.8	8
61	Novel results on fluence dependence and annealing behavior of oxygenated and non-oxygenated silicon detectors. <i>IEEE Transactions on Nuclear Science</i> , 2002, 49, 1377-1382.	2.0	7
62	Influence of the internal gas flow distribution on the efficiency of a 1/4-preconcentrator. <i>Sensors and Actuators B: Chemical</i> , 2008, 135, 52-56.	7.8	7
63	A methodology to extract dynamic compact thermal models under time-varying boundary conditions: application to a thermopile based IR sensor. <i>Microsystem Technologies</i> , 2005, 12, 21-29.	2.0	6
64	Integrated tunneling sensor for nanoelectromechanical systems. <i>Applied Physics Letters</i> , 2006, 89, 173101.	3.3	6
65	Application of Micro and Nanotechnologies to Food Safety and Quality Monitoring. <i>Measurement and Control</i> , 2007, 40, 116-119.	1.8	6
66	A high sensitivity silicon microcantilever based mass sensor. , 2008, , .		6
67	A comparison of RTO and furnace SiO <sub>2</sub> /sub 2/ time-zero-breakdown characteristics. <i>IEEE Transactions on Electron Devices</i> , 1991, 38, 1743-1747.	3.0	5
68	A reliability comparison of RTO and furnace thin SiO <sub>2</sub> layers: effect of the oxidation temperature. <i>Microelectronic Engineering</i> , 1998, 40, 61-75.	2.4	5
69	Fresnel lenses: study and fabrication in silicon technology for medium-IR applications. , 2006, 6186, 233.		5
70	Optical particle detection in liquid suspensions with a hybrid integrated microsystem. <i>Sensors and Actuators A: Physical</i> , 2016, 247, 629-640.	4.1	5
71	Electrical Characteristics of Postoxidation Annealed Very Thin SiO <sub>2</sub> Films: Potential Benefits of Rapid Thermal Processing. <i>Journal of the Electrochemical Society</i> , 1996, 143, 356-360.	2.9	4
72	Electrical characterisation of Si <sub>3</sub> N <sub>4</sub> /SiO <sub>2</sub> double layers on p-type 6H-SiC. <i>Microelectronics Reliability</i> , 2000, 40, 833-836.	1.7	4

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73	New evidence of dominant processing effects in standard and oxygenated silicon diodes after neutron irradiation. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2003, 512, 52-59.	1.6	4
74	Silicon microsystem passivation for high-voltage applications in DNA chips. Microelectronics Reliability, 2000, 40, 787-789.	1.7	3
75	Thermal and mechanical simulation of bulk resonators. , 0, , .		3
76	Impact of carbon concentration on the interface density of states of metal-oxide Si <sub>1-x</sub> Ge <sub>x</sub> Cy (strained) capacitors. Journal of Electronic Materials, 2004, 33, 1022-1027.	2.2	3
77	Thermal AFM: a thermopile case study. Ultramicroscopy, 2004, 101, 153-159.	1.9	3
78	Effect of Combined Oxygenation and Gettering on Minority Carrier Lifetime in High-Resistivity FZ Silicon. Journal of the Electrochemical Society, 2004, 151, G652.	2.9	3
79	Micro-cantilevers for gas sensing. , 0, , .		3
80	Thermopile sensor array for an electronic nose integrated non-selective NDIR gas detection system. , 0, , .		3
81	A compact optical ethylene monitoring system. , 2007, , .		3
82	Modelling a P-FAIMS with multiphysics FEM. Journal of Mathematical Chemistry, 2012, 50, 359-373.	1.5	3
83	Managing Heat Transfer Issues in Thermoelectric Microgenerators. , 0, , .		3
84	Optical and electrical properties of Si <sub>1-x</sub> Ge <sub>x</sub> Cy strained layers thermally oxidized. Microelectronic Engineering, 2004, 72, 185-190.	2.4	2
85	Microsystems for the agrofood field. Journal of Physics: Conference Series, 2005, 10, 267-272.	0.4	2
86	Comparison of model order reduction methodologies for thermal problems. , 0, , .		2
87	Thermal conductivity determination of micromachined membranes. , 0, , .		2
88	Design and Fabrication of Micromachined Silicon Based Mid Infrared Multilenses for Gas Sensing Applications. , 2007, , .		2
89	Micro and nanotechnologies for the development of an integrated chromatographic system. , 2007, , .		2
90	Modeling vapor detection in a micro ion mobility spectrometer for security applications. Procedia Engineering, 2010, 5, 1236-1239.	1.2	2

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91	Improved thermal isolation of silicon suspended platforms for an all-silicon thermoelectric microgenerator based on large scale integration of Si nanowires as thermoelectric material. Journal of Physics: Conference Series, 2015, 660, 012113.	0.4	2
92	Interdigitated design of a thermoelectric microgenerator based on silicon nanowire arrays. Proceedings of SPIE, 2015, , .	0.8	2
93	Optimization of power output in planar thermoelectric microgenerators based on Si nanowires. Journal of Physics: Conference Series, 2016, 773, 012026.	0.4	2
94	Monitoring perishable food. , 2020, , 289-314.		2
95	Standalone micro-reformer for on-demand hydrogen production from dimethyl ether. Journal of Power Sources, 2021, 506, 230241.	7.8	2
96	Effect of RPT/furnace processing on the minority carrier lifetime in very thin oxide MOS capacitors. Solid-State Electronics, 1994, 37, 115-117.	1.4	1
97	Influence of the doping material on the benzene detection. , 2006, , .		1
98	Dimension-Scaling of Microcantilevers Resonators. , 2007, , .		1
99	Planar Micro Ion Mobility Spectrometer modelling for explosives detection. , 2011, , .		1
100	Optical monitoring of wine alcoholic fermentation using a non-specific NDIR microarray. , 2014, , .		1
101	Improved micronanogenerators based on silicon compatible materials and processing. Journal of Physics: Conference Series, 2019, 1407, 012097.	0.4	1
102	Improved design of an all-Si based thermoelectric microgenerator. , 2021, , .		1
103	Improved thermal and electrical design for an all-Si thermoelectric micropower source. Proceedings of SPIE, 2017, , .	0.8	1
104	New Fabrication Method of Silicon Sub-Micron Beams with Monolithic Contacts for Thermoelectric Transport Properties Analysis. Nanomaterials, 2022, 12, 1326.	4.1	1
105	Feasibility of a flip chip approach to integrate an IR filter and an IR detector in a future gas detection cell. , 0, , .		0
106	FEM simulations to estimate the polymer thickness deposited over mechanical resonators. , 0, , .		0
107	Mechanical characterisation of micro-resonator structures. , 0, , .		0
108	FEM Simulation and Characterization of Microcantilevers Resonators. , 2006, , .		0

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109	Towards a Microtechnology based 4-channel infrared detector unit for a miniaturised NDIR system. , 2006, , .		0
110	RFID reader with gas sensing capability for monitoring fruit along the logistic chain: array development and signal processing. , 2007, 6589, 226.		0
111	A Silicon-Based Direct Methanol Micro Fuel Cell. , 2007, , .		0
112	Spiral &#x003BC;-preconcentrator for gas sensor detection in the ppb range. Proceedings of IEEE Sensors, 2007, , .	1.0	0
113	Silicon &#x003BC;-preconcentrator for improved gas detection. , 2007, , .		0
114	Leakage currents and dielectric breakdown of Si1â~xâ~yGexCy thermal oxides. Microelectronics Reliability, 2008, 48, 1635-1640.	1.7	0
115	Towards a monolithic micro direct methanol fuel cell. , 2008, , .		0
116	Thermoelectric MEMS sensors for natural gas analysis. , 2008, , .		0
117	Preconcentrator-based sensor ã,ãµ-system for low-level benzene detection. Proceedings of SPIE, 2008, , .	0.8	0
118	Simulation of a planar micro Ion Mobility Spectrometer for security applications. , 2010, , .		0
119	Methods and Techniques for the Fabrication of Gas Sensing Devices from Nanowires. Procedia Engineering, 2011, 25, 1409-1412.	1.2	0
120	A MEMS-based thermal infrared emitter for an integrated NDIR spectrometer. , 2011, , .		0
121	Sensors and Micro and Nano Technologies for the Food Sector. , 2013, , .		0
122	Integrating micro and nano: A route for all-silicon thermoelectricity?. , 2013, , .		0
123	Optical Particle Detection in Liquid Suspensions with a Hybrid Integrated Microsystem. Procedia Engineering, 2015, 120, 1071-1074.	1.2	0
124	Hybrid integration of VCSELs and microlenses for a particle detection microoptical system. , 2015, , .		0
125	SiNERGY, a project on energy harvesting and microstorage empowered by Silicon technologies. , 2015, , .		0
126	From materials to devices: Bottom-up integration of nanomaterials onto silicon microstructures for thermoelectric and piezoelectric applications. , 2017, , .		0



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127	A Pd/Al <sub>2</sub> O <sub>3</sub> -based micro-reformer unit fully integrated in silicon technology for H-rich gas production. Journal of Physics: Conference Series, 2019, 1407, 012048.	0.4	0
128	Harvesting performance of a planar thermoelectric microgenerator with a compact design. , 2021, , .		0