Florin Udrea

List of Publications by Citations

297 papers	3,834 citations	31 h-index	48 g-index
339 ext. papers	4,751 ext. citations	3 avg, IF	5.63 L-index

#	Paper	IF	Citations
297	Superjunction Power Devices, History, Development, and Future Prospects. *IEEE Transactions on Electron Devices*, **2017**, 64, 713-727	2.9	162
296	. *IEEE Sensors Journal*, **2010**, 10, 1833-1848	4	132
295	CMOS integration of inkjet-printed graphene for humidity sensing. *Scientific Reports*, **2015**, 5, 17374	4.9	104
294	Tungsten-Based SOI Microhotplates for Smart Gas Sensors. *Journal of Microelectromechanical Systems*, **2008**, 17, 1408-1417	2.5	104
293	Design and simulations of SOI CMOS micro-hotplate gas sensors. *Sensors and Actuators B: Chemical*, **2001**, 78, 180-190	8.5	95
292	ZnO nanowires grown on SOI CMOS substrate for ethanol sensing. *Sensors and Actuators B: Chemical*, **2010**, 146, 559-565	8.5	87
291	Towards Integrated Mid-Infrared Gas Sensors. *Sensors*, **2019**, 19,	3.8	80
290	Novel design and characterisation of SOI CMOS micro-hotplates for high temperature gas sensors. *Sensors and Actuators B: Chemical*, **2007**, 127, 260-266	8.5	75
289	Silicon diode temperature sensors—A review of applications. *Sensors and Actuators A: Physical*, **2015**, 232, 63-74	3.9	70
288	Ultralow Specific On-Resistance High-Voltage SOI Lateral MOSFET. *IEEE Electron Device Letters*, **2011**, 32, 185-187	4.4	61
287	3D RESURF double-gate MOSFET: A revolutionary power device concept. *Electronics Letters*, **1998**, 34, 808	1.1	59
286	On the physical operation and optimization of the p-GaN gate in normally-off GaN HEMT devices. *Applied Physics Letters*, **2017**, 110, 123502	3.4	58
285	Temperature-modulated graphene oxide resistive humidity sensor for indoor air quality monitoring. *Nanoscale*, **2016**, 8, 4565-72	7.7	58
284	Diamond power devices: state of the art, modelling, figures of merit and future perspective. *Journal Physics D: Applied Physics*, **2020**, 53, 093001	3	57
283	Lateral insulated gate bipolar transistor (LIGBT) structure based on partial isolation SOI technology. *Electronics Letters*, **1997**, 33, 907	1.1	54
282	On the static performance of the RESURF LDMOSFETS for power ICs. *Power Semiconductor Devices & ICs, 2009 ISPSD 2009 21st International Symposium on*, **2009**,		52
281	SOI power devices. *Electronics and Communication Engineering Journal*, **2000**, 12, 27-40		51

280	Breakdown Voltage for Superjunction Power Devices With Charge Imbalance: An Analytical Model Valid for Both Punch Through and Non Punch Through Devices. *IEEE Transactions on Electron Devices*, **2009**, 56, 3175-3183	2.9	50
279	The Superjunction Insulated Gate Bipolar Transistor Optimization and Modeling. *IEEE Transactions on Electron Devices*, **2010**, 57, 594-600	2.9	50
278	Thermo-optical characterization of fluorescent rhodamine B based temperature-sensitive nanosensors using a CMOS MEMS micro-hotplate. *Sensors and Actuators B: Chemical*, **2014**, 192, 126-133	8.5	42
277	Mask-less deposition of Au-SnO2 nanocomposites on CMOS MEMS platform for ethanol detection. *Nanotechnology*, **2016**, 27, 125502	3.4	36
276	. *IEEE Electron Device Letters*, **2019**, 40, 1253-1256	4.4	36
275	Dip pen nanolithography-deposited zinc oxide nanorods on a CMOS MEMS platform for ethanol sensing. *RSC Advances*, **2015**, 5, 47609-47616	3.7	35
274	The Effect of Charge Imbalance on Superjunction Power Devices: An Exact Analytical Solution. *IEEE Electron Device Letters*, **2008**, 29, 249-251	4.4	35
273	. *IEEE Transactions on Electron Devices*, **2011**, 58, 769-775	2.9	34
272	Numerical Parameterization of Chemical-Vapor-Deposited (CVD) Single-Crystal Diamond for Device Simulation and Analysis. *IEEE Transactions on Electron Devices*, **2008**, 55, 2744-2756	2.9	34
271	Optimum carrier distribution of the IGBT. *Solid-State Electronics*, **2000**, 44, 1573-1583	1.7	34
270	Deep depletion concept for diamond MOSFET. *Applied Physics Letters*, **2017**, 111, 173503	3.4	33
269	QUANTUM COMPUTATION WITH BALLISTIC ELECTRONS. *International Journal of Modern Physics B*, **2001**, 15, 125-133	1.1	33
268	Impact of Donor Traps on the 2DEG and Electrical Behavior of AlGaN/GaN MISFETs. *IEEE Electron Device Letters*, **2014**, 35, 27-29	4.4	31
267	Silicon on Insulator Diode Temperature Sensor—A Detailed Analysis for Ultra-High Temperature Operation. *IEEE Sensors Journal*, **2010**, 10, 997-1003	4	31
266	A Low-Power, Low-Cost Infra-Red Emitter in CMOS Technology. *IEEE Sensors Journal*, **2015**, 15, 6775-6782	4	30
265	Analysis of SEB and SEGR in super-junction MOSFETs. *IEEE Transactions on Nuclear Science*, **2000**, 47, 2640-2647	1.7	30
264	Modelling of self-heating effect in thin SOI and Partial SOI LDMOS power devices. *Solid-State Electronics*, **1999**, 43, 1267-1280	1.7	28
263	True Material Limit of Power Devices—Applied to 2-D Superjunction MOSFET. *IEEE Transactions on Electron Devices*, **2018**, 65, 1432-1439	2.9	27

262	On the Investigation of the Anode Side SuperJunction IGBT Design Concept. *IEEE Electron Device Letters*, **2017**, 38, 1063-1066	4.4	26
261	. *IEEE Electron Device Letters*, **2010**, 31, 591-593	4.4	26
260	Breakdown analysis in JI, SOI and partial SOI power structures		26
259	The Current Sharing Optimization of Paralleled IGBTs in a Power Module Tile Using a PSpice Frequency Dependent Impedance Model. *IEEE Transactions on Power Electronics*, **2008**, 23, 206-217	7.2	26
258	Experimental, analytical and numerical investigation of non-linearity of SOI diode temperature sensors at extreme temperatures. *Sensors and Actuators A: Physical*, **2015**, 222, 31-38	3.9	25
257	A highly efficient CMOS nanoplasmonic crystal enhanced slow-wave thermal emitter improves infrared gas-sensing devices. *Scientific Reports*, **2015**, 5, 17451	4.9	25
256	Post-CMOS wafer level growth of carbon nanotubes for low-cost microsensors--a proof of concept. *Nanotechnology*, **2010**, 21, 485301	3.4	25
255	. *IEEE Transactions on Electron Devices*, **1995**, 42, 1356-1366	2.9	25
254	A unified analytical model for the carrier dynamics in trench insulated gate bipolar transistors (TIGBT)		24
253	LoRaWAN Battery-Free Wireless Sensors Network Designed for Structural Health Monitoring in the Construction Domain. *Sensors*, **2019**, 19,	3.8	23
252	Optimisation of SuperJunction Bipolar Transistor for ultra-fast switching applications **2007**,		23
251	The Destruction Mechanism in GCTs. *IEEE Transactions on Electron Devices*, **2013**, 60, 819-826	2.9	22
250	SOI-based devices and technologies for High Voltage ICs. *Bipolar/BiCMOS Circuits and Technology Meeting, IEEE Proceedings of the*, **2007**,		22
249	Experimental demonstration of an ultra-fast double gate inversion layer emitter transistor (DG-ILET). *IEEE Electron Device Letters*, **2002**, 23, 725-727	4.4	22
248	An analytical model for the 3D-RESURF effect. *Solid-State Electronics*, **2000**, 44, 1753-1764	1.7	22
247	State-of-the-art technologies and devices for high-voltage integrated circuits. *IET Circuits, Devices and Systems*, **2007**, 1, 357	1.1	21
246	Enhanced spectroscopic gas sensors using in-situ grown carbon nanotubes. *Applied Physics Letters*, **2015**, 106, 194101	3.4	20
245	Inkjet-printed CMOS-integrated graphene metal oxide sensors for breath analysis. *Npj 2D Materials and Applications*, **2019**, 3,	8.8	20

244	200-V Lateral Superjunction LIGBT on Partial SOI. *IEEE Electron Device Letters*, **2012**, 33, 1291-1293	4.4	20
243	SOI CMOS-Based Smart Gas Sensor System for Ubiquitous Sensor Networks. *ETRI Journal*, **2008**, 30, 516-525	1.4	20
242	Modelling of single-crystal diamond Schottky diodes for high-voltage applications. *Diamond and Related Materials*, **2006**, 15, 317-323	3.5	20
241	Accurate modeling and parameter extraction for 6H-SiC Schottky barrier diodes (SBDs) with nearly ideal breakdown voltage. *IEEE Transactions on Electron Devices*, **2001**, 48, 2148-2153	2.9	20
240	Graphene-coated Rayleigh SAW Resonators for NO2 Detection. *Procedia Engineering*, **2014**, 87, 999-1002		18
239	Enhanced infra-red emission from sub-millimeter microelectromechanical systems micro hotplates via inkjet deposited carbon nanoparticles and fullerenes. *Journal of Applied Physics*, **2013**, 113, 214907	2.5	18
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237	Novel Approach Toward Plasma Enhancement in Trench-Insulated Gate Bipolar Transistors. *IEEE Electron Device Letters*, **2015**, 36, 823-825	4.4	17
236	. *IEEE Electron Device Letters*, **2012**, 33, 1288-1290	4.4	17
235	Ultra-high temperature (>300°C) suspended thermodiode in SOI CMOS technology. *Microelectronics Journal*, **2010**, 41, 540-546	1.8	17
234	Dynamic body potential variation in FD SOI MOSFETs operated in deep non-equilibrium regime: Model and applications. *Solid-State Electronics*, **2010**, 54, 104-114	1.7	17
233	The Nanoscale Silicon Accumulation-Mode MOSFET: A Comprehensive Numerical Study. *IEEE Transactions on Electron Devices*, **2008**, 55, 2946-2959	2.9	17
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231	Use of nanocomposites to increase electrical gain in chemical sensors. *Applied Physics Letters*, **2007**, 91, 203111	3.4	17
230	Zero reverse recovery in SiC and GaN Schottky diodes: A comparison **2016**,		17
229	Lateral unbalanced super junction (USJ)/3D-RESURF for high breakdown voltage on SOI		16
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227	A CMOS-MEMS Thermopile with an Integrated Temperature Sensing Diode for Mid-IR Thermometry. *Procedia Engineering*, **2014**, 87, 1127-1130		15

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221	CMOS temperature sensors - concepts, state-of-the-art and prospects **2008**,		14
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218	Material Limit of Power Devices Applied to Asymmetric 2-D Superjunction MOSFET. *IEEE Transactions on Electron Devices*, **2018**, 65, 3326-3332	2.9	13
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216	On the Source of Oscillatory Behaviour during Switching of Power Enhancement Mode GaN HEMTs. *Energies*, **2017**, 10, 407	3.1	13
215	Ramp oxide termination structure using high-k dielectrics for high voltage diamond Schottky diodes. *Diamond and Related Materials*, **2007**, 16, 1020-1024	3.5	13
214	High voltage devices - a milestone concept in power ICs		13
213	200 V Superjunction N-Type Lateral Insulated-Gate Bipolar Transistor With Improved Latch-Up Characteristics. *IEEE Transactions on Electron Devices*, **2013**, 60, 1412-1415	2.9	12
212	. *IEEE Sensors Journal*, **2019**, 19, 2991-2998	4	12
211	Low-Loss 800-V Lateral IGBT in Bulk Si Technology Using a Floating Electrode. *IEEE Electron Device Letters*, **2018**, 39, 866-868	4.4	12
210	High-Sensitivity Single Thermopile SOI CMOS MEMS Thermal Wall Shear Stress Sensor. *IEEE Sensors Journal*, **2015**, 15, 5561-5568	4	11
209	Silicon-on-Insulator Photodiode on Micro-Hotplate Platform With Improved Responsivity and High-Temperature Application. *IEEE Sensors Journal*, **2016**, 16, 3017-3024	4	11

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207	Identification and quantification of different vapours using a single polymer chemoresistor and the novel dual transient temperature modulation technique. *Sensors and Actuators B: Chemical*, **2009**, 141, 370-380	8.5	11
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204	On-state behaviour of diamond Schottky diodes. *Diamond and Related Materials*, **2008**, 17, 736-740	3.5	11
203	Silicon-on-insulator power integrated circuits. *Microelectronics Journal*, **2001**, 32, 517-526	1.8	11
202	On-state analytical modeling of IGBTs with local lifetime control. *IEEE Transactions on Power Electronics*, **2002**, 17, 815-823	7.2	11
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196	Smart CMOS mid-infrared sensor array. *Optics Letters*, **2019**, 44, 4111-4114	3	10
195	A CMOS-Based Thermopile Array Fabricated on a Single SiO2 Membrane. *Proceedings (mdpi)*, **2018**, 2, 878	0.3	10
194	Design of a normally-off diamond JFET for high power integrated applications. *Diamond and Related Materials*, **2017**, 78, 73-82	3.5	9
193	Experimentally validated three dimensional GCT wafer level simulations **2012**,		9
192	Three technologies for a smart miniaturized gas-sensor: SOI CMOS, micromachining, and CNTs - challenges and performance **2007**,		9
191	Optically triggered Schottky barrier diodes in single crystal diamond. *Diamond and Related Materials*, **2005**, 14, 499-503	3.5	9

190	An Analytical Model for the Lateral Insulated Gate Bipolar Transistor (LIGBT) on Thin SOI. *IEEE Transactions on Power Electronics*, **2006**, 21, 1521-1528	7.2	9
189	Static and Dynamic Effects of the Incomplete Ionization in Superjunction Devices. *IEEE Transactions on Electron Devices*, **2018**, 65, 4469-4475	2.9	9
188	Substantiation of buried two dimensional hole gas (2DHG) existence in GaN-on-Si epitaxial heterostructure. *Applied Physics Letters*, **2017**, 110, 163506	3.4	8
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183	The dynamics of surface donor traps in AlGaN/GaN MISFETs using transient measurements and TCAD modelling **2014**,		8
182	High sensitive NO2 gas sensor with low power consumption using selectively grown ZnO nanorods. *Journal of Nanoscience and Nanotechnology*, **2010**, 10, 3385-8	1.3	8
181	SOI diode temperature sensor operated at ultra high temperatures - a critical analysis **2008**,		8
180	Single crystal diamond MI□P diodes for power electronics. *IET Circuits, Devices and Systems*, **2007**, 1, 380	1.1	8
179	High Performance SOI-CMOS Wall Shear Stress Sensors **2007**,		8
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177	Modeling Voltage derivative during inductive turnoff in thin SOI LIGBT. *IEEE Transactions on Electron Devices*, **2005**, 52, 2776-2783	2.9	8
176	Resistive gas sensor with integrated MOSFET micro hot-plate based on an analogue SOI CMOS process		8
175	The 3D RESURF junction		8
174	Theory of 3-D Superjunction MOSFET. *IEEE Transactions on Electron Devices*, **2019**, 66, 5254-5259	2.9	8
173	In-situ thermal annealing of on-membrane silicon-on-insulator semiconductor-based devices after high gamma dose irradiation. *Nanotechnology*, **2017**, 28, 184001	3.4	7

172	Experimental demonstration of the p-ring FS+ Trench IGBT concept: A new design for minimizing the conduction losses **2015**,		7
171	Superjunction IGBT vs. FS IGBT for 200°C operation **2015**,		7
170	Ambient Temperature Carbon Nanotube Ammonia Sensor on CMOS Platform. *Procedia Engineering*, **2014**, 87, 224-227		7
169	Zinc Oxide Nanowire Based Hydrogen Sensor On SOI CMOS Platform. *Procedia Engineering*, **2011**, 25, 1473-1476		7
168	Towards Achieving the Soft-Punch-Through Superjunction Insulated-Gate Bipolar Transistor Breakdown Capability. *IEEE Electron Device Letters*, **2011**, 32, 1275-1277	4.4	7
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166	Switching speed enhancement of the LDMOSFETs using partial-SOI technology		7
165	Substrate deep depletion: an innovative design concept to improve the voltage rating of SOI power devices		7
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162	An analytic model for turn off in the silicon-on-insulator LIGBT. *Solid-State Electronics*, **1999**, 43, 1855-1868	1.7	7
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158	Analytic Model of Specific ON-State Resistance for Superjunction MOSFETs With an Oxide Pillar. *IEEE Electron Device Letters*, **2019**, 40, 761-764	4.4	6
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156	Low Power Resistive Oxygen Sensor Based on Sonochemical SrTi0.6Fe0.4O2.8 (STFO40). *Sensors*, **2015**, 15, 17495-506	3.8	6
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154	Electrothermal model for an SOI-based LIGBT. *IEEE Transactions on Electron Devices*, **2006**, 53, 1698-1704	2.9	6
153	Substrate engineering for improved transient breakdown voltage in SOI lateral power MOS. *IEEE Electron Device Letters*, **2006**, 27, 678-680	4.4	6
152	Simulations results of some Diamond On Insulator nano-MISFETs. *Diamond and Related Materials*, **2006**, 15, 777-782	3.5	6
151	Numerical and Experimental Analysis of Single Crystal Diamond Schottky Barrier Diodes		6
150	CMOS gas sensors and smart devices		6
149	Advanced SPICE modeling of large power IGBT modules		6
148	A study of the CoolMOS integral diode: analysis and optimisation		6
147	MEMS Infrared Emitter and Detector for Capnography Applications. *Procedia Engineering*, **2016**, 168, 1204-1207		6
146	On the Time-Dependent Transport Mechanism Between Surface Traps and the 2DEG in AlGaN/GaN Devices. *IEEE Transactions on Electron Devices*, **2017**, 64, 4415-4423	2.9	5
145	Static and Dynamic Figures of Merits (FOM) for Superjunction MOSFETs **2019**,		5
144	On the models used for TCAD simulations of Diamond Schottky Barrier Diodes **2015**,		5
143	Improving Current Controllability in Bi-Mode Gate Commutated Thyristors. *IEEE Transactions on Electron Devices*, **2015**, 62, 2263-2269	2.9	5
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140	A thermopile based SOI CMOS MEMS wall shear stress sensor **2013**,		5
139	Innovative designs enable 300-V TMBS with ultra-low on-state voltage and fast switching speed **2011**,		5
138	Robustness of SuperJunction structures against cosmic ray induced breakdown. *Solid-State Electronics*, **2010**, 54, 385-391	1.7	5
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136	Suppression of parasitic JFET effect in trench IGBTs by using a self-aligned p base process. *Solid-State Electronics*, **2002**, 46, 1907-1912	1.7	5
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133	Power integrated circuits: devices and applications		5
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131	Multiple-Wavelength Detection in SOI Lateral PIN Diodes With Backside Reflectors. *IEEE Transactions on Industrial Electronics*, **2017**, 64, 7368-7376	8.9	4
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127	Investigation into the capabilities of Hall cells integrated in a non-fully depleted SOI CMOS technological process. *Sensors and Actuators A: Physical*, **2016**, 242, 43-49	3.9	4
126	CMOS technology platform for ubiquitous microsensors **2017**,		4
125	SOI multidirectional thermoelectric flow sensor for harsh environment applications **2015**,		4
124	A tungsten based SOI CMOS MEMS wall shear stress sensor **2014**,		4
123	The effect of the surface fixed charge and donor traps on the C(V) and transfer characteristics of a GaN MISFET Experiment and TCAD simulations **2014**,		4
122	Interface charge trapping and hot carrier reliability in high voltage SOI SJ LDMOSFET **2011**,		4
121	Turn-off failure mechanism in large area IGCTs **2011**,		4
120	A new class of lateral power devices for HVIC's based on the 3D RESURF concept		4
119	Numerical modeling study of the unipolar accumulation transistor. *Applied Physics Letters*, **2007**, 91, 193508	3.4	4

118	New lateral DMOS and IGBT structures realized on a partial SOI substrate based on LEGO process		4
117	Termination Structures for Diamond Schottky Barrier Diodes		4
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115	A comparative investigation of the MCST with MCT and IGBT. *Solid-State Electronics*, **2003**, 47, 1429-1436	1.7	4
114	SOI CMOS gas sensors		4
113	The effect of static and dynamic parasitic charge in the termination area of high voltage devices and possible solutions		4
112	Ultra-high voltage device termination using the 3D RESURF (super-junction) concept - experimental demonstration at 6.5 kV		4
111	Gate stress induced threshold voltage instability and its significance for reliable threshold voltage measurement in p-GaN HEMT **2019**,		4
110	. *IEEE Electron Device Letters*, **2019**, 40, 177-180	4.4	4
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108	On the Quasi-Saturation in State-of-the-Art Power MOSFETs. *IEEE Electron Device Letters*, **2019**, 40, 754-756	4.4	3
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105	The Stripe Fortified GCT: A new GCT design for maximizing the controllable current **2014**,		3
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99	Deposition of Carbon Nanotubes on CMOS. *IEEE Nanotechnology Magazine*, **2012**, 11, 215-219	2.6	3
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96	The trench Insulated Gate Bipolar Transistor—a high power switching device. *Microelectronics Journal*, **1997**, 28, 1-12	1.8	3
95	Laminar to turbulent flow transition measurements using an array of SOI-CMOS MEMS wall shear stress sensors **2008**,		3
94	Technology-Based Static Figure of Merit for High Voltage ICs **2006**,		3
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87	Buried field rings - a novel edge termination method for 4H-SiC high voltage devices		3
86	Advanced 3D RESURF devices for power integrated circuits		3
85	An experimental and numerical investigation of IGBT blocking characteristics		3
84	Minority carrier injection across the 3D RESURF junction		3
83	Power devices for high voltage integrated circuits: new device and technology concepts		3

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