

Roland Schmechel

List of Publications by Year in descending order

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135
papers

4,044
citations

126708

33
h-index

128067

60
g-index

138
all docs

138
docs citations

138
times ranked

4440
citing authors

#	ARTICLE	IF	CITATIONS
1	Study of thermal material properties for Ta- and Al-substituted $\text{Li}_{x-7}\text{La}_{x-3}\text{Zr}_{x-2}\text{O}_{x-12}$ (LLZO) solid-state electrolyte in dependency of temperature and grain size. <i>Journal of Materials Chemistry A</i> , 2022, 10, 12177-12186.	5.2	13
2	Solution processable GHz silicon Schottky diodes. , 2021, , .		1
3	Ultra-fast measurement circuit for transient space charge limited current in organic semiconductor thin films. <i>Measurement Science and Technology</i> , 2020, 31, 015901.	1.4	2
4	Nanoparticle ink-based silicon Schottky diodes operating up to 2.84 GHz. <i>Nano Select</i> , 2020, 1, 659-665.	1.9	6
5	A Stochastic Large-Signal Model for Printed High-Frequency Rectifiers Used for Efficient Generation of Higher Harmonics. <i>IEEE Transactions on Microwave Theory and Techniques</i> , 2020, 68, 2151-2160.	2.9	3
6	Influence of the cathode microstructure on the stability of inverted planar perovskite solar cells. <i>RSC Advances</i> , 2020, 10, 23653-23661.	1.7	8
7	Experimental evidence for the separation of thermally excited bipolar charge carriers within a p-n junction: A new approach to thermoelectric materials and generators. <i>Journal of Applied Physics</i> , 2019, 125, .	1.1	5
8	MIS-TSC: A combination of the thermally stimulated current method and a metal-insulator-semiconductor device for unipolar trap spectroscopy. <i>Applied Physics Letters</i> , 2019, 114, .	1.5	2
9	Thermoelectrics versus thermophotovoltaics: two approaches to convert heat fluxes into electricity. <i>Journal Physics D: Applied Physics</i> , 2019, 52, 275501.	1.3	9
10	Analysis of stochastic Schottky barrier variations within printed high frequency rectifiers for harmonics generation. , 2019, , .		2
11	Spatially resolved investigation of the defect states in methylammonium lead iodide perovskite bicrystals. <i>Journal of Materials Chemistry C</i> , 2019, 7, 13156-13160.	2.7	2
12	Investigating Zinc Ketoiminates as a New Class of Precursors for Solution Deposition of ZnO Thin Films. <i>Journal of Nanoscience and Nanotechnology</i> , 2019, 19, 867-876.	0.9	3
13	Efficient p-n junction-based thermoelectric generator that can operate at extreme temperature conditions. <i>Journal Physics D: Applied Physics</i> , 2018, 51, 014005.	1.3	20
14	Anisotropic layered $\text{Bi}_2\text{Te}_3\text{-In}_2\text{Te}_3$ composites: control of interface density for tuning of thermoelectric properties. <i>Scientific Reports</i> , 2017, 7, 43611.	1.6	18
15	Soluble Metal Oxo Alkoxide Inks with Advanced Rheological Properties for Inkjet-Printed Thin-Film Transistors. <i>ACS Applied Materials & Interfaces</i> , 2017, 9, 2625-2633.	4.0	19
16	Microstructure and thermoelectric properties of Si-WSi ₂ nanocomposites. <i>Acta Materialia</i> , 2017, 125, 321-326.	3.8	22
17	Film forming properties of silicon nanoparticles on Si ₃ N ₄ coated substrates during excimer laser annealing. <i>Optics and Laser Technology</i> , 2017, 90, 33-39.	2.2	5
18	Rodlike Tetracene Derivatives. <i>Chemistry - A European Journal</i> , 2017, 23, 13445-13454.	1.7	12

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19	Modelling of electron beam induced nanowire attraction. Journal of Applied Physics, 2016, 119, 145101.	1.1	5
20	Silicon-based nanocomposites for thermoelectric application. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 497-514.	0.8	21
21	Super-resolution for scanning light stimulation systems. Review of Scientific Instruments, 2016, 87, 093701.	0.6	0
22	Two-Step Annealing Leading to Refined Bi ₂ Te ₃ -In ₂ Te ₃ Lamellar Structures for Tuning of Thermoelectric Properties. Journal of Electronic Materials, 2016, 45, 1654-1660.	1.0	1
23	Anisotropic n-Type Bi ₂ Te ₃ -In ₂ Te ₃ Thermoelectric Material Produced by Seeding Zone Melting and Solid State Transformation. Crystal Growth and Design, 2016, 16, 617-624.	1.4	10
24	Scanning Light Stimulation System With Active Focus Correction at μm Resolution for PV Applications. IEEE Journal of Photovoltaics, 2015, 5, 627-632.	1.5	2
25	Concepts for medium-high to high temperature thermoelectric heat-to-electricity conversion: a review of selected materials and basic considerations of module design. Translational Materials Research, 2015, 2, 025001.	1.2	93
26	(Invited) Silicon-Based Nanocomposites for Thermoelectric High Temperature Waste Heat Recovery. ECS Transactions, 2015, 69, 3-10.	0.3	2
27	Sample temperature profile during the excimer laser annealing of silicon nanoparticles. Optics and Laser Technology, 2015, 74, 132-137.	2.2	11
28	Thermoelectrics from silicon nanoparticles: the influence of native oxide. European Physical Journal B, 2015, 88, 1.	0.6	11
29	Thermoelectric transport properties of boron-doped nanocrystalline diamond foils. Carbon, 2015, 81, 650-662.	5.4	19
30	Thermoelectric properties of pulsed current sintered nanocrystalline Al-doped ZnO by chemical vapour synthesis. Journal of Materials Chemistry A, 2015, 3, 189-197.	5.2	48
31	Note: Automated optical focusing on encapsulated devices for scanning light stimulation systems. Review of Scientific Instruments, 2014, 85, 086104.	0.6	2
32	Fabrication of High-Temperature-Stable Thermoelectric Generator Modules Based on Nanocrystalline Silicon. Journal of Electronic Materials, 2014, 43, 1389-1396.	1.0	18
33	A Facile Solution-Doping Method to Improve a Low-Temperature Zinc Oxide Precursor: Towards Low-Cost Electronics on Plastic Foil. Advanced Functional Materials, 2014, 24, 2537-2543.	7.8	10
34	High Temperature Thermoelectric Device Concept Using Large Area PN Junctions. Journal of Electronic Materials, 2014, 43, 2376-2383.	1.0	36
35	Impact of Rapid Thermal Annealing on Thermoelectric Properties of Bulk Nanostructured Zinc Oxide. Materials Research Society Symposia Proceedings, 2013, 1543, 99-104.	0.1	0
36	Excimer laser doping using highly doped silicon nanoparticles. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 2456-2462.	0.8	14

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37	Note: High resolution alternating current/direct current Harman technique. Review of Scientific Instruments, 2013, 84, 106106.	0.6	8
38	Laser-doping of crystalline silicon substrates using doped silicon nanoparticles. Thin Solid Films, 2013, 548, 437-442.	0.8	9
39	A novel adaptive focusing principle for scanning light stimulation systems down to 2μm resolution. , 2013, , .		0
40	A new adaptive light beam focusing principle for scanning light stimulation systems. Review of Scientific Instruments, 2013, 84, 023707.	0.6	9
41	Thermoelectric Properties of Nanocrystalline Silicon from a Scaled© Synthesis Plant. Advanced Engineering Materials, 2013, 15, 379-385.	1.6	57
42	A Thermoelectric Generator Concept Using a pén Junction: Experimental Proof of Principle. Journal of Electronic Materials, 2013, 42, 2297-2300.	1.0	21
43	Electrical Contact Resistance of Electroless Nickel to Nanocrystalline Silicon and the Fabrication of a Thermoelectric Generator. Materials Research Society Symposia Proceedings, 2013, 1553, 1.	0.1	3
44	A new thermoelectric concept using large area PN junctions. Materials Research Society Symposia Proceedings, 2013, 1543, 3-8.	0.1	11
45	Reduced Coulomb interaction in organic solar cells by the introduction of high-k SrTiO&3& nanoparticles. , 2013, , .		0
46	Reduced Coulomb interaction in organic solar cells by the introduction of inorganic high-k nanostructured materials. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 1712-1718.	0.8	7
47	Metal Oxide Thin-Film Transistors from Nanoparticles and Solutions. Nanoscience and Technology, 2012, , 387-409.	1.5	2
48	Influence of annealing atmospheres and synthetic air treatment on solution processed zinc oxide thin film transistors. Journal of Applied Physics, 2012, 112, 034506.	1.1	6
49	Laser-sintered thin films of doped SiGe nanoparticles. Applied Physics Letters, 2012, 100, 231907.	1.5	20
50	The effect of Peltier heat during current activated densification. Applied Physics Letters, 2012, 101, .	1.5	29
51	A sintered nanoparticle p-n junction observed by a Seebeck microscan. Journal of Applied Physics, 2012, 111, .	1.1	13
52	n-type perylene to fill voids in solution processed nanoparticulate zinc oxide thin films. Physica E: Low-Dimensional Systems and Nanostructures, 2012, 44, 2124-2127.	1.3	4
53	Reduced exciton binding energy in organic semiconductors: Tailoring the Coulomb interaction. Physica Status Solidi - Rapid Research Letters, 2012, 6, 68-70.	1.2	20
54	Thin-film transistors with a channel composed of semiconducting metal oxide nanoparticles deposited from the gas phase. Journal of Nanoparticle Research, 2012, 14, 1.	0.8	2

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55	The realization of a pn-diode using only silicon nanoparticles. <i>Scripta Materialia</i> , 2012, 67, 265-268.	2.6	14
56	Mechanical layer compaction for dispersion processed nanoparticulate zinc oxide thin film transistors. <i>Microelectronic Engineering</i> , 2012, 96, 36-39.	1.1	10
57	From nanoparticles to nanocrystalline bulk: percolation effects in field assisted sintering of silicon nanoparticles. <i>Nanotechnology</i> , 2011, 22, 135601.	1.3	35
58	Artificially nanostructured n-type SiGe bulk thermoelectrics through plasma enhanced growth of alloy nanoparticles from the gas phase. <i>Journal of Materials Research</i> , 2011, 26, 1872-1878.	1.2	21
59	Electronic properties of polyvinylpyrrolidone at the zinc oxide nanoparticle surface. <i>Journal of Materials Science</i> , 2011, 46, 7776-7783.	1.7	21
60	High performance low temperature solution-processed zinc oxide thin film transistor. <i>Thin Solid Films</i> , 2011, 519, 5623-5628.	0.8	40
61	Role of oxygen on microstructure and thermoelectric properties of silicon nanocomposites. <i>Journal of Applied Physics</i> , 2011, 110, 113515.	1.1	65
62	Influence of the annealing atmosphere on solution based zinc oxide thin film transistors. <i>Materials Research Society Symposia Proceedings</i> , 2011, 1359, 71.	0.1	5
63	Field effects on SnOx and SnO2 nanoparticles synthesized in the gas phase. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2010, 42, 2471-2476.	1.3	4
64	Photovoltaic Devices from Silicon Nanoparticles. <i>Materials Research Society Symposia Proceedings</i> , 2010, 1260, 1.	0.1	0
65	Trap states and space charge limited current in dispersion processed zinc oxide thin films. <i>Journal of Applied Physics</i> , 2010, 108, .	1.1	32
66	Nanocrystalline silicon compacted by spark-plasma sintering: Microstructure and thermoelectric properties. <i>Materials Research Society Symposia Proceedings</i> , 2010, 1267, 1.	0.1	6
67	Reduced conductivity in poly(3,4-ethylenedioxythiophen)-poly(styrene sulfonate) and indium tin oxide nanocomposite for low indium tin oxide content. <i>Journal of Applied Physics</i> , 2009, 105, 054318.	1.1	4
68	Electronic states at the dielectric/semiconductor interface in organic field effect transistors. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2008, 205, 475-487.	0.8	37
69	The role of Ca traces in the passivation of silicon dioxide dielectrics for electron transport in pentacene organic field effect transistors. <i>Journal of Applied Physics</i> , 2008, 104, 054505.	1.1	12
70	Formation of metallic indium-tin phase from indium-tin-oxide nanoparticles under reducing conditions and its influence on the electrical properties. <i>Journal of Applied Physics</i> , 2008, 104, .	1.1	35
71	Organic CMOS technology by interface treatment. , 2006, 6336, 123.		6
72	Transition from Non-Dispersive to Dispersive Hole Transport in a Small Molecule Organic Semiconductor Controlled by Molecular Doping. <i>Materials Research Society Symposia Proceedings</i> , 2006, 965, 1.	0.1	0

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73	Complementary organic field effect transistors by ultraviolet dielectric interface modification. Applied Physics Letters, 2006, 89, 182105.	1.5	39
74	Electronic Traps in Organic Transport Layers. , 2006, , 271-303.		2
75	Spectroscopic ellipsometry on opaline photonic crystals. Optics Communications, 2005, 246, 1-7.	1.0	16
76	Electrochemical Interface Doping in Organic Light Emitting Field Effect Transistors. Advanced Engineering Materials, 2005, 7, 957-960.	1.6	12
77	Charge-carrier trapping in polyfluorene-type conjugated polymers. Journal of Applied Physics, 2005, 98, 024101.	1.1	50
78	Effect of dispersive transport and partial trap filling on thermally stimulated current in conjugated polymers. Journal of Applied Physics, 2005, 98, 103702.	1.1	8
79	Sunlight stability of organic light-emitting diodes. Journal of Applied Physics, 2005, 97, 124501.	1.1	27
80	Complementary inverter based on interface doped pentacene. Applied Physics Letters, 2005, 87, 113505.	1.5	51
81	Organic CMOS Technology Based on Interface Doped Pentacene. Materials Research Society Symposia Proceedings, 2005, 871, 1.	0.1	1
82	A General Synthetic Approach to Novel Bis(tetracenyl) Aromatics for OFET Application. Materials Research Society Symposia Proceedings, 2005, 871, 1.	0.1	0
83	Role of diffusion on SCLC transport in double injection devices. Synthetic Metals, 2005, 150, 291-296.	2.1	24
84	A pentacene ambipolar transistor: Experiment and theory. Journal of Applied Physics, 2005, 98, 084511.	1.1	118
85	n-type organic field-effect transistor based on interface-doped pentacene. Applied Physics Letters, 2004, 85, 4499.	1.5	93
86	Electronic traps in organic transport layers. Physica Status Solidi A, 2004, 201, 1215-1235.	1.7	131
87	Photoluminescence of boron carbide. Journal of Solid State Chemistry, 2004, 177, 566-568.	1.4	27
88	Preparation-induced F-centre transformation in BaFBr:Eu ²⁺ . Journal Physics D: Applied Physics, 2004, 37, 2352-2357.	1.3	14
89	Cross-Linked Liquid-Crystalline Materials as a Possible Strategy to Ordered Organic Semiconductors. Chemistry of Materials, 2004, 16, 4286-4291.	3.2	22
90	New concepts for light-emitting transistors. , 2004, , .		1

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91	Light emission from a polymer transistor. <i>Applied Physics Letters</i> , 2004, 84, 428-430.	1.5	106
92	Highly efficient energy transfer to a novel organic dye in OLED devices. <i>Synthetic Metals</i> , 2004, 146, 11-15.	2.1	112
93	Thermally stimulated luminescence versus thermally stimulated current in organic semiconductors. <i>Journal of Non-Crystalline Solids</i> , 2004, 338-340, 626-629.	1.5	10
94	Light-Emitting Field-Effect Transistor Based on a Tetracene Thin Film. <i>Physical Review Letters</i> , 2003, 91, 157406.	2.9	523
95	Effects of process parameters on trap distributions in organic semiconductors. <i>Synthetic Metals</i> , 2003, 138, 201-207.	2.1	18
96	Effects of structural disorder and temperature on the distribution of exciton binding energy in poly(phenylene vinylene) films. <i>Synthetic Metals</i> , 2003, 139, 807-810.	2.1	12
97	Hopping transport in doped organic semiconductors: A theoretical approach and its application top-doped zinc-phthalocyanine. <i>Journal of Applied Physics</i> , 2003, 93, 4653-4660.	1.1	87
98	Light-emitting field-effect transistor: simple model and underlying functional mechanisms. , 2003, 5217, 101.		12
99	The influence of mechanical rubbing on the field-effect mobility in polyhexylthiophene. <i>Journal of Applied Physics</i> , 2003, 93, 1636-1641.	1.1	84
100	33.2: Invited Paper: Electronic Traps in Polymeric Semiconductors. <i>Digest of Technical Papers SID International Symposium</i> , 2003, 34, 1072.	0.1	2
101	Thermal detection of trapped charge carriers in organic transport materials. , 2003, 4800, 164.		5
102	Electronic traps and percolation paths in electroluminescent polymers. <i>Journal of Applied Physics</i> , 2002, 92, 7564-7570.	1.1	23
103	The quasi-binary phase diagram BaF ₂ -BaBr ₂ and its relation to the x-ray storage phosphor BaFBr : Eu ²⁺ . <i>Journal Physics D: Applied Physics</i> , 2002, 35, 1914-1918.	1.3	14
104	Gaussian disorder model for high carrier densities: Theoretical aspects and application to experiments. <i>Physical Review B</i> , 2002, 66, .	1.1	57
105	Distribution of occupied states in doped organic hole transport materials. <i>Synthetic Metals</i> , 2002, 126, 87-95.	2.1	26
106	Energetic trap distributions in organic semiconductors. <i>Synthetic Metals</i> , 2002, 129, 1-7.	2.1	77
107	Trap engineering in organic hole transport materials. <i>Journal of Applied Physics</i> , 2001, 89, 5559-5563.	1.1	74
108	Tris(dibenzoylmethane)(monophenanthroline)europium(III) based red emitting organic light emitting diodes. <i>Journal of Applied Physics</i> , 2001, 90, 5357-5362.	1.1	48

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109	Luminescence properties of nanocrystalline $Y_2O_3:Eu^{3+}$ in different host materials. Journal of Applied Physics, 2001, 89, 1679.	1.1	252
110	Aging induced traps in organic semiconductors. Synthetic Metals, 2001, 122, 49-52.	2.1	25
111	Photoluminescence properties of nanocrystalline $Y_2O_3:Eu^{3+}$ in different environments. Scripta Materialia, 2001, 44, 1213-1217.	2.6	49
112	Structural Defects of Some Icosahedral Boron-Rich Solids and Their Correlation with the Electronic Properties. Journal of Solid State Chemistry, 2000, 154, 61-67.	1.4	49
113	Interband Transitions and Optical Phonons of $B_{48}Al_{32}C_{20}$. Journal of Solid State Chemistry, 2000, 154, 75-78.	1.4	8
114	IR-Active Phonons and Structure Elements of Isotope-Enriched Boron Carbide. Journal of Solid State Chemistry, 2000, 154, 79-86.	1.4	70
115	Interband Transitions, IR-Active Phonons, and Plasma Vibrations of Some Metal Hexaborides. Journal of Solid State Chemistry, 2000, 154, 87-92.	1.4	5
116	Modulated Photoconductivity of High-Purity and Carbon-Doped β -Rhombohedral Boron. Journal of Solid State Chemistry, 2000, 154, 93-100.	1.4	8
117	Confinement of CdSe Nanoparticles Inside MCM-41. Advanced Materials, 2000, 12, 1050-1055.	11.1	134
118	Photoluminescence and Steady-State Interband Photoconductivity of High-Purity β -Rhombohedral Boron. Journal of Solid State Chemistry, 2000, 154, 68-74.	1.4	17
119	Quantum-Confined Gallium Nitride in MCM-41. Advanced Materials, 1999, 11, 1444-1448.	11.1	95
120	Correlation between structural defects and electronic properties of icosahedral boron-rich solids. Journal of Physics Condensed Matter, 1999, 11, 6803-6813.	0.7	104
121	On the reliability of the Raman spectra of boron-rich solids. Journal of Alloys and Compounds, 1999, 291, 28-32.	2.8	39
122	Quantum Confined Gallium Nitride in a Mesoporous Matrix of MCM-41. Materials Research Society Symposia Proceedings, 1999, 581, 417.	0.1	0
123	On the electronic properties of β -rhombohedral boron interstitially doped with 3d transition metal atoms. Journal of Alloys and Compounds, 1997, 262-263, 372-380.	2.8	50
124	Interaction of Optically Excited Carriers with Intraicosahedral Phonons. Journal of Solid State Chemistry, 1997, 133, 125-128.	1.4	5
125	The Complete Optical Spectrum of β -Rhombohedral Boron. Journal of Solid State Chemistry, 1997, 133, 129-131.	1.4	6
126	Interband Critical Points of Some Icosahedral Boron-Rich Solids. Journal of Solid State Chemistry, 1997, 133, 132-139.	1.4	23

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127	Evidence of the Relationship of the Electronic Properties of Icosahedral Boron-Rich Solids and Icosahedral Quasicrystals. Journal of Solid State Chemistry, 1997, 133, 160-163.	1.4	4
128	IR Active Phonon Spectra of B-Al Compounds with Boron Carbide Structure. Journal of Solid State Chemistry, 1997, 133, 254-259.	1.4	18
129	FT Raman Spectroscopy of Some Metal Hexaborides. Journal of Solid State Chemistry, 1997, 133, 264-268.	1.4	11
130	A Unified Picture for Icosahedral Cluster Solids in Boron-Based and Aluminum-Based Compounds. Journal of Solid State Chemistry, 1997, 133, 302-309.	1.4	47
131	Evidence of the Superposition of Drude Type and Hopping Type Transport in Boron-Rich Solids. Journal of Solid State Chemistry, 1997, 133, 335-341.	1.4	33
132	On the dynamical conductivity in icosahedral boron-rich solids. Journal of Physics Condensed Matter, 1996, 8, 7263-7275.	0.7	31
133	On the electronic properties of icosahedral quasicrystals. Solid State Communications, 1996, 97, 103-107.	0.9	10
134	Electronic States at the Dielectric/Semiconductor Interface in Organic Field-Effect Transistors. , 0, , 513-538.		0
135	Defect State Investigations in Methylammonium Lead Iodide Using the MIS-TSC Method. , 0, ,		0