

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	Light-Emitting Field-Effect Transistor Based on a Tetracene Thin Film. <i>Physical Review Letters</i> , 2003, 91, 157406.	2.9	523
2	Luminescence properties of nanocrystalline Y ₂ O ₃ :Eu ³⁺ in different host materials. <i>Journal of Applied Physics</i> , 2001, 89, 1679.	1.1	252
3	Confinement of CdSe Nanoparticles Inside MCM-41. <i>Advanced Materials</i> , 2000, 12, 1050-1055.	11.1	134
4	Electronic traps in organic transport layers. <i>Physica Status Solidi A</i> , 2004, 201, 1215-1235.	1.7	131
5	A pentacene ambipolar transistor: Experiment and theory. <i>Journal of Applied Physics</i> , 2005, 98, 084511.	1.1	118
6	Highly efficient energy transfer to a novel organic dye in OLED devices. <i>Synthetic Metals</i> , 2004, 146, 11-15.	2.1	112
7	Light emission from a polymer transistor. <i>Applied Physics Letters</i> , 2004, 84, 428-430.	1.5	106
8	Correlation between structural defects and electronic properties of icosahedral boron-rich solids. <i>Journal of Physics Condensed Matter</i> , 1999, 11, 6803-6813.	0.7	104
9	Quantum-Confined Gallium Nitride in MCM-41. <i>Advanced Materials</i> , 1999, 11, 1444-1448.	11.1	95
10	n-type organic field-effect transistor based on interface-doped pentacene. <i>Applied Physics Letters</i> , 2004, 85, 4499.	1.5	93
11	Concepts for medium-high to high temperature thermoelectric heat-to-electricity conversion: a review of selected materials and basic considerations of module design. <i>Translational Materials Research</i> , 2015, 2, 025001.	1.2	93
12	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
13	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
14	Energetic trap distributions in organic semiconductors. <i>Synthetic Metals</i> , 2002, 129, 1-7.	2.1	77
15	Trap engineering in organic hole transport materials. <i>Journal of Applied Physics</i> , 2001, 89, 5559-5563.	1.1	74
16	IR-Active Phonons and Structure Elements of Isotope-Enriched Boron Carbide. <i>Journal of Solid State Chemistry</i> , 2000, 154, 79-86.	1.4	70
17	Role of oxygen on microstructure and thermoelectric properties of silicon nanocomposites. <i>Journal of Applied Physics</i> , 2011, 110, 113515.	1.1	65
18	Gaussian disorder model for high carrier densities: Theoretical aspects and application to experiments. <i>Physical Review B</i> , 2002, 66, .	1.1	57

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19	Thermoelectric Properties of Nanocrystalline Silicon from a Scaled-Up Synthesis Plant. <i>Advanced Engineering Materials</i> , 2013, 15, 379-385.	1.6	57
20	Complementary inverter based on interface doped pentacene. <i>Applied Physics Letters</i> , 2005, 87, 113505.	1.5	51
21	On the electronic properties of $\sqrt{2}$ -rhombohedral boron interstitially doped with 3d transition metal atoms. <i>Journal of Alloys and Compounds</i> , 1997, 262-263, 372-380.	2.8	50
22	Charge-carrier trapping in polyfluorene-type conjugated polymers. <i>Journal of Applied Physics</i> , 2005, 98, 024101.	1.1	50
23	Structural Defects of Some Icosahedral Boron-Rich Solids and Their Correlation with the Electronic Properties. <i>Journal of Solid State Chemistry</i> , 2000, 154, 61-67.	1.4	49
24	Photoluminescence properties of nanocrystalline $Y_2O_3:Eu^{3+}$ in different environments. <i>Scripta Materialia</i> , 2001, 44, 1213-1217.	2.6	49
25	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
26	Thermoelectric properties of pulsed current sintered nanocrystalline Al-doped ZnO by chemical vapour synthesis. <i>Journal of Materials Chemistry A</i> , 2015, 3, 189-197.	5.2	48
27	A Unified Picture for Icosahedral Cluster Solids in Boron-Based and Aluminum-Based Compounds. <i>Journal of Solid State Chemistry</i> , 1997, 133, 302-309.	1.4	47
28	High performance low temperature solution-processed zinc oxide thin film transistor. <i>Thin Solid Films</i> , 2011, 519, 5623-5628.	0.8	40
29	On the reliability of the Raman spectra of boron-rich solids. <i>Journal of Alloys and Compounds</i> , 1999, 291, 28-32.	2.8	39
30	Complementary organic field effect transistors by ultraviolet dielectric interface modification. <i>Applied Physics Letters</i> , 2006, 89, 182105.	1.5	39
31	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
32	High Temperature Thermoelectric Device Concept Using Large Area PN Junctions. <i>Journal of Electronic Materials</i> , 2014, 43, 2376-2383.	1.0	36
33	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
34	From nanoparticles to nanocrystalline bulk: percolation effects in field assisted sintering of silicon nanoparticles. <i>Nanotechnology</i> , 2011, 22, 135601.	1.3	35
35	Evidence of the Superposition of Drude Type and Hopping Type Transport in Boron-Rich Solids. <i>Journal of Solid State Chemistry</i> , 1997, 133, 335-341.	1.4	33
36	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

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37	On the dynamical conductivity in icosahedral boron-rich solids. <i>Journal of Physics Condensed Matter</i> , 1996, 8, 7263-7275.	0.7	31
38	The effect of Peltier heat during current activated densification. <i>Applied Physics Letters</i> , 2012, 101, .	1.5	29
39	Photoluminescence of boron carbide. <i>Journal of Solid State Chemistry</i> , 2004, 177, 566-568.	1.4	27
40	Sunlight stability of organic light-emitting diodes. <i>Journal of Applied Physics</i> , 2005, 97, 124501.	1.1	27
41	Distribution of occupied states in doped organic hole transport materials. <i>Synthetic Metals</i> , 2002, 126, 87-95.	2.1	26
42	Aging induced traps in organic semiconductors. <i>Synthetic Metals</i> , 2001, 122, 49-52.	2.1	25
43	Role of diffusion on SCLC transport in double injection devices. <i>Synthetic Metals</i> , 2005, 150, 291-296.	2.1	24
44	Interband Critical Points of Some Icosahedral Boron-Rich Solids. <i>Journal of Solid State Chemistry</i> , 1997, 133, 132-139.	1.4	23
45	Electronic traps and percolation paths in electroluminescent polymers. <i>Journal of Applied Physics</i> , 2002, 92, 7564-7570.	1.1	23
46	Cross-Linked Liquid-Crystalline Materials – A Possible Strategy to Ordered Organic Semiconductors. <i>Chemistry of Materials</i> , 2004, 16, 4286-4291.	3.2	22
47	Microstructure and thermoelectric properties of Si-WSi ₂ nanocomposites. <i>Acta Materialia</i> , 2017, 125, 321-326.	3.8	22
48	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
49	Electronic properties of polyvinylpyrrolidone at the zinc oxide nanoparticle surface. <i>Journal of Materials Science</i> , 2011, 46, 7776-7783.	1.7	21
50	A Thermoelectric Generator Concept Using a p-n Junction: Experimental Proof of Principle. <i>Journal of Electronic Materials</i> , 2013, 42, 2297-2300.	1.0	21
51	Silicon-based nanocomposites for thermoelectric application. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2016, 213, 497-514.	0.8	21
52	Laser-sintered thin films of doped SiGe nanoparticles. <i>Applied Physics Letters</i> , 2012, 100, 231907.	1.5	20
53	Reduced exciton binding energy in organic semiconductors: Tailoring the Coulomb interaction. <i>Physica Status Solidi - Rapid Research Letters</i> , 2012, 6, 68-70.	1.2	20
54	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

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55	Thermoelectric transport properties of boron-doped nanocrystalline diamond foils. <i>Carbon</i> , 2015, 81, 650-662.	5.4	19
56	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
57	IR Active Phonon Spectra of B ⁺ Al Compounds with Boron Carbide Structure. <i>Journal of Solid State Chemistry</i> , 1997, 133, 254-259.	1.4	18
58	Effects of process parameters on trap distributions in organic semiconductors. <i>Synthetic Metals</i> , 2003, 138, 201-207.	2.1	18
59	Fabrication of High-Temperature-Stable Thermoelectric Generator Modules Based on Nanocrystalline Silicon. <i>Journal of Electronic Materials</i> , 2014, 43, 1389-1396.	1.0	18
60	Anisotropic layered Bi ₂ Te ₃ -In ₂ Te ₃ composites: control of interface density for tuning of thermoelectric properties. <i>Scientific Reports</i> , 2017, 7, 43611.	1.6	18
61	Photoluminescence and Steady-State Interband Photoconductivity of High-Purity $\hat{1}^2$ -Rhombohedral Boron. <i>Journal of Solid State Chemistry</i> , 2000, 154, 68-74.	1.4	17
62	Spectroscopic ellipsometry on opaline photonic crystals. <i>Optics Communications</i> , 2005, 246, 1-7.	1.0	16
63	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
64	Preparation-induced F-centre transformation in BaFBr:Eu ²⁺ . <i>Journal Physics D: Applied Physics</i> , 2004, 37, 2352-2357.	1.3	14
65	The realization of a pn-diode using only silicon nanoparticles. <i>Scripta Materialia</i> , 2012, 67, 265-268.	2.6	14
66	Excimer laser doping using highly doped silicon nanoparticles. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2013, 210, 2456-2462.	0.8	14
67	A sintered nanoparticle p-n junction observed by a Seebeck microscan. <i>Journal of Applied Physics</i> , 2012, 111, .	1.1	13
68	Study of thermal material properties for Ta- and Al-substituted Li ₇ La ₃ Zr ₂ O 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
69	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
70	Light-emitting field-effect transistor: simple model and underlying functional mechanisms. , 2003, 5217, 101.		12
71	Electrochemical Interface Doping in Organic Light Emitting Field Effect Transistors. <i>Advanced Engineering Materials</i> , 2005, 7, 957-960.	1.6	12
72	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

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73	Rodlike Tetracene Derivatives. Chemistry - A European Journal, 2017, 23, 13445-13454.	1.7	12
74	FT Raman Spectroscopy of Some Metal Hexaborides. Journal of Solid State Chemistry, 1997, 133, 264-268.	1.4	11
75	A new thermoelectric concept using large area PN junctions. Materials Research Society Symposia Proceedings, 2013, 1543, 3-8.	0.1	11
76	Sample temperature profile during the excimer laser annealing of silicon nanoparticles. Optics and Laser Technology, 2015, 74, 132-137.	2.2	11
77	Thermoelectrics from silicon nanoparticles: the influence of native oxide. European Physical Journal B, 2015, 88, 1.	0.6	11
78	On the electronic properties of icosahedral quasicrystals. Solid State Communications, 1996, 97, 103-107.	0.9	10
79	Thermally stimulated luminescence versus thermally stimulated current in organic semiconductors. Journal of Non-Crystalline Solids, 2004, 338-340, 626-629.	1.5	10
80	Mechanical layer compaction for dispersion processed nanoparticulate zinc oxide thin film transistors. Microelectronic Engineering, 2012, 96, 36-39.	1.1	10
81	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
82	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
83	Laser-doping of crystalline silicon substrates using doped silicon nanoparticles. Thin Solid Films, 2013, 548, 437-442.	0.8	9
84	A new adaptive light beam focusing principle for scanning light stimulation systems. Review of Scientific Instruments, 2013, 84, 023707.	0.6	9
85	Thermoelectrics versus thermophotovoltaics: two approaches to convert heat fluxes into electricity. Journal Physics D: Applied Physics, 2019, 52, 275501.	1.3	9
86	Interband Transitions and Optical Phonons of B ₄₈ Al ₃ C ₂ . Journal of Solid State Chemistry, 2000, 154, 75-78.	1.4	8
87	Modulated Photoconductivity of High-Purity and Carbon-Doped $\hat{1}^2$ -Rhombohedral Boron. Journal of Solid State Chemistry, 2000, 154, 93-100.	1.4	8
88	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
89	Note: High resolution alternating current/direct current Harman technique. Review of Scientific Instruments, 2013, 84, 106106.	0.6	8
90	Influence of the cathode microstructure on the stability of inverted planar perovskite solar cells. RSC Advances, 2020, 10, 23653-23661.	1.7	8

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91	Reduced Coulomb interaction in organic solar cells by the introduction of inorganic high- <i>k</i> nanostructured materials. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2013, 210, 1712-1718.	0.8	7
92	The Complete Optical Spectrum of β -Rhombohedral Boron. <i>Journal of Solid State Chemistry</i> , 1997, 133, 129-131.	1.4	6
93	Organic CMOS technology by interface treatment. , 2006, 6336, 123.		6
94	Nanocrystalline silicon compacted by spark-plasma sintering: Microstructure and thermoelectric properties. <i>Materials Research Society Symposia Proceedings</i> , 2010, 1267, 1.	0.1	6
95	Influence of annealing atmospheres and synthetic air treatment on solution processed zinc oxide thin film transistors. <i>Journal of Applied Physics</i> , 2012, 112, 034506.	1.1	6
96	Nanoparticle ink-based silicon Schottky diodes operating up to 2.84 ÅGHz. <i>Nano Select</i> , 2020, 1, 659-665.	1.9	6
97	Interaction of Optically Excited Carriers with Intracicosahedral Phonons. <i>Journal of Solid State Chemistry</i> , 1997, 133, 125-128.	1.4	5
98	Interband Transitions, IR-Active Phonons, and Plasma Vibrations of Some Metal Hexaborides. <i>Journal of Solid State Chemistry</i> , 2000, 154, 87-92.	1.4	5
99	Thermal detection of trapped charge carriers in organic transport materials. , 2003, 4800, 164.		5
100	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
101	Modelling of electron beam induced nanowire attraction. <i>Journal of Applied Physics</i> , 2016, 119, 145101.	1.1	5
102	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
103	Experimental evidence for the separation of thermally excited bipolar charge carries within a p-n junction: A new approach to thermoelectric materials and generators. <i>Journal of Applied Physics</i> , 2019, 125, .	1.1	5
104	Evidence of the Relationship of the Electronic Properties of Icosahedral Boron-Rich Solids and Icosahedral Quasicrystals. <i>Journal of Solid State Chemistry</i> , 1997, 133, 160-163.	1.4	4
105	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
106	Field effects on SnO _x and SnO ₂ nanoparticles synthesized in the gas phase. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2010, 42, 2471-2476.	1.3	4
107	n-type perylene to fill voids in solution processed nanoparticulate zinc oxide thin films. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2012, 44, 2124-2127.	1.3	4
108	Electrical Contact Resistance of Electroless Nickel to Nanocrystalline Silicon and the Fabrication of a Thermoelectric Generator. <i>Materials Research Society Symposia Proceedings</i> , 2013, 1553, 1.	0.1	3

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109	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
110	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
111	33.2: Invited Paper: Electronic Traps in Polymeric Semiconductors. <i>Digest of Technical Papers SID International Symposium</i> , 2003, 34, 1072.	0.1	2
112	Electronic Traps in Organic Transport Layers. , 2006, , 271-303.		2
113	Metal Oxide Thin-Film Transistors from Nanoparticles and Solutions. <i>Nanoscience and Technology</i> , 2012, , 387-409.	1.5	2
114	Thin-film transistors with a channel composed of semiconducting metal oxide nanoparticles deposited from the gas phase. <i>Journal of Nanoparticle Research</i> , 2012, 14, 1.	0.8	2
115	Note: Automated optical focusing on encapsulated devices for scanning light stimulation systems. <i>Review of Scientific Instruments</i> , 2014, 85, 086104.	0.6	2
116	Scanning Light Stimulation System With Active Focus Correction at μm Resolution for PV Applications. <i>IEEE Journal of Photovoltaics</i> , 2015, 5, 627-632.	1.5	2
117	(Invited) Silicon-Based Nanocomposites for Thermoelectric High Temperature Waste Heat Recovery. <i>ECS Transactions</i> , 2015, 69, 3-10.	0.3	2
118	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
119	Analysis of stochastic Schottky barrier variations within printed high frequency rectifiers for harmonics generation. , 2019, , .		2
120	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
121	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
122	New concepts for light-emitting transistors. , 2004, , .		1
123	Organic CMOS Technology Based on Interface Doped Pentacene. <i>Materials Research Society Symposia Proceedings</i> , 2005, 871, 1.	0.1	1
124	Two-Step Annealing Leading to Refined Bi ₂ Te ₃ -In ₂ Te ₃ Lamellar Structures for Tuning of Thermoelectric Properties. <i>Journal of Electronic Materials</i> , 2016, 45, 1654-1660.	1.0	1
125	Solution processable GHz silicon Schottky diodes. , 2021, , .		1
126	Quantum Confined Gallium Nitride in a Mesoporous Matrix of Mcm-41. <i>Materials Research Society Symposia Proceedings</i> , 1999, 581, 417.	0.1	0

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127	A General Synthetic Approach to Novel Bis(tetracenyl) Aromatics for OFET Application. Materials Research Society Symposia Proceedings, 2005, 871, 1.	0.1	0
128	Transition from Non-Dispersive to Dispersive Hole Transport in a Small Molecule Organic Semiconductor Controlled by Molecular Doping. Materials Research Society Symposia Proceedings, 2006, 965, 1.	0.1	0
129	Electronic States at the Dielectric/Semiconductor Interface in Organic Field-Effect Transistors. , 0, , 513-538.		0
130	Photovoltaic Devices from Silicon Nanoparticles. Materials Research Society Symposia Proceedings, 2010, 1260, 1.	0.1	0
131	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
132	A novel adaptive focusing principle for scanning light stimulation systems down to 2μm resolution. , 2013, , .		0
133	Reduced Coulomb interaction in organic solar cells by the introduction of high-k SrTiO ₃ nanoparticles. , 2013, , .		0
134	Super-resolution for scanning light stimulation systems. Review of Scientific Instruments, 2016, 87, 093701.	0.6	0
135	Defect State Investigations in Methylammonium Lead Iodide Using the MIS-TSC Method. , 0, , .		0