

Klaus Irmscher

List of Publications by Year in descending order

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136740

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docs citations

100
times ranked

3376
citing authors

#	ARTICLE	IF	CITATIONS
1	Resonant electronic Raman scattering from Ir ⁴⁺ ions in $\hat{\Gamma}^2$ -Ga ₂ O ₃ . Journal of Applied Physics, 2022, 131, .	1.1	7
2	A consistent picture of excitations in cubic BaSnO ₃ revealed by combining theory and experiment. Communications Materials, 2022, 3, .	2.9	10
3	Terahertz electron paramagnetic resonance generalized spectroscopic ellipsometry: The magnetic response of the nitrogen defect in 4H-SiC. Applied Physics Letters, 2022, 120, .	1.5	8
4	Elevated temperature spectroscopic ellipsometry analysis of the dielectric function, exciton, band-to-band transition, and high-frequency dielectric constant properties for single-crystal ZnGa ₂ O ₄ . Applied Physics Letters, 2022, 120, .	1.5	4
5	Toward Precise n-Type Doping Control in MOVPE-Grown $\hat{\Gamma}^2$ -Ga ₂ O ₃ Thin Films by Deep-Learning Approach. Crystals, 2022, 12, 8.	1.0	7
6	Two inch diameter, highly conducting bulk $\hat{\Gamma}^2$ -Ga ₂ O ₃ single crystals grown by the Czochralski method. Applied Physics Letters, 2022, 120, .	1.5	31
7	Bulk single crystals of $\hat{\Gamma}^2$ -Ga ₂ O ₃ and Ga-based spinels as ultra-wide bandgap transparent semiconducting oxides. Progress in Crystal Growth and Characterization of Materials, 2021, 67, 100511.	1.8	47
8	Thermal conductivity of bulk $\ln_{2/3}\text{O}_3$ single crystals. Physical Review Materials, 2021, 5, .	0.9	9
9	Zinc gallate spinel dielectric function, band-to-band transitions, and $\hat{\Gamma}^4$ -point effective mass parameters. Applied Physics Letters, 2021, 118, .	1.5	9
10	Fingerprints of optical absorption in the perovskite LaInO ₃ : Insight from many-body theory and experiment. Physical Review B, 2021, 103, .	1.1	6
11	Optical phonon modes, static and high-frequency dielectric constants, and effective electron mass parameter in cubic In ₂ O ₃ . Journal of Applied Physics, 2021, 129, .	1.1	11
12	Recent progress in the development of $\hat{\Gamma}^2$ -Ga ₂ O ₃ scintillator crystals grown by the Czochralski method. Optical Materials Express, 2021, 11, 2488.	1.6	6
13	Melt Growth and Physical Properties of Bulk LaInO ₃ Single Crystals. Physica Status Solidi (A) Applications and Materials Science, 2021, 218, 2100016.	0.8	9
14	A carbon-doping related luminescence band in GaN revealed by below bandgap excitation. Journal of Applied Physics, 2021, 130, 055703.	1.1	6
15	Current Status of Carbon-Related Defect Luminescence in GaN. Physica Status Solidi (A) Applications and Materials Science, 2021, 218, 2100235.	0.8	21
16	Experimental Hall electron mobility of bulk single crystals of transparent semiconducting oxides. Journal of Materials Research, 2021, 36, 4746-4755.	1.2	9
17	Impact of chamber pressure and Si-doping on the surface morphology and electrical properties of homoepitaxial (100) $\hat{\Gamma}^2$ -Ga ₂ O ₃ thin films grown by MOVPE. Journal Physics D: Applied Physics, 2021, 54, 034003.	1.3	26
18	In-situ TEM Observations of Resistance Switching in Strontium Titanate Devices. Microscopy and Microanalysis, 2021, 27, 69-70.	0.2	0

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19	Fast homoepitaxial growth of (100) $\hat{\Gamma}^2$ -Ga ₂ O ₃ thin films via MOVPE. AIP Advances, 2021, 11, .	0.6	22
20	Czochralski-grown bulk $\hat{\Gamma}^2$ -Ga ₂ O ₃ single crystals doped with mono-, di-, tri-, and tetravalent ions. Journal of Crystal Growth, 2020, 529, 125297.	0.7	78
21	Bulk $\hat{\Gamma}^2$ -Ga ₂ O ₃ single crystals doped with Ce, Ce+Si, Ce+Al, and Ce+Al+Si for detection of nuclear radiation. Journal of Alloys and Compounds, 2020, 818, 152842.	2.8	28
22	Growth and Properties of Intentionally Carbon- $\hat{\Gamma}^2$ -Doped GaN Layers. Crystal Research and Technology, 2020, 55, 1900129.	0.6	25
23	Technology development of high purity germanium crystals for radiation detectors. Journal of Crystal Growth, 2020, 532, 125396.	0.7	18
24	Electrical properties of (11-22) Si:AlGa ₂ N layers at high Al contents grown by metal-organic vapor phase epitaxy. Applied Physics Letters, 2020, 117, .	1.5	13
25	Brillouin zone center phonon modes in ZnGa ₂ O ₄ . Applied Physics Letters, 2020, 117, .	1.5	5
26	Characterization of Silicon Crystals Grown from Melt in a Granulate Crucible. Journal of Electronic Materials, 2020, 49, 5120-5132.	1.0	5
27	Raman scattering in heavily donor doped $\hat{\Gamma}^2$ -Ga ₂ O ₃ . Applied Physics Letters, 2020, 117, .	1.5	14
28	Step flow growth of $\hat{\Gamma}^2$ -Ga ₂ O ₃ thin films on vicinal (100) $\hat{\Gamma}^2$ -Ga ₂ O ₃ substrates grown by MOVPE. Applied Physics Letters, 2020, 116, .	1.5	59
29	Approaching the high intrinsic electrical resistivity of NbO ₂ in epitaxially grown films. Applied Physics Letters, 2020, 116, 182103.	1.5	14
30	Ti- and Fe-related charge transition levels in $\hat{\Gamma}^2$ -Ga ₂ O ₃ . Applied Physics Letters, 2020, 116, .	1.5	37
31	Bulk photovoltaic effect in carbon-doped gallium nitride revealed by anomalous surface photovoltage spectroscopy. Physical Review B, 2020, 101, .	1.1	9
32	Semiconductor scintillator development: Pure and doped $\hat{\Gamma}^2$ -Ga ₂ O ₃ . Optical Materials, 2020, 105, 109856.	1.7	22
33	Favourable growth conditions for the preparation of bulk AlN single crystals by PVT. CrystEngComm, 2020, 22, 1762-1768.	1.3	26
34	Carbon doping of GaN: Proof of the formation of electrically active tri-carbon defects. Journal of Applied Physics, 2020, 127, 205701.	1.1	9
35	The anisotropic quasi-static permittivity of single-crystal $\hat{\Gamma}^2$ -Ga ₂ O ₃ measured by terahertz spectroscopy. Applied Physics Letters, 2020, 117, .	1.5	27
36	Electromechanical losses in carbon- and oxygen-containing bulk AlN single crystals. Solid State Ionics, 2019, 343, 115072.	1.3	8

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37	Indium incorporation in homoepitaxial $\hat{\Gamma}^2$ -Ga ₂ O ₃ thin films grown by metal organic vapor phase epitaxy. Journal of Applied Physics, 2019, 125, .	1.1	14
38	Static Dielectric Constant of $\hat{\Gamma}^2$ -Ga ₂ O ₃ Perpendicular to the Principal Planes (100), (010), and (001). ECS Journal of Solid State Science and Technology, 2019, 8, Q3083-Q3085.	0.9	58
39	Carbon pair defects in aluminum nitride. Journal of Applied Physics, 2019, 126, 215102.	1.1	10
40	Electroluminescence of Cr ³⁺ and pseudo-Stark effect in $\hat{\Gamma}^2$ -Ga ₂ O ₃ Schottky barrier diodes. Journal of Applied Physics, 2019, 126, 213104.	1.1	7
41	Step-flow growth in homoepitaxy of $\hat{\Gamma}^2$ -Ga ₂ O ₃ (100)â€”The influence of the miscut direction and faceting. APL Materials, 2019, 7, .	2.2	73
42	Evenâ€”Parity Excited States in Infrared Emission, Absorption, and Raman Scattering Spectra of Shallow Donor Centers in Silicon. Physica Status Solidi (B): Basic Research, 2019, 256, 1800514.	0.7	4
43	$\hat{\Gamma}^2$ -Ga ₂ O ₃ :Ce as a fast scintillator: An unclear role of cerium. Radiation Measurements, 2019, 121, 49-53.	0.7	23
44	Ultra-wide bandgap, conductive, high mobility, and high quality melt-grown bulk ZnGa ₂ O ₄ single crystals. APL Materials, 2019, 7, .	2.2	74
45	Tailoring the scintillation properties of $\hat{\Gamma}^2$ -Ga ₂ O ₃ by doping with Ce and codoping with Si. Optical Materials Express, 2019, 9, 3738.	1.6	15
46	Doping of Czochralski-grown bulk $\hat{\Gamma}^2$ -Ga ₂ O ₃ single crystals with Cr, Ce and Al. Journal of Crystal Growth, 2018, 486, 82-90.	0.7	83
47	Tri-carbon defects in carbon doped GaN. Applied Physics Letters, 2018, 113, .	1.5	15
48	Editors' Choiceâ€”Si- and Sn-Doped Homoepitaxial $\hat{\Gamma}^2$ -Ga ₂ O ₃ Layers Grown by MOVPE on (010)-Oriented Substrates. ECS Journal of Solid State Science and Technology, 2017, 6, Q3040-Q3044.	0.9	219
49	$\hat{\Gamma}^2$ -Ga ₂ O ₃ Solid-State Devices for Fast Neutron Detection. IEEE Transactions on Nuclear Science, 2017, 64, 1574-1579.	1.2	40
50	Melt growth and properties of bulk BaSnO ₃ single crystals. Journal of Physics Condensed Matter, 2017, 29, 075701.	0.7	28
51	Influence of incoherent twin boundaries on the electrical properties of $\hat{\Gamma}^2$ -Ga ₂ O ₃ layers homoepitaxially grown by metal-organic vapor phase epitaxy. Journal of Applied Physics, 2017, 122, .	1.1	69
52	Scaling-Up of Bulk $\hat{\Gamma}^2$ -Ga ₂ O ₃ Single Crystals by the Czochralski Method. ECS Journal of Solid State Science and Technology, 2017, 6, Q3007-Q3011.	0.9	280
53	Evolution of planar defects during homoepitaxial growth of $\hat{\Gamma}^2$ -Ga ₂ O ₃ layers on (100) substratesâ€”A quantitative model. Journal of Applied Physics, 2016, 120, .	1.1	75
54	Preparation of deep UV transparent AlN substrates with high structural perfection for optoelectronic devices. CrystEngComm, 2016, 18, 3488-3497.	1.3	62

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55	Origin of brown coloration in top-seeded solution grown SrTiO ₃ crystals. CrystEngComm, 2016, 18, 4580-4586.	1.3	4
56	Evolution of impurity incorporation during ammonothermal growth of GaN. Journal of Crystal Growth, 2016, 456, 51-57.	0.7	13
57	3.8-MV/cm Breakdown Strength of MOVPE-Grown Sn-Doped δ Ga ₂ O ₃ MOSFETs. IEEE Electron Device Letters, 2016, 37, 902-905.	2.2	468
58	Semiconducting Sn-doped $\hat{\Gamma}$ -Ga ₂ O ₃ homoepitaxial layers grown by metal organic vapour-phase epitaxy. Journal of Materials Science, 2016, 51, 3650-3656.	1.7	116
59	Temperature-dependent optical absorption of SrTiO ₃ . Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 1880-1887.	0.8	41
60	Crystal growth and detector performance of large size High-purity Ge crystals. Materials Science in Semiconductor Processing, 2015, 39, 54-60.	1.9	20
61	MgGa ₂ O ₄ as a new wide bandgap transparent semiconducting oxide: growth and properties of bulk single crystals. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 1455-1460.	0.8	56
62	Coloration and oxygen vacancies in wide band gap oxide semiconductors: Absorption at metallic nanoparticles induced by vacancy clustering – A case study on indium oxide. Journal of Applied Physics, 2014, 115, 053504.	1.1	27
63	Heteroepitaxy of Ga ₂ (1-x)In _{2x} O ₃ layers by MOVPE with two different oxygen sources. Crystal Research and Technology, 2014, 49, 552-557.	0.6	30
64	On the nature and temperature dependence of the fundamental band gap of In ₂ O ₃ . Physica Status Solidi (A) Applications and Materials Science, 2014, 211, 54-58.	0.8	96
65	On the bulk $\hat{\Gamma}$ -Ga ₂ O ₃ single crystals grown by the Czochralski method. Journal of Crystal Growth, 2014, 404, 184-191.	0.7	556
66	Structural properties of Si-doped $\hat{\Gamma}$ -Ga ₂ O ₃ layers grown by MOVPE. Journal of Crystal Growth, 2014, 401, 665-669.	0.7	133
67	Melt growth, characterization and properties of bulk In ₂ O ₃ single crystals. Journal of Crystal Growth, 2013, 362, 349-352.	0.7	62
68	Effect of heat treatment on properties of melt-grown bulk In ₂ O ₃ single crystals. CrystEngComm, 2013, 15, 2220-2226.	1.3	40
69	Identification of a tri-carbon defect and its relation to the ultraviolet absorption in aluminum nitride. Journal of Applied Physics, 2013, 114, .	1.1	35
70	Schottky barrier height of Au on the transparent semiconducting oxide $\hat{\Gamma}$ -Ga ₂ O ₃ . Applied Physics Letters, 2012, 101, .	1.5	293
71	Calibration of the photoluminescence technique for measuring concentrations of shallow dopants in Ge. Journal of Applied Physics, 2012, 112, .	1.1	8
72	Experimental electronic structure of In ₂ O ₃ and Ga ₂ O ₃ . New Journal of Physics, 2011, 13, 085014.	1.2	273

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73	Structural and transport properties of SrRuO ₃ thin films grown by MOCVD on (001) SrTiO ₃ substrates: The role of built-in strain and extra phases. <i>Materials Science and Engineering B: Solid-State Materials for Advanced Technology</i> , 2011, 176, 647-652.	1.7	5
74	Ultraviolet luminescence in AlN. <i>Physica Status Solidi (B): Basic Research</i> , 2011, 248, 1513-1518.	0.7	49
75	Impact of epitaxial strain on the ferromagnetic transition temperature of SrRuO ₃ thin films. <i>Thin Solid Films</i> , 2011, 519, 6264-6268.	0.8	12
76	Pyramidal inversion domain boundaries revisited. <i>Applied Physics Letters</i> , 2011, 99, .	1.5	21
77	Electrical properties of In ₂ -Ga ₂ O ₃ single crystals grown by the Czochralski method. <i>Journal of Applied Physics</i> , 2011, 110, .	1.1	442
78	Czochralski growth and characterization of In ₂ Ga ₂ O ₃ single crystals. <i>Crystal Research and Technology</i> , 2010, 45, 1229-1236.	0.6	378
79	Defect distribution in boron-reduced GaAs crystals grown by vapour-pressure-controlled Czochralski technique. <i>Journal of Crystal Growth</i> , 2008, 310, 1418-1423.	0.7	9
80	Polytype stability in nitrogen-doped PVT-grown 4H-SiC crystals. <i>Journal of Crystal Growth</i> , 2005, 275, e451-e454.	0.7	21
81	Influence of nitrogen doping on the properties of 4H-SiC single crystals grown by physical vapor transport. <i>Journal of Crystal Growth</i> , 2003, 257, 75-83.	0.7	45
82	Photoelectron spectra of Al dopants in 4H-SiC. <i>Materials Science and Engineering B: Solid-State Materials for Advanced Technology</i> , 2003, 102, 284-288.	1.7	0
83	Formation of the Z1,2 deep-level defects in 4H-SiC epitaxial layers: Evidence for nitrogen participation. <i>Applied Physics Letters</i> , 2002, 81, 4841-4843.	1.5	76
84	Net acceptor concentration in ZnSe:Sb grown from vapor phase. <i>Journal of Crystal Growth</i> , 2002, 242, 155-160.	0.7	5
85	Structural and electrical properties of unintentionally doped 4H-SiC epitaxial layers Grown by hot-wall CVD. <i>Journal of Electronic Materials</i> , 2001, 30, 207-211.	1.0	8
86	Utilization of optical and electrical peculiarities of partially compensated zinc selenide. <i>Materials Science in Semiconductor Processing</i> , 2001, 4, 601-605.	1.9	6
87	Spectroscopic evidence and control of compensating native defects in doped ZnSe. <i>Materials Science and Engineering B: Solid-State Materials for Advanced Technology</i> , 2001, 80, 168-172.	1.7	27
88	Iron group impurities in $\hat{\Gamma}$ -FeSi ₂ studied by EPR. <i>Physical Review B</i> , 1997, 55, 4417-4425.	1.1	26
89	Comment on "Electron spin resonance studies in $\hat{\Gamma}$ -FeSi ₂ crystals" [J. Appl. Phys. 80, 1678 (1996)]. <i>Journal of Applied Physics</i> , 1997, 81, 8121-8123.	1.1	0
90	Effects of doping on the electronic properties of semiconducting iron disilicide. <i>Materials Science and Engineering B: Solid-State Materials for Advanced Technology</i> , 1996, 37, 215-218.	1.7	11

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91	Vanadium centers in ZnTe crystals. II. Electron paramagnetic resonance. Physical Review B, 1996, 53, 1917-1926.	1.1	24
92	Vanadium centers in ZnTe crystals. I. Optical properties. Physical Review B, 1996, 53, 1907-1916.	1.1	31
93	Electron paramagnetic resonance of iron- and aluminum-related defects in silicon. Physical Review B, 1994, 49, 7964-7973.	1.1	15
94	Electron-paramagnetic-resonance identification of the manganese-gallium pair in silicon. Physical Review B, 1991, 44, 3678-3684.	1.1	5
95	Electronic characterization of the manganese-boron pair in silicon. Physica Status Solidi A, 1989, 116, 755-767.	1.7	4
96	Hydrogen-related deep levels in proton-bombarded silicon. Journal of Physics C: Solid State Physics, 1985, 18, 4591-4591.	1.5	1
97	On the Determination of Deep Level Concentration Profiles by DLTS Measurements. Physica Status Solidi A, 1985, 91, 667-675.	1.7	13
98	Hydrogen-related deep levels in proton-bombarded silicon. Journal of Physics C: Solid State Physics, 1984, 17, 6317-6329.	1.5	128
99	Experimental and Theoretical Investigation of the Surface Electronic Structure of ZnGa ₂ O ₄ (100) Single Crystals. Physica Status Solidi (B): Basic Research, 0, , 2100452.	0.7	1