Lukas M Eng

List of Publications by Year
in descending order

118 papers	4,008 citations	218677 26 h-index	128289 60 g-index
118 all docs	118 docs citations	118 times ranked	4196 citing authors

#	Article	IF	Citations
1	NÃ©el-type skyrmion lattice with confined orientation in the polar magnetic semiconductorÂGaV4S8. Nature Materials, 2015, 14, 1116-1122.	27.5	523
2	Unwinding of a Skyrmion Lattice by Magnetic Monopoles. Science, 2013, 340, 1076-1080.	12.6	468
3	Accuracy and resolution limits of Kelvin probe force microscopy. Physical Review B, 2005, 71, .	3.2	369
4	Conducting Domain Walls in Lithium Niobate Single Crystals. Advanced Functional Materials, 2012, 22, 3936-3944.	14.9	250
5	Nanoscale reconstruction of surface crystallography from three-dimensional polarization distribution in ferroelectric bariumâ€“titanate ceramics. Applied Physics Letters, 1999, 74, 233-235.	3.3	194
6	Enhancing the Domain Wall Conductivity in Lithium Niobate Single Crystals. ACS Nano, 2017, 11, 4816-4824.	14.6	99
7	Near-field examination of perovskite-based superlenses and superlens-enhanced probe-object coupling. Nature Communications, 2011, 2, 249.	12.8	95
8	Optical three-dimensional profiling of charged domain walls in ferroelectrics by Cherenkov second-harmonic generation. Physical Review B, 2014, 89, .	3.2	95
9	Backâ€Endâ€ofâ€Line Compatible Lowâ€Temperature Furnace Anneal for Ferroelectric Hafnium Zirconium Oxide Formation. Physica Status Solidi (A) Applications and Materials Science, 2020, 217, 1900840.	1.8	76
10	Multidomain Skyrmion Lattice State in Cu₂OSeO₃. Nano Letters, 2016, 16, 3285-3291.	9.1	75
11	Anisotropy Contrast in Phonon-Enhanced Apertureless Near-Field Microscopy Using a Free-Electron Laser. Physical Review Letters, 2008, 100, 256403.	7.8	73
12	FeFET: A versatile CMOS compatible device with game-changing potential. , 2020, , .		72
13	Ferroelectric domain characterisation and manipulation : A challenge for scanning probe microscopy. Ferroelectrics, 1999, 222, 153-162.	0.6	68
14	On the Origin of Wakeâ€Up and Antiferroelectricâ€Like Behavior in Ferroelectric Hafnium Oxide. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2100086.	2.4	54
15	Narrow-band near-field nanoscopy in the spectral range from 1.3 to 8.5â€‰THz. Applied Physics Letters, 2016, 108, .	3.3	53
16	Nanoscaleâ€Confined Terahertz Polaritons in a van der Waals Crystal. Advanced Materials, 2021, 33, e2005777.	21.0	53
17	Structural and Electrical Comparison of Si and Zr Doped Hafnium Oxide Thin Films and Integrated FeFETs Utilizing Transmission Kikuchi Diffraction. Nanomaterials, 2020, 10, 384.	4.1	50
18	Plasmonic Superlensing in Doped GaAs. Nano Letters, 2015, 15, 1057-1061.	9.1	48

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19	Pump-probe Kelvin-probe force microscopy: Principle of operation and resolution limits. Journal of Applied Physics, 2015, 118, .	2.5	43
20	Characteristics of ferroelectric-ferroelastic domains in NÃ©el-type skyrmion host GaV4S8. Scientific Reports, 2017, 7, 44663.	3.3	41
21	Nanoscale and macroscopic electrical ac transport along conductive domain walls in lithium niobate single crystals. Materials Research Express, 2014, 1, 035012.	1.6	38
22	Real-Time 3D Imaging of Nanoscale Ferroelectric Domain Wall Dynamics in Lithium Niobate Single Crystals under Electric Stimuli: Implications for Domain-Wall-Based Nanoelectronic Devices. ACS Applied Nano Materials, 2019, 2, 5787-5794.	5.0	38
23	Real-time three-dimensional profiling of ferroelectric domain walls. Applied Physics Letters, 2015, 107, .	3.3	37
24	Scattering near-field optical microscopy of optically anisotropic systems. Physical Review B, 2005, 71, .	3.2	35
25	Poling thin-film x-cut lithium niobate for quasi-phase matching with sub-micrometer periodicity. Journal of Applied Physics, 2020, 127, .	2.5	35
26	Impact of optical in-plane anisotropy on near-field phonon polariton spectroscopy. Applied Physics Letters, 2007, 90, 143101.	3.3	27
27	A Fully Integrated Ferroelectric Thinâ€Filmâ€Transistor â€“ Influence of Device Scaling on Threshold Voltage Compensation in Displays. Advanced Electronic Materials, 2021, 7, 2100082.	5.1	27
28	Correlating the Nanoscale Structural, Magnetic, and Magneto-Transport Properties in SrRuO₃-Based Perovskite Thin Films: Implications for Oxide Skyrmion Devices. ACS Applied Nano Materials, 2020, 3, 1182-1190.	5.0	26
29	Sub-diffractional cavity modes of terahertz hyperbolic phonon polaritons in tin oxide. Nature Communications, 2021, 12, 1995.	12.8	26
30	In Situ 3D Observation of the Domain Wall Dynamics in a Triglycine Sulfate Single Crystal upon Ferroelectric Phase Transition. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700267.	2.4	25
31	Impact of the SiO2 interface layer on the crystallographic texture of ferroelectric hafnium oxide. Applied Physics Letters, 2021, 118, .	3.3	25
32	Quantitative determination of the charge carrier concentration of ion implanted silicon by IR-near-field spectroscopy. Optics Express, 2010, 18, 26206.	3.4	23
33	â€œSeeing Is Believingâ€â€”In-Depth Analysis by Co-Imaging of Periodically-Poled X-Cut Lithium Niobate Thin Films. Crystals, 2021, 11, 288.	2.2	23
34	Influence of Annealing Temperature on the Structural and Electrical Properties of Si-Doped Ferroelectric Hafnium Oxide. ACS Applied Electronic Materials, 2021, 3, 4115-4120.	4.3	23
35	Terahertz signatures of ultrafast Dirac fermion relaxation at the surface of topological insulators. Npj Quantum Materials, 2021, 6, .	5.2	23
36	Theory and Experiment of Antiferroelectric (AFE) Si-Doped Hafnium Oxide (HSO) Enhanced Floating-Gate Memory. IEEE Transactions on Electron Devices, 2019, 66, 3356-3364.	3.0	22

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37	Polarization-dependent near-field phonon nanoscopy of oxides: SrTiO3,ÂLiNbO3 , and PbZr0.2Ti0.8O3. Physical Review B, 2019, 100, .	3.2	21
38	Multiphoton photoluminescence contrast in switched Mg:LiNbO3 and Mg:LiTaO3 single crystals. Applied Physics Letters, 2014, 105, .	3.3	20
39	Phonon-induced near-field resonances in multiferroic BiFeO3 thin films at infrared and THz wavelengths. Applied Physics Letters, 2020, 116, 071103.	3.3	20
40	Large photoconductivity and light-induced recovery of the insulator-metal transition in ultrathin<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>La</mml:mtext></mml:mrow><mml:mrow><mml:mn>0.7</mml:mn></mml:m Physical Review B, 2009, 80, .	3.2	19
41	Tracking speed bumps in organic field-effect transistors via pump-probe Kelvin-probe force microscopy. Journal of Applied Physics, 2015, 118, .	2.5	19
42	Tunable Non-Volatile Memory by Conductive Ferroelectric Domain Walls in Lithium Niobate Thin Films. Crystals, 2020, 10, 804.	2.2	19
43	Optimizing Ferroelectric and Interface Layers in HZO-Based FTJs for Neuromorphic Applications. IEEE Transactions on Electron Devices, 2022, 69, 808-815.	3.0	19
44	Heuristic Description of Magnetoelectricity of Cu₂OSeO₃. Nano Letters, 2016, 16, 5612-5618.	9.1	18
45	Integration of Hafnium Oxide on Epitaxial SiGe for p-type Ferroelectric FET Application. IEEE Electron Device Letters, 2020, 41, 1762-1765.	3.9	18
46	Resistor Network Modeling of Conductive Domain Walls in Lithium Niobate. Advanced Electronic Materials, 2018, 4, 1700242.	5.1	18
47	Architecture of nanoscale ferroelectric domains in GaMo₄S₈. Journal of Physics Condensed Matter, 2018, 30, 445402.	1.8	17
48	Interface dipole formation of different ZnPcCl₈phases on Ag(111) observed by Kelvin probe force microscopy. Nanotechnology, 2008, 19, 305501.	2.6	16
49	Multiphoton-induced luminescence contrast between antiparallel ferroelectric domains in Mg-doped LiNbO3. Journal of Applied Physics, 2014, 115, .	2.5	16
50	Low-temperature piezoresponse force microscopy on barium titanate. Journal of Applied Physics, 2016, 120, .	2.5	16
51	Polarization driven conductance variations at charged ferroelectric domain walls. Nanoscale, 2017, 9, 10933-10939.	5.6	16
52	Infrared nanoscopy down to liquid helium temperatures. Review of Scientific Instruments, 2018, 89, 033702.	1.3	16
53	Near-field resonance shifts of ferroelectric barium titanate domains upon low-temperature phase transition. Applied Physics Letters, 2014, 105, .	3.3	14
54	FEL-Based Near-Field Infrared to THz Nanoscopy. Synchrotron Radiation News, 2017, 30, 31-35.	0.8	14

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55	Dipole-Tunneling Model from Asymmetric Domain-Wall Conductivity in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>Li</mml:mi><mml:mi>Nb</mml:mi><mml:msub><mml:mrow><mml:mrow><mml:mi mathvariant="normal">O</mml:mi></mml:mrow></mml:mrow><mml:mn>3</mml:mn></mml:msub></mml:math> Single Crystals. Physical Review Applied, 2018, 10, .	3.8	14
56	Low-temperature nanospectroscopy of the structural ferroelectric phases in single-crystalline barium titanate. Nanoscale, 2018, 10, 18074-18079.	5.6	14
57	Quantifying non-centrosymmetric orthorhombic phase fraction in 10â€‰nm ferroelectric Hf0.5Zr0.5O2 films. Applied Physics Letters, 2020, 117, .	3.3	14
58	Probing the local surface potential and quantum capacitance in single and multi-layer graphene. Applied Physics Letters, 2013, 103, .	3.3	13
59	Advanced analysis of domain walls in Mg doped LiNbO_3 crystals with high resolution OCT. Optics Express, 2017, 25, 14871.	3.4	13
60	A Study on the Temperature-Dependent Operation of Fluorite-Structure-Based Ferroelectric HfO₂ Memory FeFET: A Temperature-Modulated Operation. IEEE Transactions on Electron Devices, 2020, 67, 2793-2799.	3.0	13
61	A FeFET with a novel MFMFIS gate stack: towards energy-efficient and ultrafast NVMs for neuromorphic computing. Nanotechnology, 2021, 32, 425201.	2.6	13
62	Threeâ€Dimensional, Timeâ€Resolved Profiling of Ferroelectric Domain Wall Dynamics by Spectralâ€Domain Optical Coherence Tomography. Annalen Der Physik, 2017, 529, 1700139.	2.4	12
63	Anti-ferroelectric ZrO<inf>2</inf>, an enabler for low power non-volatile 1T-1C and 1T random access memories. , 2017, , .		12
64	Polaron-Mediated Luminescence in Lithium Niobate and Lithium Tantalate and Its Domain Contrast. Crystals, 2018, 8, 214.	2.2	12
65	A Study on the Temperature-Dependent Operation of Fluorite-Structure-Based Ferroelectric HfO₂ Memory FeFET: Pyroelectricity and Reliability. IEEE Transactions on Electron Devices, 2020, 67, 2981-2987.	3.0	12
66	Far-Infrared Near-Field Optical Imaging and Kelvin Probe Force Microscopy of Laser-Crystallized and -Amorphized Phase Change Material Ge₃Sb₂Te₆. Nano Letters, 2021, 21, 9012-9020.	9.1	12
67	Plasmonic Nanorod Antenna Array: Analysis in Reflection and Transmission. Journal of Physical Chemistry C, 2016, 120, 12178-12186.	3.1	11
68	Anisotropic fractal magnetic domain pattern in bulk <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="normal">Mn</mml:mi><mml:mrow><mml:mn>1.4</mml:mn></mml:mrow></mml:msub><mml:mi>Pt</mml:mi><mml:mi> Physical Review B, 2020, 102, .	3.2	11
69	Substrate-dependent differences in ferroelectric behavior and phase diagram of Si-doped hafnium oxide. Journal of Materials Research, 2021, 36, 4370.	2.6	11
70	Tuning Hyrbrid Ferroelectric and Antiferroelectric Stacks for Low Power FeFET and FeRAM Applications by Using Laminated HSO and HZO films. Advanced Electronic Materials, 2022, 8, 2100837.	5.1	11
71	Principles and Challenges for Binary Oxide Based Ferroelectric Memory FeFET. , 2019, , .		10
72	Nonlinear plasmonic response of doped nanowires observed by infrared nanospectroscopy. Nanotechnology, 2019, 30, 084003.	2.6	10

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73	The electrocaloric effect in doped hafnium oxide: Comparison of direct and indirect measurements. Applied Physics Letters, 2020, 117, .	3.3	10
74	Tunability of Ferroelectric Hafnium Zirconium Oxide for Varactor Applications. IEEE Transactions on Electron Devices, 2021, 68, 5269-5276.	3.0	10
75	Quantifying the coherent interaction length of second-harmonic microscopy in lithium niobate confined nanostructures. Journal of Applied Physics, 2021, 130, .	2.5	10
76	FELIX: A Ferroelectric FET Based Low Power Mixed-Signal In-Memory Architecture for DNN Acceleration. Transactions on Embedded Computing Systems, 2022, 21, 1-25.	2.9	10
77	Time-resolved photoluminescence spectroscopy of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msubsup><mml:mi>Nb</mml:mi><mml:mrow><mml:mtext>Nb</mml:mtext><mml:mo>â€²</mml:mo></mml:mrow></mml:msubsup></mml:math> centers in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msup><mml:mrow><mml:mi mathvariant="normal">O</mml:mi></mml:mrow><mml:mo>â€²</mml:mo></mml:msup></mml:math> polarons in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub>. Physical Review B, 2016, 93, .	3.2	9
78	Small-Polaron Hopping and Low-Temperature (45â€“225 K) Photo-Induced Transient Absorption in Magnesium-Doped Lithium Niobate. Crystals, 2020, 10, 809.	2.2	9
79	Resourceâ€Efficient Lowâ€Temperature Synthesis of Microcrystalline Pb 2 B 5 O 9 X (X = Cl, Br) for Surfaces Studies by Optical Second Harmonic Generation. Small, 2020, 16, 2000857.	10.0	9
80	Probing subwavelength in-plane anisotropy with antenna-assisted infrared nano-spectroscopy. Nature Communications, 2021, 12, 2649.	12.8	9
81	Potassium Ion Conductivity in the Cubic Labyrinth of a Piezoelectric, Antiferromagnetic Oxoferrate(III) Tellurate(VI). Chemistry - A European Journal, 2021, 27, 14299-14306.	3.3	9
82	Field-induced reorientation of helimagnetic order in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Cu</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math> probed by magnetic force microscopy. Physical Review B, 2020, 102, .	3.2	8
83	Bottom-Up Assembly of Molecular Nanostructures by Means of Ferroelectric Lithography. Langmuir, 2017, 33, 475-484.	3.5	7
84	Measurement of surface acoustic wave resonances in ferroelectric domains by microwave microscopy. Journal of Applied Physics, 2017, 122, 074101.	2.5	7
85	Hypergravity affects cell traction forces of fibroblasts. Biophysical Journal, 2021, 120, 773-780.	0.5	7
86	Compensating for artifacts in scanning near-field optical microscopy due to electrostatics. APL Photonics, 2021, 6, .	5.7	7
87	Critical sample aspect ratio and magnetic field dependence for antiskyrmion formation in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Mn</mml:mi><mml:mrow><mml:mn>1.4</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math> single crystals. Physical Review B, 2021, 103, .	3.2	7
88	Tricyanidoferrates(â€‰IV) and Ruthenates(â€‰IV) with Nonâ€Innocent Cyanido Ligands. Angewandte Chemie - International Edition, 2021, 60, 15879-15885.	13.8	7
89	Impact of the Ferroelectric Stack Lamination in Si Doped Hafnium Oxide (HSO) and Hafnium Zirconium Oxide (HZO) Based FeFETs: Toward High-Density Multi-Level Cell and Synaptic Storage. Electronic Materials, 2021, 2, 344-369.	1.9	7
90	Nanostructured Borate Halides for Optical Second Harmonic Generation at Surfaces. European Journal of Inorganic Chemistry, 2020, 2020, 2465-2469.	2.0	6

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91	Spatially confined vector fields at material-induced resonances in near-field-coupled systems. Optics Express, 2020, 28, 32316.	3.4	6
92	Broadband coherent anti-Stokes Raman scattering for crystalline materials. Physical Review B, 2021, 104, .	3.2	6
93	High-speed hyperspectral imaging of ferroelectric domain walls using broadband coherent anti-Stokes Raman scattering. Applied Physics Letters, 2022, 120, .	3.3	6
94	Atomic layer deposition of yttrium iron garnet thin films. Physical Review Materials, 2022, 6, .	2.4	6
95	Near-Field Optical Examination of Potassium n-Butyl Xanthate/Chalcopyrite Flotation Products. Minerals (Basel, Switzerland), 2018, 8, 118.	2.0	5
96	Impact of the interface layer on the cycling behaviour and retention of ferroelectric hafnium oxide. MRS Advances, 2021, 6, 525-529.	0.9	5
97	Enabling Ferroelectric Memories in BEoL - towards advanced neuromorphic computing architectures. , 2021, , .		5
98	Optical nanoscopy of transient states in condensed matter. Scientific Reports, 2015, 5, 12582.	3.3	4
99	Influence of antiferroelectric-like behavior on tuning properties of ferroelectric HZO-based varactors. MRS Advances, 2021, 6, 530-534.	0.9	4
100	Designing a Robust Kelvin Probe Setup Optimized for Long-Term Surface Photovoltage Acquisition. Sensors, 2018, 18, 4068.	3.8	3
101	Process influences on the microstructure of BEoL integrated ferroelectric hafnium zirconium oxide. , 2021, , .		3
102	Quantifying the refractive index of ferroelectric domain walls in periodically poled LiNbO3 single crystals by polarization-sensitive optical coherence tomography. Optics Express, 2021, 29, 33615.	3.4	3
103	Nanoscale Conductive Sheets in Ferroelectric BaTiO₃: Large Hall Electron Mobilities at Head-to-Head Domain Walls. ACS Applied Nano Materials, 0, , .	5.0	3
104	Optical-field driven charge-transfer modulations near composite nanostructures. Nature Communications, 2020, 11, 6150.	12.8	2
105	Microstructural implications for neuromorphic synapses based on ferroelectric hafnium oxide. , 2021, , .		2
106	Tricyanidoferrate(â˜IV) und â€ruthenate(â˜IV) mit redoxâ€aktiven Cyanidoâ€Liganden. Angewandte Chemie, 2021, 133, 16015-16021.	2.0	2
107	Pyroelectric CMOS Compatible Sensor Element Based on Hafnium Oxide Thin Films. , 2020, , .		2
108	mu-Raman Investigations of Periodically-Poled X-Cut Thin-Film Lithium Niobate for Integrated Optics. , 2020, , .		2

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109	Turn all the lights off: Bright- and dark-field second-harmonic microscopy to select contrast mechanisms for ferroelectric domain walls. Journal of Applied Physics, 2022, 131, 244102.	2.5	2
110	Terahertz-slicing â€" an all-optical synchronization for 4th generation light sources. Optics Express, 2022, 30, 26955.	3.4	2
111	Aging in Ferroelectric Siâ€Doped Hafnium Oxide Thin Films. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2100023.	2.4	1
112	Near-Field THz Nanoscopy with Novel Accelerator-Based Photon Sources. Proceedings (mdpi), 2019, 26, .	0.2	0
113	Tuning Domain Wall Conductance in Lithium Niobate Thin-Films. , 2020, , .		0
114	Photoconduction of Polar and Nonpolar Cuts of Undoped Sr0.61Ba0.39Nb2O6 Single Crystals. Crystals, 2021, 11, 780.	2.2	0
115	"SFM-mediated NanoMagnetism & NanoOptics: From Skyrmions to THz Near-field Optics". , 0, , .		0
116	Brillouin and Raman imaging of domain walls in periodically-poled 5%-MgO:LiNbOâ‚ƒ. Optics Express, 2022, 30, 5051-5062.	3.4	0
117	"SFM-mediated NanoMagnetism & NanoOptics: From Skyrmions to THz Near-field Optics". , 0, , .		0
118	CARS Domain-Wall Analysis in single-crystalline Lithium Niobate. , 2021, , .		0