

Roman Engel-Herbert

List of Publications by Year in descending order

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70
papers

4,626
citations

159585

30
h-index

98798

67
g-index

73
all docs

73
docs citations

73
times ranked

6119
citing authors

#	ARTICLE	IF	CITATIONS
1	The ReaxFF reactive force-field: development, applications and future directions. Npj Computational Materials, 2016, 2, .	8.7	1,319
2	Comparison of methods to quantify interface trap densities at dielectric/III-V semiconductor interfaces. Journal of Applied Physics, 2010, 108, .	2.5	352
3	Epitaxial SrTiO ₃ films with electron mobilities exceeding 30,000 cm ² V ⁻¹ s ⁻¹ . Nature Materials, 2010, 9, 482-484.	27.3	342
4	A steep-slope transistor based on abrupt electronic phase transition. Nature Communications, 2015, 6, 7812.	12.8	294
5	Correlated metals as transparent conductors. Nature Materials, 2016, 15, 204-210.	27.5	291
6	Growth of high-quality SrTiO ₃ films using a hybrid molecular beam epitaxy approach. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2009, 27, 461-464.	2.1	155
7	Synchronized charge oscillations in correlated electron systems. Scientific Reports, 2014, 4, .	3.3	155
8	Wafer-scale growth of VO ₂ thin films using a combinatorial approach. Nature Communications, 2015, 6, 8475.	12.8	117
9	Highly Conductive SrVO ₃ as a Bottom Electrode for Functional Perovskite Oxides. Advanced Materials, 2013, 25, 3578-3582.	21.0	116
10	Transport properties of ultra-thin VO ₂ films on (001) TiO ₂ grown by reactive molecular-beam epitaxy. Applied Physics Letters, 2015, 107, .	3.3	88
11	Frontiers in the Growth of Complex Oxide Thin Films: Past, Present, and Future of Hybrid MBE. Advanced Functional Materials, 2018, 28, 1702772.	14.9	78
12	Opportunities in vanadium-based strongly correlated electron systems. MRS Communications, 2017, 7, 27-52.	1.8	77
13	Nitrogen-passivated dielectric/InGaAs interfaces with sub-nm equivalent oxide thickness and low interface trap densities. Applied Physics Letters, 2013, 102, .	3.3	73
14	Analysis of trap state densities at HfO ₂ /In _{0.53} Ga _{0.47} As interfaces. Applied Physics Letters, 2010, 96, .	3.3	63
15	Accessing a growth window for SrVO ₃ thin films. Applied Physics Letters, 2015, 107, .	3.3	48
16	SrNbO ₃ as a transparent conductor in the visible and ultraviolet spectra. Communications Physics, 2020, 3, .	5.3	48
17	Quantification of trap densities at dielectric/III-V semiconductor interfaces. Applied Physics Letters, 2010, 97, .	3.3	44
18	Continuously Tuning Epitaxial Strains by Thermal Mismatch. ACS Nano, 2018, 12, 1306-1312.	14.6	44

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19	Imprinting of Local Metallic States into VO ₂ with Ultraviolet Light. <i>Advanced Functional Materials</i> , 2016, 26, 6612-6618.	14.9	43
20	Effects of hydrogen anneals on oxygen deficient SrTiO _{3-x} single crystals. <i>Applied Physics Letters</i> , 2008, 93, .	3.3	42
21	Metal-oxide-semiconductor capacitors with ZrO ₂ dielectrics grown on In _{0.53} Ga _{0.47} As by chemical beam deposition. <i>Applied Physics Letters</i> , 2009, 95, 062908.	3.3	42
22	Self-regulated growth of LaVO ₃ thin films by hybrid molecular beam epitaxy. <i>Applied Physics Letters</i> , 2015, 106, .	3.3	42
23	Emergent interface vibrational structure of oxide superlattices. <i>Nature</i> , 2022, 601, 556-561.	27.8	40
24	Intrinsic electronic switching time in ultrathin epitaxial vanadium dioxide thin film. <i>Applied Physics Letters</i> , 2013, 102, .	3.3	39
25	Stoichiometry optimization of homoepitaxial oxide thin films using x-ray diffraction. <i>Applied Physics Letters</i> , 2009, 95, .	3.3	38
26	Effect of postdeposition anneals on the Fermi level response of HfO ₂ /In _{0.53} Ga _{0.47} As gate stacks. <i>Journal of Applied Physics</i> , 2010, 108, .	2.5	35
27	Modeling and in Situ Probing of Surface Reactions in Atomic Layer Deposition. <i>ACS Applied Materials & Interfaces</i> , 2017, 9, 15848-15856.	8.0	33
28	Growth modes in metal-organic molecular beam epitaxy of TiO ₂ on r-plane sapphire. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2009, 27, 230-233.	2.1	32
29	Growth of SrTiO ₃ on Si(001) by hybrid molecular beam epitaxy. <i>Physica Status Solidi - Rapid Research Letters</i> , 2014, 8, 917-923.	2.4	32
30	Nanoscale structural evolution of electrically driven insulator to metal transition in vanadium dioxide. <i>Applied Physics Letters</i> , 2013, 103, .	3.3	31
31	Unleashing Strain Induced Ferroelectricity in Complex Oxide Thin Films via Precise Stoichiometry Control. <i>Advanced Functional Materials</i> , 2016, 26, 7271-7279.	14.9	30
32	Influence of trimethylaluminum on the growth and properties of HfO ₂ /In _{0.53} Ga _{0.47} As interfaces. <i>Applied Physics Letters</i> , 2011, 98, 052911.	3.3	28
33	High-Quality LaVO ₃ Films as Solar Energy Conversion Material. <i>ACS Applied Materials & Interfaces</i> , 2017, 9, 12556-12562.	8.0	26
34	Al-doped HfO ₂ /In _{0.53} Ga _{0.47} As metal-oxide-semiconductor capacitors. <i>Applied Physics Letters</i> , 2011, 98, 142901.	3.3	23
35	Growth of SrVO ₃ thin films by hybrid molecular beam epitaxy. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2015, 33, .	2.1	22
36	Mapping growth windows in quaternary perovskite oxide systems by hybrid molecular beam epitaxy. <i>Applied Physics Letters</i> , 2016, 109, .	3.3	22

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37	Microstructure of epitaxial rutile TiO ₂ films grown by molecular beam epitaxy on r-plane Al ₂ O ₃ . Journal of Crystal Growth, 2009, 312, 149-153.	1.5	21
38	High quality HfO ₂ /p-GaSb(001) metal-oxide-semiconductor capacitors with 0.8 nm equivalent oxide thickness. Applied Physics Letters, 2014, 105, .	3.3	20
39	Property and cation valence engineering in entropy-stabilized oxide thin films. Physical Review Materials, 2020, 4, .	2.4	20
40	Scaling growth rates for perovskite oxide virtual substrates on silicon. Nature Communications, 2019, 10, 2464.	12.8	19
41	Creating Ruddlesden-Popper phases by hybrid molecular beam epitaxy. Applied Physics Letters, 2016, 109, .	3.3	18
42	Sputtered Sr _x NbO ₃ as a UV-Transparent Conducting Film. ACS Applied Materials & Interfaces, 2020, 12, 30520-30529.	8.0	18
43	Substrate Modification during Chemical Vapor Deposition of hBN on Sapphire. ACS Applied Materials & Interfaces, 2021, 13, 54516-54526.	8.0	15
44	Phase stabilization of VO ₂ thin films in high vacuum. Journal of Applied Physics, 2015, 118, .	2.5	14
45	Improving the structural quality and electrical resistance of SrTiO ₃ thin films on Si (001) via a two-step anneal. Journal of Applied Physics, 2016, 119, .	2.5	14
46	On-Demand Nanoscale Manipulations of Correlated Oxide Phases. Advanced Functional Materials, 2019, 29, 1905585.	14.9	14
47	Self-regulated growth of CaVO ₃ by hybrid molecular beam epitaxy. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2017, 35, .	2.1	13
48	Molecular beam epitaxy of complex oxides. , 2013, , 417-449.		12
49	Photoluminescence of monolayer transition metal dichalcogenides integrated with VO ₂ . Journal of Physics Condensed Matter, 2016, 28, 504001.	1.8	10
50	Large tetragonality and room temperature ferroelectricity in compressively strained CaTiO ₃ thin films. APL Materials, 2019, 7, .	5.1	10
51	Rewritable Nanoplasmonics through Room-Temperature Phase Manipulations of Vanadium Dioxide. Nano Letters, 2020, 20, 7760-7766.	9.1	10
52	Dynamics of voltage-driven oscillating insulator-metal transitions. Physical Review B, 2021, 104, .	3.2	10
53	Metal-oxide-semiconductor capacitors with erbium oxide dielectrics on In _{0.53} Ga _{0.47} As channels. Applied Physics Letters, 2009, 94, 122907.	3.3	9
54	Low-Temperature Atomic-Layer-Deposited High- ϵ Dielectric for p-Channel In _{0.7} Ga _{0.3} As/GaAs _{0.35} Sb _{0.65} Heterojunction Tunneling Field-Effect Transistor. Applied Physics Express, 2013, 6, 101201.	2.4	8

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55	Temperature-dependent growth window of CaTiO ₃ films grown by hybrid molecular beam epitaxy. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2018, 36, .	2.1	8
56	Sticking coefficients of selenium and tellurium. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2021, 39, .	2.1	7
57	Micromagnetic analysis of unusual, V-shaped domain transitions in MnAs nanowires. Journal of Magnetism and Magnetic Materials, 2011, 323, 1840-1845.	2.3	6
58	Creative tension in layered crystals. Nature Materials, 2016, 15, 928-930.	27.5	6
59	Toward a Low-Temperature Route for Epitaxial Integration of BiFeO ₃ on Si. Journal of Physical Chemistry C, 2019, 123, 12203-12210.	3.1	6
60	Oxygen vacancy dynamics in monoclinic metallic VO ₂ domain structures. Applied Physics Letters, 2022, 120, .	3.3	6
61	A Three-Terminal Edge-Triggered Mott Switch. , 2018, , .		4
62	Hybrid vanadate waveguiding configurations for extreme optical confinement and efficient polarization management in the near-infrared. Nanoscale, 2018, 10, 16667-16674.	5.6	4
63	Self-regulated growth of [111]-oriented perovskite oxide films using hybrid molecular beam epitaxy. APL Materials, 2021, 9, .	5.1	4
64	Overlapping growth windows to build complex oxide superlattices. APL Materials, 2018, 6, 111104.	5.1	3
65	Structural dynamics of LaVO ₃ on the nanosecond time scale. Structural Dynamics, 2019, 6, 014502.	2.3	3
66	A low-temperature route for producing epitaxial perovskite superlattice structures on (001)-oriented SrTiO ₃ /Si substrates. Journal of Materials Chemistry C, 2021, 9, 13115-13122.	5.5	3
67	Micromagnetic properties of epitaxial MnAs films on GaAs surfaces. Physica Status Solidi C: Current Topics in Solid State Physics, 2007, 4, 1763-1766.	0.8	2
68	Chemical beam deposition of high- <i>k</i> gate dielectrics on III-V semiconductors: TiO ₂ on In _{0.53} Ga _{0.47} As. Materials Research Society Symposia Proceedings, 2009, 1155, 1.	0.1	2
69	Native oxide removal from Ge surfaces by hydrogen plasma. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2018, 36, .	2.1	2
70	Fermi-Level Unpinning of HfO ₂ /In _{0.53} Ga _{0.47} As Gate Stack Using Hydrogen Anneals. ECS Transactions, 2010, 33, 117-121.	0.5	1