Yijia Gu

List of Publications by Citations

328 papers	17,934 citations	61 h-index	125 g-index
343 ext. papers	21,799 ext. citations	10.3 avg, IF	7.12 L-index

#	Paper	IF	Citations
328	Phase-Field Models for Microstructure Evolution. *Annual Review of Materials Research*, **2002**, 32, 113-140	12.8	1890
327	Flexible high-temperature dielectric materials from polymer nanocomposites. *Nature*, **2015**, 523, 576-9	50.4	1017
326	Strain Tuning of Ferroelectric Thin Films. *Annual Review of Materials Research*, **2007**, 37, 589-626	12.8	869
325	Ultrathin, flexible, solid polymer composite electrolyte enabled with aligned nanoporous host for lithium batteries. *Nature Nanotechnology*, **2019**, 14, 705-711	28.7	442
324	A Thin Film Approach to Engineering Functionality into Oxides. *Journal of the American Ceramic Society*, **2008**, 91, 2429-2454	3.8	396
323	Spontaneous vortex nanodomain arrays at ferroelectric heterointerfaces. *Nano Letters*, **2011**, 11, 828-34	11.5	365
322	Ultrahigh-energy density lead-free dielectric films via polymorphic nanodomain design. *Science*, **2019**, 365, 578-582	33.3	353
321	The origin of ultrahigh piezoelectricity in relaxor-ferroelectric solid solution crystals. *Nature Communications*, **2016**, 7, 13807	17.4	332
320	Phase-Field Method of Phase Transitions/Domain Structures in Ferroelectric Thin Films: A Review. *Journal of the American Ceramic Society*, **2008**, 91, 1835-1844	3.8	329
319	Computer simulation of the domain dynamics of a quenched system with a large number of nonconserved order parameters: The grain-growth kinetics. *Physical Review B*, **1994**, 50, 15752-15756	3.3	312
318	Multiferroic Heterostructures Integrating Ferroelectric and Magnetic Materials. *Advanced Materials* , **2016**, 28, 15-39	24	284
317	Domain dynamics during ferroelectric switching. *Science*, **2011**, 334, 968-71	33.3	277
316	Phase-field simulations of ferroelectric/ferroelastic polarization switching. *Acta Materialia*, **2004**, 52, 749-764	8.4	248
315	Giant piezoelectricity of Sm-doped Pb(MgNb)O-PbTiO single crystals. *Science*, **2019**, 364, 264-268	33.3	242
314	Direct imaging of the spatial and energy distribution of nucleation centres in ferroelectric materials. *Nature Materials*, **2008**, 7, 209-15	27	235
313	First-principles study of binary bcc alloys using special quasirandom structures. *Physical Review B*, **2004**, 69,	3.3	228
312	Sandwich-structured polymer nanocomposites with high energy density and great charge-discharge efficiency at elevated temperatures. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 9995-10000	11.5	227

311	Stable metal battery anodes enabled by polyethylenimine sponge hosts by way of electrokinetic effects. *Nature Energy*, **2018**, 3, 1076-1083	62.3	212
310	Dynamic conductivity of ferroelectric domain walls in BiFeO *Nano Letters*, **2011**, 11, 1906-12	11.5	204
309	Emergence of room-temperature ferroelectricity at reduced dimensions. *Science*, **2015**, 349, 1314-7	33.3	198
308	Extended mapping and exploration of the vanadium dioxide stress-temperature phase diagram. *Nano Letters*, **2010**, 10, 2667-73	11.5	186
307	Transparent ferroelectric crystals with ultrahigh piezoelectricity. *Nature*, **2020**, 577, 350-354	50.4	181
306	New frontiers for the materials genome initiative. *Npj Computational Materials*, **2019**, 5,	10.9	171
305	High-Throughput Phase-Field Design of High-Energy-Density Polymer Nanocomposites. *Advanced Materials*, **2018**, 30, 1704380	24	171
304	Alveolus-Inspired Active Membrane Sensors for Self-Powered Wearable Chemical Sensing and Breath Analysis. *ACS Nano*, **2020**, 14, 6067-6075	16.7	167
303	Three-Dimensional Computer Simulation of Ferroelectric Domain Formation. *Journal of the American Ceramic Society*, **2005**, 81, 492-500	3.8	166
302	High-Performance Polymers Sandwiched with Chemical Vapor Deposited Hexagonal Boron Nitrides as Scalable High-Temperature Dielectric Materials. *Advanced Materials*, **2017**, 29, 1701864	24	153
301	Spatially resolved steady-state negative capacitance. *Nature*, **2019**, 565, 468-471	50.4	144
300	A roadmap for electronic grade 2D materials. *2D Materials*, **2019**, 6, 022001	5.9	133
299	Colossal Room-Temperature Electrocaloric Effect in Ferroelectric Polymer Nanocomposites Using Nanostructured Barium Strontium Titanates. *ACS Nano*, **2015**, 9, 7164-74	16.7	131
298	Atomic-scale mechanisms of ferroelastic domain-wall-mediated ferroelectric switching. *Nature Communications*, **2013**, 4,	17.4	128
297	Super-elastic ferroelectric single-crystal membrane with continuous electric dipole rotation. *Science* , **2019**, 366, 475-479	33.3	127
296	Flexoelectricity in solids: Progress, challenges, and perspectives. *Progress in Materials Science*, **2019**, 106, 100570	42.2	123
295	Scalable Polymer Nanocomposites with Record High-Temperature Capacitive Performance Enabled by Rationally Designed Nanostructured Inorganic Fillers. *Advanced Materials*, **2019**, 31, e1900875	24	120
294	Challenges and opportunities for multi-functional oxide thin films for voltage tunable radio frequency/microwave components. *Journal of Applied Physics*, **2013**, 114, 191301	2.5	111

293	Ferroelastic domain switching dynamics under electrical and mechanical excitations. *Nature Communications*, **2014**, 5, 3801	17.4	110
292	Thermotropic phase boundaries in classic ferroelectrics. *Nature Communications*, **2014**, 5, 3172	17.4	105
291	Controllable conductive readout in self-assembled, topologically confined ferroelectric domain walls. *Nature Nanotechnology*, **2018**, 13, 947-952	28.7	104
290	Surface Domain Structures and Mesoscopic Phase Transition in Relaxor Ferroelectrics. *Advanced Functional Materials*, **2011**, 21, 1977-1987	15.6	102
289	Thermodynamics of electromechanically coupled mixed ionic-electronic conductors: Deformation potential, Vegard strains, and flexoelectric effect. *Physical Review B*, **2011**, 83,	3.3	102
288	Phase-field modeling and machine learning of electric-thermal-mechanical breakdown of polymer-based dielectrics. *Nature Communications*, **2019**, 10, 1843	17.4	97
287	Operando and three-dimensional visualization of anion depletion and lithium growth by stimulated Raman scattering microscopy. *Nature Communications*, **2018**, 9, 2942	17.4	94
286	Interfacial polarization and pyroelectricity in antiferrodistortive structures induced by a flexoelectric effect and rotostriction. *Physical Review B*, **2012**, 85,	3.3	94
285	Flexible Multiferroic Bulk Heterojunction with Giant Magnetoelectric Coupling via van der Waals Epitaxy. *ACS Nano*, **2017**, 11, 6122-6130	16.7	88
284	First-principles calculations of lattice dynamics and thermal properties of polar solids. *Npj Computational Materials*, **2016**, 2,	10.9	88
283	Stability of Polar Vortex Lattice in Ferroelectric Superlattices. *Nano Letters*, **2017**, 17, 2246-2252	11.5	85
282	Toward Wearable Cooling Devices: Highly Flexible Electrocaloric Ba0.67 Sr0.33 TiO3 Nanowire Arrays. *Advanced Materials*, **2016**, 28, 4811-6	24	80
281	Interfacial Electronic Properties Dictate Li Dendrite Growth in Solid Electrolytes. *Chemistry of Materials*, **2019**, 31, 7351-7359	9.6	80
280	Microstructural Development of Coherent Tetragonal Precipitates in Magnesium-Partially-Stabilized Zirconia: A Computer Simulation. *Journal of the American Ceramic Society*, **1995**, 78, 657-661	3.8	79
279	Understanding and designing magnetoelectric heterostructures guided by computation: progresses, remaining questions, and perspectives. *Npj Computational Materials*, **2017**, 3,	10.9	78
278	Large kinetic asymmetry in the metal-insulator transition nucleated at localized and extended defects. *Physical Review B*, **2011**, 83,	3.3	78
277	Size-dependent electric voltage controlled magnetic anisotropy in multiferroic heterostructures: Interface-charge and strain comediated magnetoelectric coupling. *Physical Review B*, **2011**, 83,	3.3	78
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275	Selective control of multiple ferroelectric switching pathways using a trailing flexoelectric field. *Nature Nanotechnology*, **2018**, 13, 366-370	28.7	77
274	Flexoelectricity and ferroelectric domain wall structures: Phase-field modeling and DFT calculations. *Physical Review B*, **2014**, 89,	3.3	77
273	Role of scaffold network in controlling strain and functionalities of nanocomposite films. *Science Advances*, **2016**, 2, e1600245	14.3	70
272	Controlled manipulation of oxygen vacancies using nanoscale flexoelectricity. *Nature Communications*, **2017**, 8, 615	17.4	70
271	Ferroelastic switching in a layered-perovskite thin film. *Nature Communications*, **2016**, 7, 10636	17.4	67
270	Bioinspired elastic piezoelectric composites for high-performance mechanical energy harvesting. *Journal of Materials Chemistry A*, **2018**, 6, 14546-14552	13	65
269	Numerical Simulation of Zener Pinning with Growing Second-Phase Particles. *Journal of the American Ceramic Society*, **2005**, 81, 526-532	3.8	64
268	Conductivity of twin-domain-wall/surface junctions in ferroelastics: Interplay of deformation potential, octahedral rotations, improper ferroelectricity, and flexoelectric coupling. *Physical Review B*, **2012**, 86,	3.3	63
267	Giant Resistive Switching via Control of Ferroelectric Charged Domain Walls. *Advanced Materials*, **2016**, 28, 6574-80	24	61
266	Understanding, Predicting, and Designing Ferroelectric Domain Structures and Switching Guided by the Phase-Field Method. *Annual Review of Materials Research*, **2019**, 49, 127-152	12.8	60
265	Configurable topological textures in strain graded ferroelectric nanoplates. *Nature Communications* , **2018**, 9, 403	17.4	60
264	Sharpened VO Phase Transition via Controlled Release of Epitaxial Strain. *Nano Letters*, **2017**, 17, 5614-5619	11.5	60
263	Thermodynamics and ferroelectric properties of KNbO3. *Journal of Applied Physics*, **2009**, 106, 104118	2.5	59
262	Unraveling Deterministic Mesoscopic Polarization Switching Mechanisms: Spatially Resolved Studies of a Tilt Grain Boundary in Bismuth Ferrite. *Advanced Functional Materials*, **2009**, 19, 2053-2063	15.6	58
261	Thermodynamics of strained vanadium dioxide single crystals. *Journal of Applied Physics*, **2010**, 108, 083517	2.5	57
260	Phase-Field Model of Electrothermal Breakdown in Flexible High-Temperature Nanocomposites under Extreme Conditions. *Advanced Energy Materials*, **2018**, 8, 1800509	21.8	56
259	Thermodynamics of nanodomain formation and breakdown in scanning probe microscopy: Landau-Ginzburg-Devonshire approach. *Physical Review B*, **2009**, 80,	3.3	56
258	Fast 180° magnetization switching in a strain-mediated multiferroic heterostructure driven by a voltage. *Scientific Reports*, **2016**, 6, 27561	4.9	56

257	Hydride Formation in Zirconium Alloys. *Jom*, **2012**, 64, 1403-1408	2.1	54
256	Shape Evolution of a Coherent Tetragonal Precipitate in Partially Stabilized Cubic ZrO2: A Computer Simulation. *Journal of the American Ceramic Society*, **1993**, 76, 3029-3033	3.8	54
255	Electrokinetic Phenomena Enhanced Lithium-Ion Transport in Leaky Film for Stable Lithium Metal Anodes. *Advanced Energy Materials*, **2019**, 9, 1900704	21.8	51
254	Stability of the M2 phase of vanadium dioxide induced by coherent epitaxial strain. *Physical Review B*, **2016**, 94,	3.3	51
253	Surface effect on domain wall width in ferroelectrics. *Journal of Applied Physics*, **2009**, 106, 084102	2.5	50
252	BiFeO3 domain wall energies and structures: a combined experimental and density functional theory+U study. *Physical Review Letters*, **2013**, 110, 267601	7.4	49
251	Size-dependent polarization distribution in ferroelectric nanostructures: Phase field simulations. *Applied Physics Letters*, **2008**, 92, 162905	3.4	49
250	Ultrahigh specific strength in a magnesium alloy strengthened by spinodal decomposition. *Science Advances*, **2021**, 7,	14.3	49
249	Ultrahigh energy storage in superparaelectric relaxor ferroelectrics. *Science*, **2021**, 374, 100-104	33.3	49
248	Computer Simulation Model for Coupled Grain Growth and Ostwald Ripening□Application to Al2O3-ZrO2 Two-Phase Systems. *Journal of the American Ceramic Society*, **1996**, 79, 1163-1168	3.8	48
247	Role of Reversible Phase Transformation for Strong Piezoelectric Performance at the Morphotropic Phase Boundary. *Physical Review Letters*, **2018**, 120, 055501	7.4	47
246	Thermodynamic potential and phase diagram for multiferroic bismuth ferrite (BiFeO 3). *Npj Computational Materials*, **2017**, 3,	10.9	46
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244	Internal Biasing in Relaxor Ferroelectric Polymer to Enhance the Electrocaloric Effect. *Advanced Functional Materials*, **2015**, 25, 5134-5139	15.6	46
243	Nanoscale mechanical switching of ferroelectric polarization via flexoelectricity. *Applied Physics Letters*, **2015**, 106, 022904	3.4	45
242	Fast Magnetic Domain-Wall Motion in a Ring-Shaped Nanowire Driven by a Voltage. *Nano Letters*, **2016**, 16, 2341-8	11.5	45
241	Inversion symmetry breaking by oxygen octahedral rotations in the Ruddlesden-Popper NaRTiO4 family. *Physical Review Letters*, **2014**, 112, 187602	7.4	45
240	The influence of 180° ferroelectric domain wall width on the threshold field for wall motion. *Journal of Applied Physics*, **2008**, 104, 084107	2.5	44

239	Water printing of ferroelectric polarization. *Nature Communications*, **2018**, 9, 3809	17.4	44
238	Composition- and pressure-induced ferroelectric to antiferroelectric phase transitions in Sm-doped BiFeO3 system. *Applied Physics Letters*, **2015**, 106, 012903	3.4	43
237	Computer Simulation of Twin Formation during the Displacive c-k? Phase Transformation in the Zirconia-Yttria System. *Journal of the American Ceramic Society*, **1995**, 78, 769-773	3.8	43
236	VO Nanowire Composite Paper as a High-Performance Lithium-Ion Battery Cathode. *ACS Omega*, **2017**, 2, 793-799	3.9	40
235	Phenomenological thermodynamic potential for CaTiO3 single crystals. *Physical Review B*, **2012**, 85,	3.3	40
234	Electrically controlled non-volatile switching of magnetism in multiferroic heterostructures via engineered ferroelastic domain states. *NPG Asia Materials*, **2016**, 8, e316-e316	10.3	39
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232	Lattice Parameters and Local Lattice Distortions in fcc-Ni Solutions. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2007**, 38, 562-569	2.3	38
231	Computer simulation of grain growth kinetics with solute drag. *Journal of Materials Research*, **1999**, 14, 1113-1123	2.5	38
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229	Anisotropic polarization-induced conductance at a ferroelectric-insulator interface. *Nature Nanotechnology*, **2018**, 13, 1132-1136	28.7	37
228	Structural Insight in the Interfacial Effect in Ferroelectric Polymer Nanocomposites. *Advanced Materials*, **2020**, 32, e2005431	24	36
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226	Possibility of Spinodal Decomposition in ZrO2-Y2O3 Alloys: A Theoretical Investigation. *Journal of the American Ceramic Society*, **1995**, 78, 1680-1686	3.8	36
225	Enhanced flexoelectricity at reduced dimensions revealed by mechanically tunable quantum tunnelling. *Nature Communications*, **2019**, 10, 537	17.4	34
224	Hybrid Magnetic Micropillar Arrays for Programmable Actuation. *Advanced Materials*, **2020**, 32, e2001879	24	34
223	Defect-Induced Hedgehog Polarization States in Multiferroics. *Physical Review Letters*, **2018**, 120, 137602	7.4	34
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214	First-principles study of 180? domain walls in BaTiO3: Mixed Bloch-Néel-Ising character. *Physical Review B*, **2014**, 90,	3.3	32
213	Universal emergence of spatially modulated structures induced by flexoantiferrodistortive coupling in multiferroics. *Physical Review B*, **2013**, 88,	3.3	32
212	Predicting Coherency Loss of (gamma^{primeprime}) Precipitates in IN718 Superalloy. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2016**, 47, 3235-3247	2.3	32
211	Facilitation of Ferroelectric Switching via Mechanical Manipulation of Hierarchical Nanoscale Domain Structures. *Physical Review Letters*, **2017**, 118, 017601	7.4	31
210	Polarization switching of the incommensurate phases induced by flexoelectric coupling in ferroelectric thin films. *Acta Materialia*, **2015**, 90, 344-354	8.4	31
209	A thermodynamic potential and the temperature-composition phase diagram for single-crystalline K1-xNaxNbO3 (0 x 0.5). *Applied Physics Letters*, **2017**, 110, 102906	3.4	30
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201	Extraordinarily Large Electrocaloric Strength of Metal-Free Perovskites. *Advanced Materials*, **2020**, 32, e1906224	24	29
200	Strain-mediated voltage-controlled switching of magnetic skyrmions in nanostructures. *Npj Computational Materials*, **2018**, 4,	10.9	29
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196	Light-Activated Gigahertz Ferroelectric Domain Dynamics. *Physical Review Letters*, **2018**, 120, 096101	7.4	26
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194	Mechanical-force-induced non-local collective ferroelastic switching in epitaxial lead-titanate thin films. *Nature Communications*, **2019**, 10, 3951	17.4	25
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188	Toroidal polar topology in strained ferroelectric polymer. *Science*, **2021**, 371, 1050-1056	33.3	24
187	Hierarchical Domain Structure and Extremely Large Wall Current in Epitaxial BiFeO3 Thin Films. *Advanced Functional Materials*, **2018**, 28, 1801725	15.6	23
186	Ferroelectric Domain Walls in PbTiO Are Effective Regulators of Heat Flow at Room Temperature. *Nano Letters*, **2019**, 19, 7901-7907	11.5	23

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169	Effect of strain and deadlayer on the polarization switching of ferroelectric thin film. *Journal of Applied Physics*, **2011**, 110, 114111	2.5	20
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162	Theory of strain phase separation and strain spinodal: Applications to ferroelastic and ferroelectric systems. *Acta Materialia*, **2017**, 133, 147-159	8.4	18
161	Coupling of electrical and mechanical switching in nanoscale ferroelectrics. *Applied Physics Letters*, **2015**, 107, 202905	3.4	18
160	Phase-field modeling of three-phase electrode microstructures in solid oxide fuel cells. *Applied Physics Letters*, **2012**, 101, 033909	3.4	18
159	Nanoscale Origins of Nonlinear Behavior in Ferroic Thin Films. *Advanced Functional Materials*, **2013**, 23, 81-90	15.6	18
158	Universal phase dynamics in VO switches revealed by ultrafast operando diffraction. *Science*, **2021**, 373, 352-355	33.3	18
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155	Polarization rotation transitions in anisotropically strained SrTiO3 thin films. *Applied Physics Letters*, **2008**, 92, 192902	3.4	17
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150	Evolution of the statistical distribution in a topological defect network. *Scientific Reports*, **2015**, 5, 17057	4.9	16

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