R Edwin Garcia

List of Publications by Year
in descending order

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65 papers	2,874 citations	236925 25 h-index	168389 53 g-index
67 all docs	67 docs citations	67 times ranked	3810 citing authors

#	Article	IF	Citations
1	Apparent microstructurally induced phase separation in porous LiNi1/3Mn1/3Co1/3O2 cathodes. Journal of Power Sources, 2022, 541, 231609.	7.8	1
2	Thermodynamically consistent variational principles for charged interfaces. Acta Materialia, 2021, 205, 116525.	7.9	9
3	Microstructural phase coexistence kinetics near the polymorphic phase boundary. Acta Materialia, 2021, 206, 116579.	7.9	7
4	Data driven analytics of porous battery microstructures. Energy and Environmental Science, 2021, 14, 2485-2493.	30.8	9
5	Physics-based optimization of Landau parameters for ferroelectrics: application to BZTâ€“50BCT. Modelling and Simulation in Materials Science and Engineering, 2021, 29, 075001.	2.0	2
6	Electric field-induced grain boundary degradation mechanism in yttria stabilized zirconia. Scripta Materialia, 2021, 204, 114130.	5.2	11
7	Modeling of flash sintering of ionic ceramics. MRS Bulletin, 2021, 46, 67-75.	3.5	5
8	Field-assisted growth of one-dimensional ZnO nanostructures with high defect density. Nanotechnology, 2021, 32, 095603.	2.6	8
9	Core-shell metallic alloy nanopillars-in-dielectric hybrid metamaterials with magneto-plasmonic coupling. Materials Today, 2021, 51, 39-47.	14.2	14
10	Electrochemically-driven abnormal grain growth in ionic ceramics. Acta Materialia, 2020, 200, 727-734.	7.9	12
11	Ultrahigh temperature in situ transmission electron microscopy based bicrystal coble creep in zirconia I: Nanowire growth and interfacial diffusivity. Acta Materialia, 2020, 199, 530-541.	7.9	15
12	Electrochemical drag effect on grain boundary motion in ionic ceramics. Npj Computational Materials, 2020, 6, .	8.7	15
13	Flash sintering incubation kinetics. Npj Computational Materials, 2020, 6, .	8.7	24
14	Ultrahigh temperature in situ transmission electron microscopy based bicrystal coble creep in Zirconia II: Interfacial thermodynamics and transport mechanisms. Acta Materialia, 2020, 200, 1008-1021.	7.9	16
15	Nanoscale stacking faultâ€“assisted room temperature plasticity in flash-sintered TiO ₂. Science Advances, 2019, 5, eaaw5519.	10.3	82
16	Physical, on the fly, capacity degradation prediction of LiNiMnCoO2-graphite cells. Journal of Power Sources, 2019, 422, 185-195.	7.8	24
17	Charged grain boundary transitions in ionic ceramics for energy applications. Npj Computational Materials, 2019, 5, .	8.7	31
18	Electrochemomechanics of lithium dendrite growth. Energy and Environmental Science, 2019, 12, 3595-3607.	30.8	177

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19	The effects of external fields in ceramic sintering. Journal of the American Ceramic Society, 2019, 102, 5-31.	3.8	44
20	Phase coexistence near the polymorphic phase boundary. Acta Materialia, 2019, 164, 577-585.	7.9	7
21	Key microstructural characteristics in flash sintered 3YSZ critical for enhanced sintering process. Ceramics International, 2019, 45, 1251-1257.	4.8	24
22	Integrating Computational Science Tools into a Thermodynamics Course. Journal of Science Education and Technology, 2018, 27, 322-333.	3.9	16
23	High temperature deformability of ductile flash-sintered ceramics via in-situ compression. Nature Communications, 2018, 9, 2063.	12.8	87
24	Charged interfaces: electrochemical and mechanical effects. Energy and Environmental Science, 2018, 11, 1993-2000.	30.8	34
25	Sensitivity of fracture strength in porous glass. International Journal of Applied Glass Science, 2017, 8, 116-123.	2.0	2
26	Physically-based reduced-order capacity loss model for graphite anodes in Li-ion battery cells. Journal of Power Sources, 2017, 342, 750-761.	7.8	118
27	The role of ceramic and glass science research in meeting societal challenges: Report from an <scp>NSF</scp>â€sponsored workshop. Journal of the American Ceramic Society, 2017, 100, 1777-1803.	3.8	23
28	Lithium dendrite growth mechanisms in liquid electrolytes. Nano Energy, 2017, 41, 552-565.	16.0	137
29	Kinetically stabilized metastable polarization states in ferroelectric ceramics. Journal of the European Ceramic Society, 2017, 37, 573-581.	5.7	4
30	Microstructural effects on the average properties in porous battery electrodes. Journal of Power Sources, 2016, 309, 11-19.	7.8	23
31	Dendrite-separator interactions in lithium-based batteries. Journal of Power Sources, 2015, 275, 912-921.	7.8	143
32	Separator Design to Suppress Dendrite Growth in Lithium-Based Batteries. ECS Meeting Abstracts, 2015, , .	0.0	0
33	Designing 3D Conical-Shaped Lithium-Ion Microelectrodes. Journal of the Electrochemical Society, 2014, 161, A302-A307.	2.9	19
34	Electrodes: Tortuosity Anisotropy in Lithium-Ion Battery Electrodes (Adv. Energy Mater. 5/2014). Advanced Energy Materials, 2014, 4, .	19.5	4
35	Failure Variability in Porous Glasses: Stress Interactions, Crack Orientation, and Crack Size Distributions. Journal of the American Ceramic Society, 2014, 97, 3967-3972.	3.8	10
36	Poreâ€“crack orientation effects on fracture behavior of brittle porous materials. International Journal of Fracture, 2014, 187, 293-299.	2.2	8

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37	Tortuosity Anisotropy in Lithiumâ€Ion Battery Electrodes. Advanced Energy Materials, 2014, 4, 1301278.	19.5	309
38	Particle Size Polydispersity in Li-Ion Batteries. Journal of the Electrochemical Society, 2014, 161, A422-A430.	2.9	98
39	Spheronization process particle kinematics determined by discrete element simulations and particle image velocimentry measurements. International Journal of Pharmaceutics, 2014, 477, 81-87.	5.2	10
40	Phase field kinetics of lithium electrodeposits. Journal of Power Sources, 2014, 272, 581-594.	7.8	113
41	Ostwaldâ€“Freundlich diffusion-limited dissolution kinetics of nanoparticles. Powder Technology, 2014, 257, 120-123.	4.2	45
42	Stochastic failure of isotropic, brittle materials with uniform porosity. Acta Materialia, 2013, 61, 2853-2862.	7.9	35
43	Deviations from Weibull statistics in brittle porous materials. Acta Materialia, 2013, 61, 7207-7215.	7.9	30
44	Heterogeneous Nucleation and Growth of Lithium Electrodeposits on Negative Electrodes. Journal of the Electrochemical Society, 2013, 160, A662-A668.	2.9	255
45	Validity of the Bruggeman relation for porous electrodes. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 074009.	2.0	179
46	Progress towards modeling microstructure evolution in polycrystalline films for solar cell applications. , 2013, , .		2
47	An Analytical Method to Determine Tortuosity in Rechargeable Battery Electrodes. Journal of the Electrochemical Society, 2012, 159, A548-A552.	2.9	112
48	Modeling 180Â° Domain Switching Population Dynamics in Polycrystalline Ferroelectrics. Journal of the American Ceramic Society, 2012, 95, 1619-1627.	3.8	13
49	Collective dynamics in nanostructured polycrystalline ferroelectric thin films using local time-resolved measurements and switching spectroscopy. Acta Materialia, 2010, 58, 67-75.	7.9	30
50	GaN nanostructure design for optimal dislocation filtering. Journal of Applied Physics, 2010, 108, 074313.	2.5	10
51	Dislocation Filtering in GaN Nanostructures. Nano Letters, 2010, 10, 1568-1573.	9.1	110
52	III-nitride nanopyramid light emitting diodes grown by organometallic vapor phase epitaxy. Journal of Applied Physics, 2010, 108, 044303.	2.5	26
53	Gibbs: Phase equilibria and symbolic computation of thermodynamic properties. Calphad: Computer Coupling of Phase Diagrams and Thermochemistry, 2010, 34, 393-404.	1.6	26
54	Application of a High Throughput Bioluminescence-Based Method and Mathematical Model for the Quantitative Comparison of Polymer Microbicide Efficiency. Biomacromolecules, 2009, 10, 1173-1180.	5.4	9

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55	Modeling and optimization of polymer based bulk heterojunction (BH) solar cell. , 2009, , .		7
56	Domain switching mechanisms in polycrystalline ferroelectrics with asymmetric hysteretic behavior. Journal of Applied Physics, 2009, 105, .	2.5	21
57	Modelling Microstructures with OOF2. International Journal of Materials and Product Technology, 2009, 35, 361.	0.2	79
58	Crystallographic texture optimisation in polycrystalline ferroelectric films for Random Access Memory applications. International Journal of Materials and Product Technology, 2009, 35, 293.	0.2	1
59	Image-based finite element mesh construction for material microstructures. Computational Materials Science, 2008, 43, 989-999.	3.0	92
60	Microstructural Modeling of Ferroelectric Materials: State of the Art, Challenges and Opportunities. Materials Science Forum, 2008, 606, 119-134.	0.3	2
61	Correlations between the crystallographic texture and grain boundary character in polycrystalline materials. Acta Materialia, 2007, 55, 5728-5735.	7.9	20
62	Virtual piezoforce microscopy of polycrystalline ferroelectric films. Journal of Applied Physics, 2006, 100, 064105.	2.5	32
63	Microstructural Modeling of Multifunctional Material Properties: The OOF Project. , 2005, , 573-587.		1
64	The Effect of Texture and Microstructure on the Macroscopic Properties of Polycrystalline Piezoelectrics: Application to Barium Titanate and PZN-PT. Journal of the American Ceramic Society, 2005, 88, 750-757.	3.8	34
65	Finite Element Implementation of a Thermodynamic Description of Piezoelectric Microstructures. Journal of the American Ceramic Society, 2005, 88, 742-749.	3.8	8