Vikas Tomar

List of Publications by Year in descending order

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#	Article	IF	CITATIONS
1	Bounds for element size in a variable stiffness cohesive finite element model. International Journal for Numerical Methods in Engineering, 2004, 61, 1894-1920.	2.8	160
2	Micromechanical Simulation of Dynamic Fracture Using the Cohesive Finite Element Method. Journal of Engineering Materials and Technology, Transactions of the ASME, 2004, 126, 179-191.	1.4	89
3	The role of interface thermal boundary resistance in the overall thermal conductivity of Si–Ge multilayered structures. Nanotechnology, 2009, 20, 365701.	2.6	74
4	Nanoindentation based properties of Inconel 718 at elevated temperatures: A comparison of conventional versus additively manufactured samples. International Journal of Plasticity, 2019, 120, 380-394.	8.8	67
5	A study of the evolution of microstructure and consolidation kinetics during sintering using a phase field modeling based approach. Extreme Mechanics Letters, 2016, 7, 78-89.	4.1	65
6	Role of the nanoscale interfacial arrangement in mechanical strength of tropocollagen–hydroxyapatite-based hard biomaterials. Acta Biomaterialia, 2009, 5, 2704-2716.	8.3	64
7	Understanding the influence of structural hierarchy and its coupling with chemical environment on the strength of idealized tropocollagen–hydroxyapatite biomaterials. Journal of the Mechanics and Physics of Solids, 2009, 57, 1702-1717.	4.8	42
8	Phase field modeling of sintering: Role of grain orientation and anisotropic properties. Computational Materials Science, 2018, 148, 307-319.	3.0	42
9	High temperature indentation based property measurements of IN-617. International Journal of Plasticity, 2017, 96, 264-281.	8.8	41
10	Effect of interface chemistry and strain rate on particle-matrix delamination in an energetic material. Engineering Fracture Mechanics, 2018, 191, 46-64.	4.3	41
11	Deterministic and stochastic analyses of fracture processes in a brittle microstructure system. Engineering Fracture Mechanics, 2005, 72, 1920-1941.	4.3	40
12	Role of length scale and temperature in indentation induced creep behavior of polymer derived Si–C–O ceramics. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2010, 527, 7615-7623.	5.6	39
13	In Situ Thermal Runaway Detection in Lithium-Ion Batteries with an Integrated Internal Sensor. ACS Applied Energy Materials, 2020, 3, 7997-8008.	5.1	39
14	Analyses of tensile deformation of nanocrystalline α-Fe2O3+fcc-Al composites using molecular dynamics simulations. Journal of the Mechanics and Physics of Solids, 2007, 55, 1053-1085.	4.8	37
15	Influence of interfacial interactions on deformation mechanism and interface viscosity in α-chitin–calcite interfaces. Acta Biomaterialia, 2015, 25, 325-338.	8.3	37
16	Experimentally-validated mesoscale modeling of the coupled mechanical–thermal response of AP–HTPB energetic material under dynamic loading. International Journal of Fracture, 2017, 203, 277-298.	2.2	34
17	Microstructure-property relationship for AISI 304/308L stainless steel laser weldment. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2018, 721, 234-243.	5.6	34
18	Implementation of a phase field model for simulating evolution of two powder particles representing microstructural changes during sintering. Journal of Materials Science, 2018, 53, 5799-5825.	3.7	34

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19	Atomistic analyses of the effect of temperature and morphology on mechanical strength of Si–C–N and Si–C–O nanocomposites. Journal of the European Ceramic Society, 2010, 30, 2223-2237.	5.7	33
20	An investigation into mechanical strength of exoskeleton of hydrothermal vent shrimp (Rimicaris) Tj ETQq0 (Science and Engineering C, 2015, 49, 243-250.) 0 rgBT /Ove 7.3	rlock 10 Tf 50 33
21	Analyses of the role of grain boundaries in mesoscale dynamic fracture resistance of SiC–Si3N4 intergranular nanocomposites. Engineering Fracture Mechanics, 2008, 75, 4501-4512.	4.3	32
22	Role of hydroxyapatite crystal shape in nanoscale mechanical behavior of model tropocollagen–hydroxyapatite hard biomaterials. Materials Science and Engineering C, 2009, 29, 2133-2140.	7.3	32
23	An analysis of the influence of grain boundary strength on microstructure dependent fracture in polycrystalline tungsten. International Journal of Fracture, 2016, 199, 1-20.	2.2	32
24	Role of Molecular Level Interfacial Forces in Hard Biomaterial Mechanics: A Review. Annals of Biomedical Engineering, 2010, 38, 2040-2055.	2.5	31
25	An <i>in situ</i> platform for the investigation of Raman shift in micro-scale silicon structures as a function of mechanical stress and temperature increase. Review of Scientific Instruments, 2014, 85, 013902.	1.3	31
26	Mechanics of organic-inorganic biointerfaces—Implications for strength and creep properties. MRS Bulletin, 2015, 40, 349-358.	3.5	31
27	Role of heat flow direction, monolayer film thickness, and periodicity in controlling thermal conductivity of a Si–Ge superlattice system. Journal of Applied Physics, 2009, 105, .	2.5	30
28	Lithium-ion Battery Thermal Safety by Early Internal Detection, Prediction and Prevention. Scientific Reports, 2019, 9, 13255.	3.3	30
29	Tension-compression strength asymmetry of nanocrystalline α-Fe2O3+fcc-Al ceramic-metal composites. Applied Physics Letters, 2006, 88, 233107.	3.3	29
30	Microstructure dependent dynamic fracture analyses of trabecular bone based on nascent bone atomistic simulations. Mechanics Research Communications, 2008, 35, 24-31.	1.8	29
31	Modeling of Dynamic Fracture and Damage in Two-Dimensional Trabecular Bone Microstructures Using the Cohesive Finite Element Method. Journal of Biomechanical Engineering, 2008, 130, 021021.	1.3	29
32	An investigation into strain rate dependent constitutive properties of a sandwiched epoxy interface. Materials and Design, 2016, 112, 345-356.	7.0	28
33	Classical molecular-dynamics potential for the mechanical strength of nanocrystalline composite fccAl+αâ^'Fe2O3. Physical Review B, 2006, 73, .	3.2	27
34	The role of straining and morphology in thermal conductivity of a set of Si–Ge superlattices and biomimetic Si–Ge nanocomposites. Journal Physics D: Applied Physics, 2010, 43, 135401.	2.8	27
35	An investigation into environment dependent nanomechanical properties of shallow water shrimp (Pandalus platyceros) exoskeleton. Materials Science and Engineering C, 2014, 44, 371-379.	7.3	27
36	Analyses of the role of the second phase SiC particles in microstructure dependent fracture resistance variation of SiC-Si3N4nanocomposites. Modelling and Simulation in Materials Science and Engineering, 2008, 16, 035001.	2.0	25

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37	Insights into the effects of tensile and compressive loadings on microstructure dependent fracture of trabecular bone. Engineering Fracture Mechanics, 2009, 76, 884-897.	4.3	25
38	The effect of tensile and compressive loading on the hierarchical strength of idealized tropocollagen–hydroxyapatite biomaterials as a function of the chemical environment. Journal of Physics Condensed Matter, 2009, 21, 205103.	1.8	23
39	An investigation into plastic deformation of irradiated tungsten microstructure at elevated temperatures using the Anand's viscoplastic model. International Journal of Plasticity, 2015, 74, 127-140.	8.8	20
40	An ab initio study of the peak tensile strength of tungsten with an account of helium point defects. International Journal of Plasticity, 2013, 48, 54-71.	8.8	19
41	Effect of changes in tropocollagen residue sequence and hydroxyapatite mineral texture on the strength of ideal nanoscale tropocollagen-hydroxyapatite biomaterials. Journal of Materials Science: Materials in Medicine, 2010, 21, 161-171.	3.6	18
42	Effect of osteogenesis imperfecta mutations in tropocollagen molecule on strength of biomimetic tropocollagen-hydroxyapatite nanocomposites. Applied Physics Letters, 2010, 96, .	3.3	17
43	Structural-nanomechanical property correlation of shallow water shrimp (Pandalus platyceros) exoskeleton at elevated temperature. Journal of Bionic Engineering, 2014, 11, 360-370.	5.0	16
44	Scale Dependence of the Mechanical Properties and Microstructure of Crustaceans Thin Films as Biomimetic Materials. Jom, 2015, 67, 858-866.	1.9	16
45	A phase field modeling based study of microstructure evolution and its influence on thermal conductivity in polycrystalline tungsten under irradiation. Computational Materials Science, 2018, 150, 169-179.	3.0	16
46	Surface stress variation as a function of applied compressive stress and temperature in microscale silicon. Journal of Applied Physics, 2014, 116, .	2.5	15
47	A comparison of nanoindentation creep deformation characteristics of hydrothermal vent shrimp (Rimicaris exoculata) and shallow water shrimp (Pandalus platyceros) exoskeletons. Journal of Materials Research, 2015, 30, 1110-1120.	2.6	15
48	Constitutive modeling of δ-phase zircaloy hydride based on strain rate dependent nanoindentation and nano-scale impact dataset. International Journal of Plasticity, 2020, 133, 102787.	8.8	15
49	A Variable Fidelity Model Management Framework for Designing Multiphase Materials. Journal of Mechanical Design, Transactions of the ASME, 2008, 130, .	2.9	14
50	An examination of nickel doping effect on the mechanical strength of a tungsten grain boundary. Computational Materials Science, 2013, 77, 131-138.	3.0	14
51	Understanding the influence of grain boundary thickness variation on the mechanical strength of a nickel-doped tungsten grain boundary. International Journal of Plasticity, 2014, 53, 135-147.	8.8	14
52	An analysis of the effects of temperature and structural arrangements on the thermal conductivity and thermal diffusivity of tropocollagen–hydroxyapatite interfaces. Materials Science and Engineering C, 2014, 38, 28-38.	7.3	14
53	Evaluation of Incoherent Interface Strength of Solid-State-Bonded Ti64/Stainless Steel Under Dynamic Impact Loading. Jom, 2015, 67, 1694-1703.	1.9	14
54	Dynamic impact of LiCoO2 electrodes for Li-ion battery aging evaluation. Electrochimica Acta, 2018, 292, 586-593.	5.2	14

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55	Flame retardant vermiculite coated on polypropylene separator for lithium-ion batteries. Applied Clay Science, 2021, 208, 106111.	5.2	14
56	Raman Spectroscopy-Based Investigation of Thermal Conductivity of Stressed Silicon Microcantilevers. Journal of Thermophysics and Heat Transfer, 2015, 29, 845-857.	1.6	13
57	Strain Rate Dependent Failure of Interfaces Examined via Nanoimpact Experiments. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 93-102.	0.5	13
58	Correlating Microscale Thermal Conductivity of Heavily-Doped Silicon With Simultaneous Measurements of Stress. Journal of Engineering Materials and Technology, Transactions of the ASME, 2011, 133, .	1.4	12
59	Understanding Dynamics of Polymorphic Conversion during the Tableting Process Using <i>In Situ</i> Mechanical Raman Spectroscopy. Molecular Pharmaceutics, 2020, 17, 3043-3052.	4.6	12
60	Nanometer to micron scale mechanics of [100] silicon nanowires using atomistic simulations at accelerated time steps. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2115-2123.	1.8	11
61	An ab initio study of ZrB2–SiC interface strength as a function of temperature: Correlating phononic and electronic thermal contributions. Journal of the European Ceramic Society, 2013, 33, 615-625.	5.7	11
62	The role of microstructure in the impact induced temperature rise in hydroxyl terminated polybutadiene (HTPB)–cyclotetramethylene-tetranitramine (HMX) energetic materials using the cohesive finite element method. Journal of Applied Physics, 2020, 128, .	2.5	11
63	Operando Monitoring of Electrode Temperatures During Overcharge aused Thermal Runaway. Energy Technology, 2021, 9, 2100497.	3.8	11
64	Temperature dependent nanomechanics of Si–C–N nanocomposites with an account of particle clustering and grain boundaries. International Journal of Hydrogen Energy, 2011, 36, 4605-4616.	7.1	10
65	Sensor based in-operando lithium-ion battery monitoring in dynamic service environment. Journal of Power Sources, 2021, 486, 229349.	7.8	10
66	Effect of Compressive Straining on Nanoindentation Elastic Modulus of Trabecular Bone. Experimental Mechanics, 2010, 50, 773-781.	2.0	9
67	Ab Initio Investigation of Strain Dependent Atomistic Interactions at Two Tropocollagen-Hydroxyapatite Interfaces. Journal of Engineering Materials and Technology, Transactions of the ASME, 2013, 135, .	1.4	9
68	Simulation guided experimental interface shock viscosity measurement in an energetic material. Modelling and Simulation in Materials Science and Engineering, 2019, 27, 085003.	2.0	9
69	Determining the effects of non-catastrophic nail puncture on the operational performance and service life of small soft case commercial Li-ion prismatic cells. ETransportation, 2021, 8, 100109.	14.8	9
70	Atomistic Simulations - Based Understanding of the Mechanism behind the Role of Second-Phase SiC Particles in Fracture Resistance of SiC-Si3N4 Nanocomposites. International Journal for Multiscale Computational Engineering, 2009, 7, 277-294.	1.2	9
71	Scale and temperature dependent creep modeling and experiments in materials. Jom, 2011, 63, 27-34.	1.9	8
72	In Situ Deformation of Silicon Cantilever Under Constant Stress as a Function of Temperature. Journal of Nanotechnology in Engineering and Medicine, 2014, 5, .	0.8	8

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73	Raman Thermometry Based Thermal Conductivity Measurement of Bovine Cortical Bone as a Function of Compressive Stress. Journal of Nanotechnology in Engineering and Medicine, 2014, 5, .	0.8	8
74	Microscale Analysis of Stress Wave Propagation Through Plastic Bonded Explosives Under Micro-Sphere Shock Impact. Journal of Dynamic Behavior of Materials, 2021, 7, 294-306.	1.7	8
75	Accelerating the molecular time steps for nanomechanical simulations: Hybrid Monte Carlo method. Journal of Applied Physics, 2007, 101, 103512.	2.5	7
76	Ab Initio Study of Coupling between Electronic and Phononic Contribution to Stress-Dependent Thermal Conductivity of Au, Si, and SiC. Journal of Nanomechanics & Micromechanics, 2012, 2, 49-53.	1.4	7
77	An investigation into the influence of grain boundary misorientation on the tensile strength of SiC bicrystals. Mechanics of Advanced Materials and Structures, 2016, 23, 494-502.	2.6	7
78	Interface Mechanics and its Correlation with Plasticity in Polycrystalline Metals, Polymer Composites, and Natural Materials. Procedia Engineering, 2017, 173, 1266-1274.	1.2	7
79	A nanomechanical Raman spectroscopy based assessment of stress distribution in irradiated and corroded SiC. Journal of Nuclear Materials, 2017, 497, 128-138.	2.7	7
80	Examination of Local Microscale-Microsecond Temperature Rise in HMX-HTPB Energetic Material Under Impact Loading. Jom, 2019, 71, 3531-3535.	1.9	7
81	The effect of interface shock viscosity on the strain rate induced temperature rise in an energetic material analyzed using the cohesive finite element method. Modelling and Simulation in Materials Science and Engineering, 2019, 27, 065008.	2.0	7
82	Tensile and Compressive Loading Effects on Texture Dependent Nanoscale Mechanical Behavior of Model Tropocollagen-Hydroxyapatite Biomaterials. Journal of Computational and Theoretical Nanoscience, 2010, 7, 1306-1316.	0.4	7
83	Stationary and propagating cracks in a strain gradient visco-plastic solid. International Journal of Fracture, 2016, 202, 111-125.	2.2	6
84	Interface Mechanical Properties in Energetic Materials Using Nanoscale Impact Experiment and Nanomechanical Raman Spectroscopy. Energy, Environment, and Sustainability, 2019, , 275-290.	1.0	6
85	Advancements in mechanical Raman spectroscopy for applications in energetic materials. Energetic Materials Frontiers, 2021, 2, 193-200.	3.2	6
86	Understanding Effect of Grain Boundaries in the Fracture Behavior of Polycrystalline Tungsten under Mode-I Loading. Journal of Engineering Materials and Technology, Transactions of the ASME, 2012, 134, .	1.4	5
87	An ab initio study of the structure–strength correlation in impact damaged SiC grain boundaries. Computational Materials Science, 2014, 82, 331-336.	3.0	5
88	Nanomechanical Characterization of Temperature-Dependent Mechanical Properties of Ion-Irradiated Zirconium with Consideration of Microstructure and Surface Damage. Jom, 2015, 67, 2945-2958.	1.9	5
89	Relating Interface Evolution to Interface Mechanics Based on Interface Properties. Jom, 2017, 69, 30-38.	1.9	5
90	Microstructure dependent thermal conductivity measurement of Zircaloy-4 using an extended Raman thermometry method. Journal of Nuclear Materials, 2020, 539, 152338.	2.7	5

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91	Atomistic Understanding of the Particle Clustering and Particle Size Effect on the Room Temperature Strength of SiC-Si3N4 Nanocomposites. International Journal for Multiscale Computational Engineering, 2010, 8, 463-472.	1.2	5
92	Effect of Strain Rate and Interface Chemistry on Failure in Energetic Materials. Conference Proceedings of the Society for Experimental Mechanics, 2018, , 7-12.	0.5	4
93	Investigation of Response of LiCoO2 Cathode to Dynamic Impact Using Raman Imaging-Based Analyses. Jom, 2018, 70, 1423-1429.	1.9	4
94	Experimental study of anisotropic constitutive behavior of β-HMX crystals via nanoindentation and small-scale dynamic impact. SN Applied Sciences, 2021, 3, 1.	2.9	4
95	Investigation of physical effects on prismatic lithium-ion cell electrodes after partial nail puncture using Raman spectroscopy and incremental capacity analysis. ETransportation, 2022, 12, 100174.	14.8	4
96	A Molecular Dynamics Simulation Framework for an Al+Fe2O3 Reactive Metal Powder Mixture. Materials Research Society Symposia Proceedings, 2004, 821, 140.	0.1	3
97	Nanomechanical analyses of nanocrystalline Ni using accelerated molecular timesteps. Physica Status Solidi (A) Applications and Materials Science, 2007, 204, 3340-3348.	1.8	3
98	Correlation of Thermal Conduction Properties With Mechanical Deformation Characteristics of a Set of SiC–Si3N4 Nanocomposites. Journal of Engineering Materials and Technology, Transactions of the ASME, 2011, 133, .	1.4	3
99	Orientation dependence of electron and phonon thermal conduction and its correlation with mechanical strength in aluminum interfaces. Journal of Applied Physics, 2013, 114, 034312.	2.5	3
100	An ab-initio investigation of the effect of graphene on the strength-electron density correlation in SiC grain boundaries. Computational Materials Science, 2014, 92, 422-430.	3.0	3
101	Visualizing In Situ Microstructure Dependent Crack Tip Stress Distribution in IN-617 Using Nano-mechanical Raman Spectroscopy. Jom, 2016, 68, 2742-2747.	1.9	3
102	Visualizing Stress and Temperature Distribution During Elevated Temperature Deformation of IN-617 Using Nanomechanical Raman Spectroscopy. Jom, 2018, 70, 464-468.	1.9	3
103	A path independent energy integral approach for analytical fracture strength of steel-concrete structures with an account of interface effects. Engineering Fracture Mechanics, 2018, 204, 246-267.	4.3	3
104	Strontium Titanate Composites for Microwave-Based Stress Sensing. Jom, 2018, 70, 1811-1815.	1.9	3
105	Interface Chemistry Dependent Mechanical Properties in Energetic Materials Using Nano-Scale Impact Experiment. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 147-152.	0.5	3
106	Molecular Dynamics Simulation of Shock Induced Detonation. AIP Conference Proceedings, 2004, , .	0.4	2
107	A Study of Shock-Wave Propagation in Single Crystallinefcc-Al and α-Fe2O3and an Interface between Two Such Phases Using MD Simulations. Materials Research Society Symposia Proceedings, 2005, 896, 31.	0.1	2
108	Nanometer to Micron Scale Atomistic Mechanics of Silicon Using Atomistic Simulations at Accelerated Time Steps. Journal of Nanomechanics & Micromechanics, 2011, 1, 134-141.	1.4	2

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109	An ab-initio analysis of the influence of knock-on atom induced damage on the peak tensile strength of 3C-SiC grain boundaries. International Journal of Damage Mechanics, 2015, 24, 446-467.	4.2	2
110	Local Shock Properties Measurement Using Time-Resolved Raman Spectroscopy. EPJ Web of Conferences, 2021, 250, 01023.	0.3	2
111	Overdischarge Detection and Prevention With Temperature Monitoring of Li-Ion Batteries and Linear Regression-Based Machine Learning. Journal of Electrochemical Energy Conversion and Storage, 2021, 18, .	2.1	2
112	Thermo-mechanical behavior measurement of polymer-bonded sugar under shock compression using in-situ time-resolved Raman spectroscopy. Scientific Reports, 2022, 12, 1876.	3.3	2
113	Multiscale Characterization of Biological Systems. , 2015, , .		1
114	Interface Strength Measurements. Jom, 2017, 69, 12-12.	1.9	1
115	Properties of Material Interfaces: Dynamic Local Versus Nonlocal. , 2017, , 1-16.		1
116	Nanomechanics Experiments: A Microscopic Study of Mechanical Property Scale Dependence and Microstructure of Crustacean Thin Films as Biomimetic Materials. , 2015, , 21-36.		1
117	Local strain distribution imaging using terahertz timeâ€domain spectroscopy. Strain, 2022, 58, .	2.4	1
118	Atomistic Simulations of Strain Rate Dependent Deformation Behavior at Continuum Timescales. Materials Research Society Symposia Proceedings, 2006, 976, 1.	0.1	0
119	A method for analyzing nanomechanical deformation of nanocrystalline Ni at higher timesteps than is possible in classical molecular dynamics. Materials Research Society Symposia Proceedings, 2006, 978, .	0.1	0
120	First Principles Calculations of Interfaces in Ultra High Temperature Ceramics. Advances in Science and Technology, 0, , .	0.2	0
121	Molecular Modeling: A Review of Nanomechanics Based on Molecular Modeling. , 2015, , 37-60.		0
122	Advanced Characterization of Interfaces and Thin Films. Jom, 2017, 69, 225-226.	1.9	0
123	Scale Dependence of the Mechanical Properties of Interfaces in Crustaceans Thin Films. Conference Proceedings of the Society for Experimental Mechanics, 2017, , 17-23.	0.5	0
124	Effect of Interface Chemistry on the Interface Shock Wave Rise Time in Energetic material using Cohesive Finite Element Method. , 2018, , .		0
125	Insights on Structure–Property Correlations by Advanced Characterization Techniques. Jom, 2018, 70, 448-449.	1.9	0
126	Nanomechanical Raman Spectroscopy in Biological Materials. , 2019, , 215-228.		0

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127	In-situ Crack Tip Stress Measurement at High Temperature in IN-617 Using Combined Nano-Indentation and Nano-Mechanical Raman Spectroscopy. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 51-56.	0.5	0
128	Multiscaling for Molecular Models to Predict Lab Scale Sample Properties: A Review of Phenomenological Models. , 2015, , 61-80.		0
129	Multiscaling for Molecular Models: Investigating Interface Thermomechanics. , 2015, , 81-92.		Ο
130	Interface Mechanical Strength and Elastic Constants Calculations via Nano Impact and Nanomechanical Raman Spectroscopy. Conference Proceedings of the Society for Experimental Mechanics, 2018, , 1-5.	0.5	0
131	Uncertainty Quantification in Nanoscale Impact Experiment in Energetic Materials. Conference Proceedings of the Society for Experimental Mechanics, 2019, , 257-263.	0.5	Ο
132	Properties of Material Interfaces: Dynamic Local Versus Nonlocal. , 2019, , 361-376.		0
133	In Situ Thermal Runaway Detection in Lithium-Ion Batteries with Integrated Internal Sensor. SSRN Electronic Journal, 0, , .	0.4	Ο