Nitin P Padture

List of Publications by Citations

245 papers	20,220 citations	73 h-index	136 g-index
256 ext. papers	23,170 ext. citations	8.9 avg, IF	7.35 L-index

#	Paper	IF	Citations
245	Thermal barrier coatings for gas-turbine engine applications. *Science*, **2002**, 296, 280-4	33.3	2864
244	Thermal-barrier coatings for more efficient gas-turbine engines. *MRS Bulletin*, **2012**, 37, 891-898	3.2	736
243	Advanced structural ceramics in aerospace propulsion. *Nature Materials*, **2016**, 15, 804-9	27	633
242	Low-Thermal-Conductivity Rare-Earth Zirconates for Potential Thermal-Barrier-Coating Applications. *Journal of the American Ceramic Society*, **2004**, 85, 3031-3035	3.8	481
241	In Situ-Toughened Silicon Carbide. *Journal of the American Ceramic Society*, **1994**, 77, 519-523	3.8	414
240	Direct Observation of Ferroelectric Domains in Solution-Processed CH3NH3PbI3 Perovskite Thin Films. *Journal of Physical Chemistry Letters*, **2014**, 5, 3335-9	6.4	367
239	Contact-damage-resistant ceramic/single-wall carbon nanotubes and ceramic/graphite composites. *Nature Materials*, **2004**, 3, 539-44	27	341
238	Room-temperature crystallization of hybrid-perovskite thin films via solvent–solvent extraction for high-performance solar cells. *Journal of Materials Chemistry A*, **2015**, 3, 8178-8184	13	336
237	Methylamine-Gas-Induced Defect-Healing Behavior of CH3NH3PbI3 Thin Films for Perovskite Solar Cells. *Angewandte Chemie - International Edition*, **2015**, 54, 9705-9	16.4	326
236	Failure modes in plasma-sprayed thermal barrier coatings. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2003**, 342, 120-130	5.3	294
235	Synthetic Approaches for Halide Perovskite Thin Films. *Chemical Reviews*, **2019**, 119, 3193-3295	68.1	293
234	Microstructures of Organometal Trihalide Perovskites for Solar Cells: Their Evolution from Solutions and Characterization. *Journal of Physical Chemistry Letters*, **2015**, 6, 4827-39	6.4	283
233	Highly stable and efficient all-inorganic lead-free perovskite solar cells with native-oxide passivation. *Nature Communications*, **2019**, 10, 16	17.4	283
232	Making ceramics "ductile". *Science*, **1994**, 263, 1114-6	33.3	274
231	Square-Centimeter Solution-Processed Planar CH3NH3PbI3 Perovskite Solar Cells with Efficiency Exceeding 15. *Advanced Materials*, **2015**, 27, 6363-70	24	272
230	Cesium Titanium(IV) Bromide Thin Films Based Stable Lead-free Perovskite Solar Cells. *Joule*, **2018**, 2, 558-570	27.8	260
229	Toughness Properties of a Silicon Carbide with an in Situ Induced Heterogeneous Grain Structure. *Journal of the American Ceramic Society*, **1994**, 77, 2518-2522	3.8	231

228	Chronic fine particulate matter exposure induces systemic vascular dysfunction via NADPH oxidase and TLR4 pathways. *Circulation Research*, **2011**, 108, 716-26	15.7	217
227	Towards durable thermal barrier coatings with novelmicrostructures deposited by solution-precursor plasma spray. *Acta Materialia*, **2001**, 49, 2251-2257	8.4	208
226	Effect of Grain Size on Hertzian Contact Damage in Alumina. *Journal of the American Ceramic Society*, **1994**, 77, 1825-1831	3.8	206
225	Novel thermal barrier coatings that are resistant to high-temperature attack by glassy deposits. *Acta Materialia*, **2007**, 55, 6734-6745	8.4	195
224	Earth-Abundant Nontoxic Titanium(IV)-based Vacancy-Ordered Double Perovskite Halides with Tunable 1.0 to 1.8 eV Bandgaps for Photovoltaic Applications. *ACS Energy Letters*, **2018**, 3, 297-304	20.1	192
223	Carrier separation and transport in perovskite solar cells studied by nanometre-scale profiling of electrical potential. *Nature Communications*, **2015**, 6, 8397	17.4	172
222	Improved processing and oxidation-resistance of ZrB2 ultra-high temperature ceramics containing SiC nanodispersoids. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2007**, 464, 216-224	5.3	170
221	Additive-Modulated Evolution of HC(NH2)2PbI3 Black Polymorph for Mesoscopic Perovskite Solar Cells. *Chemistry of Materials*, **2015**, 27, 7149-7155	9.6	164
220	Jet engine coatings for resisting volcanic ash damage. *Advanced Materials*, **2011**, 23, 2419-24	24	164
219	Heterojunction-Depleted Lead-Free Perovskite Solar Cells with Coarse-Grained B-□CsSnI3 Thin Films. *Advanced Energy Materials*, **2016**, 6, 1601130	21.8	162
218	Exceptional Morphology-Preserving Evolution of Formamidinium Lead Triiodide Perovskite Thin Films via Organic-Cation Displacement. *Journal of the American Chemical Society*, **2016**, 138, 5535-8	16.4	153
217	Composition effects of thermal barrier coating ceramics on their interaction with molten Ca□Mg□Al□Silicate (CMAS) glass. *Acta Materialia*, **2012**, 60, 5437-5447	8.4	149
216	Transformative Evolution of Organolead Triiodide Perovskite Thin Films from Strong Room-Temperature Solid-Gas Interaction between HPbI3-CH3NH2 Precursor Pair. *Journal of the American Chemical Society*, **2016**, 138, 750-3	16.4	141
215	Indentation fatigue. *Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties*, **1993**, 68, 1003-1016		141
214	Low-thermal-conductivity plasma-sprayed thermal barrier coatings with engineered microstructures. *Acta Materialia*, **2006**, 54, 3343-3349	8.4	133
213	Low Thermal Conductivity in Garnets. *Journal of the American Ceramic Society*, **2005**, 80, 1018-1020	3.8	132
212	Air-plasma-sprayed thermal barrier coatings that are resistant to high-temperature attack by glassy deposits. *Acta Materialia*, **2010**, 58, 6835-6844	8.4	131
211	Doping and alloying for improved perovskite solar cells. *Journal of Materials Chemistry A*, **2016**, 4, 17623-17635	10.7	126

210	Toward Eco-friendly and Stable Perovskite Materials for Photovoltaics. *Joule*, **2018**, 2, 1231-1241	27.8	126
209	Long Minority-Carrier Diffusion Length and Low Surface-Recombination Velocity in Inorganic Lead-Free CsSnI3 Perovskite Crystal for Solar Cells. *Advanced Functional Materials*, **2017**, 27, 1604818	15.6	124
208	Continuous Grain-Boundary Functionalization for High-Efficiency Perovskite Solar Cells with Exceptional Stability. *CheM*, **2018**, 4, 1404-1415	16.2	124
207	Thermal Barrier Coatings Made by the Solution Precursor Plasma Spray Process. *Journal of Thermal Spray Technology*, **2008**, 17, 124-135	2.5	122
206	Growth control of compact CH3NH3PbI3 thin films via enhanced solid-state precursor reaction for efficient planar perovskite solar cells. *Journal of Materials Chemistry A*, **2015**, 3, 9249-9256	13	118
205	Calcia-magnesia-alumino-silicate (CMAS)-induced degradation and failure of air plasma sprayed yttria-stabilized zirconia thermal barrier coatings. *Acta Materialia*, **2016**, 105, 355-366	8.4	118
204	Engineering the resistance to sliding-contact damage through controlled gradients in elastic properties at contact surfaces. *Acta Materialia*, **1999**, 47, 3915-3926	8.4	114
203	One-step, solution-processed formamidinium lead trihalide (FAPbI(3-x)Cl(x)) for mesoscopic perovskite-polymer solar cells. *Physical Chemistry Chemical Physics*, **2014**, 16, 19206-11	3.6	113
202	Vapour-based processing of hole-conductor-free CH3NH3PbI3 perovskite/C60 fullerene planar solar cells. *RSC Advances*, **2014**, 4, 28964-28967	3.7	113
201	Highly durable thermal barrier coatings made by the solution precursor plasma spray process. *Surface and Coatings Technology*, **2004**, 177-178, 97-102	4.4	113
200	Improved interfacial mechanical properties of Al2O3-13wt%TiO2 plasma-sprayed coatings derived from nanocrystalline powders. *Acta Materialia*, **2003**, 51, 2959-2970	8.4	113
199	Mechanisms of ceramic coating deposition in solution-precursor plasma spray. *Journal of Materials Research*, **2002**, 17, 2363-2372	2.5	105
198	High quality, transferrable graphene grown on single crystal Cu(111) thin films on basal-plane sapphire. *Applied Physics Letters*, **2011**, 98, 113117	3.4	103
197	Progress in Tandem Solar Cells Based on Hybrid Organic–Inorganic Perovskites. *Advanced Energy Materials*, **2017**, 7, 1602400	21.8	101
196	Hertzian-Crack Suppression in Ceramics with Elastic-Modulus-Graded Surfaces. *Journal of the American Ceramic Society*, **2005**, 81, 2301-2308	3.8	101
195	Interfacial toughening with self-assembled monolayers enhances perovskite solar cell reliability. *Science*, **2021**, 372, 618-622	33.3	101
194	Mapping the Photoresponse of CH3NH3PbI3 Hybrid Perovskite Thin Films at the Nanoscale. *Nano Letters*, **2016**, 16, 3434-41	11.5	101
193	Crystal chemistry of epitaxial ZnO on (111) MgAl2O4 produced by hydrothermal synthesis. *Journal of Crystal Growth*, **2003**, 259, 103-109	1.6	98

192	Damage-resistant alumina-based layer composites. *Journal of Materials Research*, **1996**, 11, 204-210	2.5	97
191	Mitigation of damage from molten fly ash to air-plasma-sprayed thermal barrier coatings. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2011**, 528, 7214-7221	5.3	89
190	Aqueous colloidal processing of single-wall carbon nanotubes and their composites with ceramics. *Nanotechnology*, **2006**, 17, 1770-7	3.4	88
189	Plasma sprayed gadolinium zirconate thermal barrier coatings that are resistant to damage by molten Ca□Mg□Al□silicate glass. *Surface and Coatings Technology*, **2012**, 206, 3911-3916	4.4	86
188	Contact Fatigue of a Silicon Carbide with a Heterogeneous Grain Structure. *Journal of the American Ceramic Society*, **1995**, 78, 1431-1438	3.8	86
187	Crystal Morphologies of Organolead Trihalide in Mesoscopic/Planar Perovskite Solar Cells. *Journal of Physical Chemistry Letters*, **2015**, 6, 2292-7	6.4	85
186	Flaw-Tolerance and Crack-Resistance Properties of Alumina-Aluminum Titanate Composites with Tailored Microstructures. *Journal of the American Ceramic Society*, **1993**, 76, 2312-2320	3.8	85
185	Thick ceramic thermal barrier coatings with high durability deposited using solution-precursor plasma spray. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2005**, 405, 313-320	5.3	84
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183	Gradients in elastic modulus for improved contact-damage resistance. Part I: The silicon nitride□oxynitride glass system. *Acta Materialia*, **2001**, 49, 3255-3262	8.4	82
182	High-Performance Formamidinium-Based Perovskite Solar Cells via Microstructure-Mediated □to-□ Phase Transformation. *Chemistry of Materials*, **2017**, 29, 3246-3250	9.6	79
181	Bandgap Optimization of Perovskite Semiconductors for Photovoltaic Applications. *Chemistry - A European Journal*, **2018**, 24, 2305-2316	4.8	76
180	Interpenetrating interfaces for efficient perovskite solar cells with high operational stability and mechanical robustness. *Nature Communications*, **2021**, 12, 973	17.4	75
179	Thin-Film Transformation of NH PbI to CH NH PbI Perovskite: A Methylamine-Induced Conversion-Healing Process. *Angewandte Chemie - International Edition*, **2016**, 55, 14723-14727	16.4	74
178	Toward Site-Specific Stamping of Graphene. *Advanced Materials*, **2009**, 21, 1243-1246	24	74
177	Wear-resistant ultra-fine-grained ceramics. *Acta Materialia*, **2005**, 53, 271-277	8.4	74
176	2ZrO2□Y2O3 Thermal Barrier Coatings Resistant to Degradation by Molten CMAS: Part I, Optical Basicity Considerations and Processing. *Journal of the American Ceramic Society*, **2014**, 97, 3943-3949	3.8	73
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174	Lead-Free Dion–Jacobson Tin Halide Perovskites for Photovoltaics. *ACS Energy Letters*, **2019**, 4, 276-277	20.1	73
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171	Improved SnO2 Electron Transport Layers Solution-Deposited at Near Room Temperature for Rigid or Flexible Perovskite Solar Cells with High Efficiencies. *Advanced Energy Materials*, **2019**, 9, 1900834	21.8	67
170	Crack Suppression in Strongly Bonded Homogeneous/Heterogeneous Laminates: A Study on Glass/Glass-Ceramic Bilayers. *Journal of the American Ceramic Society*, **2005**, 79, 634-640	3.8	67
169	Effect of microstructural coarsening on Hertzian contact damage in silicon nitride. *Journal of Materials Science*, **1995**, 30, 869-878	4.3	67
168	Processing parameter effects on solution precursor plasma spray process spray patterns. *Surface and Coatings Technology*, **2004**, 183, 51-61	4.4	66
167	A model for microcrack initiation and propagation beneath hertzian contacts in polycrystalline ceramics. *Acta Metallurgica Et Materialia*, **1994**, 42, 1683-1693		64
166	Lewis-Adduct Mediated Grain-Boundary Functionalization for Efficient Ideal-Bandgap Perovskite Solar Cells with Superior Stability. *Advanced Energy Materials*, **2018**, 8, 1800997	21.8	63
165	Simultaneous Evolution of Uniaxially Oriented Grains and Ultralow-Density Grain-Boundary Network in CH3NH3PbI3 Perovskite Thin Films Mediated by Precursor Phase Metastability. *ACS Energy Letters*, **2017**, 2, 2727-2733	20.1	63
164	Microstructural design of sliding-wear-resistant liquid-phase-sintered SiC: An overview. *Journal of the European Ceramic Society*, **2007**, 27, 3351-3357	6	63
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162	Enhanced Machinability of Silicon Carbide via Microstructural Design. *Journal of the American Ceramic Society*, **1995**, 78, 215-217	3.8	62
161	Effect of Microstructure on Material-Removal Mechanisms and Damage Tolerance in Abrasive Machining of Silicon Carbide. *Journal of the American Ceramic Society*, **1995**, 78, 2443-2448	3.8	62
160	Coatings of metastable ceramics deposited by solution-precursor plasma spray: I. Binary ZrO2–Al2O3 system. *Acta Materialia*, **2006**, 54, 4913-4920	8.4	61
159	Model for Toughness Curves in Two-Phase Ceramics: I, Basic Fracture Mechanics. *Journal of the American Ceramic Society*, **1993**, 76, 2235-2240	3.8	61
158	High-Performance Lead-Free Solar Cells Based on Tin-Halide Perovskite Thin Films Functionalized by a Divalent Organic Cation. *ACS Energy Letters*, **2020**, 5, 2223-2230	20.1	60
157	Thermo-mechanical behavior of organic-inorganic halide perovskites for solar cells. *Scripta Materialia*, **2018**, 150, 36-41	5.6	60

156	Effect of Microstructure on Sliding-Wear Properties of Liquid-Phase-Sintered □SiC. *Journal of the American Ceramic Society*, **2005**, 88, 2159-2163	3.8	60
155	Gradients in elastic modulus for improved contact-damage resistance. part ii: the silicon nitride□ilicon carbide system. *Acta Materialia*, **2001**, 49, 3263-3268	8.4	60
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153	Quantum-Dot-Induced Cesium-Rich Surface Imparts Enhanced Stability to Formamidinium Lead Iodide Perovskite Solar Cells. *ACS Energy Letters*, **2019**, 4, 1970-1975	20.1	58
152	The Compelling Case for Indentation as a Functional Exploratory and Characterization Tool. *Journal of the American Ceramic Society*, **2015**, 98, 2671-2680	3.8	58
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150	Single-wall carbon nanotubes at ceramic grain boundaries. *Scripta Materialia*, **2007**, 56, 461-463	5.6	58
149	Environmental-barrier coating ceramics for resistance against attack by molten calcia-magnesia-aluminosilicate (CMAS) glass: Part II, □Yb2Si2O7 and □Sc2Si2O7. *Journal of the European Ceramic Society*, **2018**, 38, 3914-3924	6	57
148	Thermal-gradient testing of thermal barrier coatings under simultaneous attack by molten glassy deposits and its mitigation. *Surface and Coatings Technology*, **2010**, 204, 2683-2688	4.4	57
147	Homogenous Alloys of Formamidinium Lead Triiodide and Cesium Tin Triiodide for Efficient Ideal-Bandgap Perovskite Solar Cells. *Angewandte Chemie - International Edition*, **2017**, 56, 12658-12662	16.4	56
146	Sliding-Wear-Resistant Liquid-Phase-Sintered SiC Processed Using □SiC Starting Powders. *Journal of the American Ceramic Society*, **2007**, 90, 541-545	3.8	55
145	Coarsening in liquid-phase-sintered □SiC. *Acta Materialia*, **1999**, 47, 481-487	8.4	55
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143	Sub-1.4eV bandgap inorganic perovskite solar cells with long-term stability. *Nature Communications* , **2020**, 11, 151	17.4	55
142	Methylammonium-Mediated Evolution of Mixed-Organic-Cation Perovskite Thin Films: A Dynamic Composition-Tuning Process. *Angewandte Chemie - International Edition*, **2017**, 56, 7674-7678	16.4	53
141	A machine learning approach to fracture mechanics problems. *Acta Materialia*, **2020**, 190, 105-112	8.4	53
140	Microstructural Evolution in Liquid-Phase-Sintered SiC: Part I, Effect of Starting Powder. *Journal of the American Ceramic Society*, **2004**, 84, 1578-1584	3.8	53
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138	Hydrothermal Synthesis of Thin Films of Barium Titanate Ceramic Nano-Tubes at 200°C. *Journal of the American Ceramic Society*, **2003**, 86, 2215-2217	3.8	52
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136	Ions Matter: Description of the Anomalous Electronic Behavior in Methylammonium Lead Halide Perovskite Devices. *Advanced Functional Materials*, **2017**, 27, 1606584	15.6	49
135	Fatigue in ceramics with interconnecting weak interfaces: A study using cyclic Hertzian contacts. *Acta Metallurgica Et Materialia*, **1995**, 43, 1609-1617		49
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133	Densification of liquid-phase-sintered silicon carbide. *Journal of Materials Science Letters*, **2000**, 19, 1011-1014		47
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131	Carrier lifetime enhancement in halide perovskite via remote epitaxy. *Nature Communications*, **2019**, 10, 4145	17.4	45
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128	Hybrid Perovskite Quantum Nanostructures Synthesized by Electrospray Antisolvent-Solvent Extraction and Intercalation. *ACS Applied Materials & Interfaces*, **2016**, 8, 854-61	9.5	44
127	In situ Raman spectroscopy studies of high-temperature degradation of thermal barrier coatings by molten silicate deposits. *Scripta Materialia*, **2014**, 76, 29-32	5.6	44
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125	Mechanisms of spallation of solution precursor plasma spray thermal barrier coatings. *Surface and Coatings Technology*, **2004**, 188-189, 101-106	4.4	44
124	Effect of liquid-phase content on the contact-mechanical properties of liquid-phase-sintered □SiC. *Journal of the European Ceramic Society*, **2007**, 27, 2521-2527	6	42
123	Coatings of metastable ceramics deposited by solution-precursor plasma spray: II. Ternary ZrO2□Y2O3□Al2O3 system. *Acta Materialia*, **2006**, 54, 4921-4928	8.4	42
122	Bipolar resistive switching in individual Au□NiO□Au segmented nanowires. *Applied Physics Letters*, **2009**, 95, 203505	3.4	41
121	Deposition mechanisms of thermal barrier coatings in the solution precursor plasma spray process. *Surface and Coatings Technology*, **2004**, 177-178, 103-107	4.4	41

120	Improved Sliding-Wear Resistance in In Situ-Toughened Silicon Carbide. *Journal of the American Ceramic Society*, **2005**, 88, 3531-3534	3.8	41
119	Interaction between ceramic powder and molten calcia-magnesia-alumino-silicate (CMAS) glass, and its implication on CMAS-resistant thermal barrier coatings. *Scripta Materialia*, **2016**, 112, 118-122	5.6	40
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117	Comment on Effect of sintering temperature on a single-wall carbon nanotube-toughened alumina-based composite *Scripta Materialia*, **2008**, 58, 989-990	5.6	38
116	Improved Flaw Tolerance in Alumina Containing 1 vol% Anorthite via Crystallization of the Intergranular Glass. *Journal of the American Ceramic Society*, **1992**, 75, 1870-1875	3.8	38
115	Enhancing Chemical Stability and Suppressing Ion Migration in CH3NH3PbI3 Perovskite Solar Cells via Direct Backbone Attachment of Polyesters on Grain Boundaries. *Chemistry of Materials*, **2020**, 32, 5104-5117	9.6	37
114	Observation of phase-retention behavior of the HC(NH2)2PbI3 black perovskite polymorph upon mesoporous TiO2 scaffolds. *Chemical Communications*, **2016**, 52, 7273-5	5.8	37
113	Fusing Nanowires into Thin Films: Fabrication of Graded-Heterojunction Perovskite Solar Cells with Enhanced Performance. *Advanced Energy Materials*, **2019**, 9, 1900243	21.8	36
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109	Methylamine-Gas-Induced Defect-Healing Behavior of CH3NH3PbI3 Thin Films for Perovskite Solar Cells. *Angewandte Chemie*, **2015**, 127, 9841-9845	3.6	35
108	Quantitative Phase-Composition Analysis of Liquid-Phase-Sintered Silicon Carbide Using the Rietveld Method. *Journal of the American Ceramic Society*, **2004**, 83, 2282-2286	3.8	35
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102	Stepwise-Graded Si3N4–SiC Ceramics with Improved Wear Properties. *Journal of the American Ceramic Society*, **2002**, 85, 2059-2064	3.8	33
101	In situ direct observation of toughening in isotropic nanocomposites of alumina ceramic and multiwall carbon nanotubes. *Acta Materialia*, **2017**, 127, 203-210	8.4	32
100	High-temperature creep deformation of coarse-grained boron carbide ceramics. *Journal of the European Ceramic Society*, **2015**, 35, 1423-1429	6	32
99	Nanotubes patterned thin films of barium-strontium titanate. *Journal of Materials Research*, **2005**, 20, 2140-2147	2.5	32
98	Engineered metal-oxide-metal heterojunction nanowires. *Journal of Materials Research*, **2005**, 20, 2613-2617	2.5	29
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95	Anomalous 3D nanoscale photoconduction in hybrid perovskite semiconductors revealed by tomographic atomic force microscopy. *Nature Communications*, **2020**, 11, 3308	17.4	27
94	Facile healing of cracks in organic–inorganic halide perovskite thin films. *Acta Materialia*, **2020**, 187, 112-121	8.4	27
93	Strengthening of transparent spinel/Si3N4 nanocomposites. *Acta Materialia*, **2012**, 60, 1570-1575	8.4	27
92	Individually addressable crystalline conducting polymer nanowires in a microelectrode sensor array. *Nanotechnology*, **2007**, 18, 424021	3.4	27
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