David R Clarke

List of Publications by Year
in descending order

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		18436	10708
142	20,838	62	138
papers	citations	h-index	g-index

144	144	144	16048
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Effective thermal conductivity of particulate composites with interfacial thermal resistance. Journal of Applied Physics, 1997, 81, 6692-6699.	1.1	1,667
2	Nanoscale thermal transport. II. 2003â€“2012. Applied Physics Reviews, 2014, 1, 011305.	5.5	1,277
3	Size dependent hardness of silver single crystals. Journal of Materials Research, 1995, 10, 853-863.	1.2	1,199
4	The Tetragonalâ€Monoclinic Transformation in Zirconia: Lessons Learned and Future Trends. Journal of the American Ceramic Society, 2009, 92, 1901-1920.	1.9	1,162
5	Thermal-barrier coatings for more efficient gas-turbine engines. MRS Bulletin, 2012, 37, 891-898.	1.7	1,079
6	Varistor Ceramics. Journal of the American Ceramic Society, 1999, 82, 485-502.	1.9	1,037
7	Materials selection guidelines for low thermal conductivity thermal barrier coatings. Surface and Coatings Technology, 2003, 163-164, 67-74.	2.2	985
8	Thermal barrier coating materials. Materials Today, 2005, 8, 22-29.	8.3	869
9	On the Equilibrium Thickness of Intergranular Glass Phases in Ceramic Materials. Journal of the American Ceramic Society, 1987, 70, 15-22.	1.9	725
10	Controlled flight of a microrobot powered by soft artificial muscles. Nature, 2019, 575, 324-329.	13.7	460
11	Dielectric Elastomer Based â€œGrippersâ€•for Soft Robotics. Advanced Materials, 2015, 27, 6814-6819.	11.1	383
12	Data-Driven Review of Thermoelectric Materials: Performance and Resource Considerations. Chemistry of Materials, 2013, 25, 2911-2920.	3.2	366
13	Determination of the Piezospectroscopic Coefficients for Chromium-Doped Sapphire. Journal of the American Ceramic Society, 1995, 78, 1347-1353.	1.9	328
14	Interpenetrating Phase Composites. Journal of the American Ceramic Society, 1992, 75, 739-758.	1.9	324
15	Stress Measurement in Single-Crystal and Polycrystalline Ceramics Using Their Optical Fluorescence. Journal of the American Ceramic Society, 1993, 76, 1433-1440.	1.9	310
16	Tunable lenses using transparent dielectric elastomer actuators. Optics Express, 2013, 21, 8669.	1.7	281
17	Realizing the potential of dielectric elastomer artificial muscles. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 2476-2481.	3.3	276
18	Adaptive metalenses with simultaneous electrical control of focal length, astigmatism, and shift. Science Advances, 2018, 4, eaap9957.	4.7	275

#	Article	IF	Citations
19	Dielectric elastomer actuators under equal-biaxial forces, uniaxial forces, and uniaxial constraint of stiff fibers. Soft Matter, 2012, 8, 6167.	1.2	237
20	Anisotropic elastic and thermal properties of the double perovskite slabâ€“rock salt layer Ln2SrAl2O7 (Ln=La, Nd, Sm, Eu, Gd or Dy) natural superlattice structure. Acta Materialia, 2012, 60, 3380-3392.	3.8	227
21	Oxide Materials with Low Thermal Conductivity. Journal of the American Ceramic Society, 2007, 90, 533-540.	1.9	214
22	Piezospectroscopic Determination of Residual Stresses in Polycrystalline Alumina. Journal of the American Ceramic Society, 1994, 77, 298-302.	1.9	209
23	Maximizing the Energy Density of Dielectric Elastomer Generators Using Equiâ€Biaxial Loading. Advanced Functional Materials, 2013, 23, 5056-5061.	7.8	189
24	Multilayer Dielectric Elastomers for Fast, Programmable Actuation without Prestretch. Advanced Materials, 2016, 28, 8058-8063.	11.1	185
25	The microstructural location of the intergranular metal-oxide phase in a zinc oxide varistor. Journal of Applied Physics, 1978, 49, 2407.	1.1	181
26	Calcium Concentration Dependence of the Intergranular Film Thickness in Silicon Nitride. Journal of the American Ceramic Society, 1994, 77, 911-914.	1.9	179
27	Possible Electrical Double-Layer Contribution to the Equilibrium Thickness of Intergranular Glass Films in Polycrystalline Ceramics. Journal of the American Ceramic Society, 1993, 76, 1201-1204.	1.9	173
28	Mechanical and chemical consequences of the residual stresses in plasma sprayed hydroxyapatite coatings. Biomaterials, 1997, 18, 477-482.	5.7	163
29	Large area metalenses: design, characterization, and mass manufacturing. Optics Express, 2018, 26, 1573.	1.7	162
30	Giant, voltage-actuated deformation of a dielectric elastomer under dead load. Applied Physics Letters, 2012, 100, .	1.5	161
31	Compact Dielectric Elastomer Linear Actuators. Advanced Functional Materials, 2018, 28, 1804328.	7.8	157
32	The thickness and stretch dependence of the electrical breakdown strength of an acrylic dielectric elastomer. Applied Physics Letters, 2012, 101, .	1.5	135
33	Fracture toughness measurements of YBa2Cu3Oxsingle crystals. Applied Physics Letters, 1987, 51, 454-456.	1.5	133
34	Thermal conductivity of yttria-stabilized zirconiaâ€“hafnia solid solutions. Acta Materialia, 2006, 54, 5051-5059.	3.8	133
35	3D Printing of Interdigitated Dielectric Elastomer Actuators. Advanced Functional Materials, 2020, 30, 1907375.	7.8	132
36	Forces between Alumina Surfaces in Salt Solutions: Non-DLVO Forces and the Implications for Colloidal Processing. Journal of the American Ceramic Society, 1994, 77, 437-443.	1.9	127

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37	Issues in the Processing of Cuprate Ceramic Superconductors. Journal of the American Ceramic Society, 1989, 72, 1103-1113.	1.9	125
38	Reconfigurable shape-morphing dielectric elastomers using spatially varying electric fields. Nature Communications, 2019, 10, 183.	5.8	125
39	Defect and stress characterization of AlN films by Raman spectroscopy. Applied Physics Letters, 2006, 89, 241911.	1.5	116
40	The tetragonalâ€“monoclinic, ferroelastic transformation in yttrium tantalate and effect of zirconia alloying. Acta Materialia, 2014, 69, 196-202.	3.8	112
41	Complex Ordered Patterns in Mechanical Instability Induced Geometrically Frustrated Triangular Cellular Structures. Physical Review Letters, 2014, 112, 098701.	2.9	111
42	Microstructural aspects of the sintering of thermal barrier coatings. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2004, 368, 212-221.	2.6	110
43	Optimizing the Electrical Energy Conversion Cycle of Dielectric Elastomer Generators. Advanced Materials, 2014, 26, 6617-6621.	11.1	110
44	Thermal conductivity of single- and multi-phase compositions in the ZrO2â€“Y2O3â€“Ta2O5 system. Journal of the European Ceramic Society, 2014, 34, 3085-3094.	2.8	106
45	Sampleâ€probe interactions in spectroscopy: Sampling microscopic property gradients. Journal of Applied Physics, 1995, 77, 1855-1863.	1.1	101
46	Large, uni-directional actuation in dielectric elastomers achieved by fiber stiffening. Applied Physics Letters, 2012, 100, .	1.5	100
47	Rare-Earth Separation Using Bacteria. Environmental Science and Technology Letters, 2016, 3, 180-184.	3.9	98
48	Anisotropic thermal conductivity of the Aurivillus phase, bismuth titanate (Bi4Ti3O12): A natural nanostructured superlattice. Applied Physics Letters, 2008, 93, .	1.5	97
49	Observation of Subcritical Spall Propagation of a Thermal Barrier Coating. Journal of the American Ceramic Society, 1998, 81, 3237-3242.	1.9	95
50	High temperature aging of YSZ coatings and subsequent transformation at low temperature. Surface and Coatings Technology, 2005, 200, 1287-1291.	2.2	95
51	Thermal conductivity of the gadolinium calcium silicate apatites: Effect of different point defect types. Acta Materialia, 2011, 59, 3841-3850.	3.8	94
52	Transformation of Electron-Beam Physical Vapor-Deposited 8 wt% Yttria-Stabilized Zirconia Thermal Barrier Coatings. Journal of the American Ceramic Society, 2005, 88, 2552-2558.	1.9	93
53	A Wearable Soft Haptic Communicator Based on Dielectric Elastomer Actuators. Soft Robotics, 2020, 7, 451-461.	4.6	93
54	Measurement of Stresses Using Fluorescence in an Optical Microprobe: Stresses around Indentations in a Chromium-Doped Sapphire. Journal of the American Ceramic Society, 1990, 73, 3189-3194.	1.9	88

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55	Low thermal conductivity without oxygen vacancies in equimolar YO1.5+TaO2.5- and YbO1.5+TaO2.5-stabilized tetragonal zirconia ceramics. Acta Materialia, 2010, 58, 4424-4431.	3.8	88
56	Dielectric elastomer actuators. Journal of Applied Physics, 2021, 129, .	1.1	88
57	Epitaxial Aluminum-Doped Zinc Oxide Thin Films on Sapphire: I, Effect of Substrate Orientation. Journal of the American Ceramic Society, 1995, 78, 1931-1934.	1.9	82
58	First-principles calculations of the high-temperature phase transformation in yttrium tantalate. Physical Review B, 2014, 90, .	1.1	80
59	A high speed soft robot based on dielectric elastomer actuators. , 2017, , .		80
60	Expression of interfacial Seebeck coefficient through grain boundary engineering with multi-layer graphene nanoplatelets. Energy and Environmental Science, 2020, 13, 4114-4121.	15.6	78
61	Effective Properties of Ferroelectric and/or Ferromagnetic Composites: A Unified Approach and Its Application. Journal of the American Ceramic Society, 1997, 80, 1333-1340.	1.9	76
62	Organic liquid-crystal devices based on ionic conductors. Materials Horizons, 2017, 4, 1102-1109.	6.4	76
63	Luminescence Characterization of Chromiumâ€Containing thetaâ€Alumina. Journal of the American Ceramic Society, 1998, 81, 3345-3348.	1.9	66
64	Printing Reconfigurable Bundles of Dielectric Elastomer Fibers. Advanced Functional Materials, 2021, 31, 2010643.	7.8	63
65	Deformation Bands in Ceria-Stabilized Tetragonal Zirconia/Alumina: I, Measurement of Internal Stresses. Journal of the American Ceramic Society, 1995, 78, 633-640.	1.9	61
66	Effect of Variations in Grain Size and Grain Boundary Barrier Heights on the Current- V oltage Characteristics of ZnO Varistors. Journal of the American Ceramic Society, 1996, 79, 3185-3192.	1.9	59
67	Polarization Dependence of the Cr³⁺ Râ€Line Fluorescence from Sapphire and Its Application to Crystal Orientation and Piezospectroscopic Measurement. Journal of the American Ceramic Society, 1997, 80, 69-78.	1.9	59
68	Stress Distributions in Plasma-Sprayed Thermal Barrier Coatings Under Thermal Cycling in a Temperature Gradient. Journal of Applied Mechanics, Transactions ASME, 2011, 78, .	1.1	59
69	Lattice Expansion and Saturation Magnetization of Nickelâ€“Zinc Ferrite Nanoparticles Prepared by Aqueous Precipitation. Journal of the American Ceramic Society, 2007, 90, 3541-3546.	1.9	58
70	Structural Transition from Helices to Hemihelices. PLoS ONE, 2014, 9, e93183.	1.1	57
71	Piezospectroscopic Analysis of Interface Debonding in Thermal Barrier Coatings. Journal of the American Ceramic Society, 2000, 83, 1165-1170.	1.9	56
72	Spontaneous and deterministic three-dimensional curling of pre-strained elastomeric bi-strips. Soft Matter, 2012, 8, 6291.	1.2	56

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73	Fabrication of thin, luminescent, single-crystal diamond membranes. Applied Physics Letters, 2011, 99, 081913.	1.5	53
74	Highly compliant transparent electrodes. Applied Physics Letters, 2012, 101, 061101.	1.5	53
75	Microstructural origin of current localization and â€œpunctureâ€™â€™ failure in varistor ceramics. Journal of Applied Physics, 1997, 81, 985-993.	1.1	51
76	Anisotropic Thermal Diffusivity and Conductivity of Laâ€Doped Strontium Niobate Sr₂Nb₂O₇. Journal of the American Ceramic Society, 2010, 93, 1136-1141.	1.9	48
77	The grain size and temperature dependence of the thermal conductivity of polycrystalline, tetragonal yttria-stabilized zirconia. Applied Physics Letters, 2011, 98, .	1.5	48
78	Effect of long term, high temperature aging on luminescence from Eu-doped YSZ thermal barrier coatings. Surface and Coatings Technology, 2006, 201, 3942-3946.	2.2	47
79	A Diffuse Interface Description of Intergranular Films in Polycrystalline Ceramics. Journal of the American Ceramic Society, 1999, 82, 1537-1546.	1.9	46
80	The Thermal Conductivity of Polymerâ€Derived Amorphous Siâ€“Oâ€“C Compounds and Nanoâ€Composites. Journal of the American Ceramic Society, 2016, 99, 281-285.	1.9	44
81	Electrically tunable window device. Optics Letters, 2016, 41, 1289.	1.7	44
82	Crossover in thermal transport properties of natural, perovskite-structured superlattices. Applied Physics Letters, 2009, 95, .	1.5	42
83	Low-temperature transformation kinetics of electron-beam deposited 5wt.% yttria-stabilized zirconia. Acta Materialia, 2007, 55, 2049-2055.	3.8	41
84	Effect of CMAS Infiltration on Radiative Transport Through an EBâ€PVD Thermal Barrier Coating. International Journal of Applied Ceramic Technology, 2008, 5, 278-288.	1.1	40
85	The use of Larsonâ€“Miller parameters to monitor the evolution of Raman lines of tetragonal zirconia with high temperature aging. Acta Materialia, 2011, 59, 1162-1167.	3.8	39
86	Tunable Multi-Modal Locomotion in Soft Dielectric Elastomer Robots. IEEE Robotics and Automation Letters, 2020, 5, 3868-3875.	3.3	39
87	Structural Relaxation around Substitutional Cr3+ Ions in Sapphire. Journal of the American Ceramic Society, 1996, 79, 3-11.	1.9	37
88	The effect of zirconia substitution on the high-temperature transformation of the monoclinic-prime phase in yttrium tantalate. Journal of the European Ceramic Society, 2018, 38, 3925-3931.	2.8	35
89	Neodymium zirconate (Nd2Zr2O7) transparent ceramics as a solid state laser material. Applied Physics Letters, 2011, 98, .	1.5	34
90	Relation between thermolectric properties and phase equilibria in the ZnOâ€“In2O3 binary system. Acta Materialia, 2014, 63, 191-201.	3.8	34

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91	Electricalâ€Impulseâ€Induced Fracture of Zinc Oxide Varistor Ceramics. Journal of the American Ceramic Society, 1997, 80, 2086-2092.	1.9	33
92	Calculation of the thermal conductivity of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mi>L</mml:mi><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml	1.1	33
93	<mml:mrow><mml:msub><mml:mrow /><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math>O<mml:math Thermal (Kapitza) resistance of interfaces in compositional dependent ZnO-In2O3 superlattices. Applied Physics Letters, 2013, 102, .	1.5	32
94	Crystallographic Texture and Thermal Conductivity of Zirconia Thermal Barrier Coatings Deposited on Different Substrates. Journal of the American Ceramic Society, 2001, 84, 1539-1544.	1.9	31
95	Noncontact Methods for Measuring Thermal Barrier Coating Temperatures. International Journal of Applied Ceramic Technology, 2006, 3, 105-112.	1.1	31
96	Magnetic Properties of Nickelâ€“Zinc Ferrite Toroids Prepared from Nanoparticles. Journal of the American Ceramic Society, 2007, 90, 3547-3553.	1.9	31
97	Effect of Yttrium and Erbium Ions on Epitaxial Phase Transformations in Alumina. Journal of the American Ceramic Society, 2003, 86, 541-45.	1.9	30
98	Temperature dependence of the yttria-stabilized zirconia Raman spectrum. Journal of Applied Physics, 2007, 101, 053524.	1.1	30
99	Voltage-controlled morphing of dielectric elastomer circular sheets into conical surfaces. Extreme Mechanics Letters, 2019, 30, 100504.	2.0	30
100	Effect of Codoping on the Râ€Line Luminescence of Cr³⁺â€Doped Alumina. Journal of the American Ceramic Society, 2002, 85, 1966-1970.	1.9	29
101	Characterization of Electron Beam Physical Vaporâ€Deposited Thermal Barrier Coatings Using Diffuse Optical Reflectance. International Journal of Applied Ceramic Technology, 2009, 6, 400-409.	1.1	29
102	On the Yttrium Tantalate â€“ Zirconia phase diagram. Journal of the European Ceramic Society, 2018, 38, 3317-3324.	2.8	29
103	On the initiation of cyclic oxidation-induced rumpling of platinum-modified nickel aluminide coatings. Acta Materialia, 2009, 57, 1717-1723.	3.8	28
104	Damage Evolution in Thermal Barrier Coatings with Thermal Cycling. Journal of the American Ceramic Society, 2011, 94, s112.	1.9	28
105	Deformation Bands in Ceria-Stabilized Tetragonal Zirconia/Alumina : II, Stress-Induced Aging at Room Temperature. Journal of the American Ceramic Society, 1995, 78, 641-644.	1.9	25
106	Ultraâ€Lightweight, High Power Density Lithiumâ€Ion Batteries. Batteries and Supercaps, 2018, 1, 131-134.	2.4	25
107	Programmed shape-morphing into complex target shapes using architected dielectric elastomer actuators. Science Advances, 2022, 8, .	4.7	25
108	Temperature-Dependent Optical Reflectivity of Tetragonal-Prime Yttria-Stabilized Zirconia. Journal of the American Ceramic Society, 2006, 89, 908-913.	1.9	23

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109	Effects of Reducing Atmosphere on the Luminescence of Eu³⁺â€Doped Yttriaâ€Stabilized Zirconia Sensor Layers in Thermal Barrier Coatings. Journal of the American Ceramic Society, 2009, 92, 125-129.	1.9	23
110	Diffusion of Water Species in Yttriaâ€Stabilized Zirconia. Journal of the American Ceramic Society, 2009, 92, 2731-2737.	1.9	22
111	Opportunities for minimizing radiative heat transfer in future thermal and environmental barrier coatings. Scripta Materialia, 2019, 173, 26-31.	2.6	22
112	Electrically-tunable surface deformation of a soft elastomer. Soft Matter, 2016, 12, 3137-3141.	1.2	21
113	Thermal Conductivity of the Rareâ€Earth Strontium Aluminates. Journal of the American Ceramic Society, 2010, 93, 1457-1460.	1.9	20
114	Enhanced n-type thermopower in distortion-free LiMn2O4. Journal of Materials Chemistry, 2012, 22, 4631.	6.7	15
115	Superconductivity and crystal structural origins of the metal-insulator transition in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Ba</mml:mi><mml:mrow><mml:mn>6</mml:mn mathvariant="normal">O</mml:mi><mml:mn>30</mml:mn></mml:msub></mml:mrow></mml:math>tetragonal tungsten bronzes. Physical Review B, 2015, 92, .	1.1	15
116	Photoswitchable Covalent Adaptive Networks Based on Thiolâ€“Ene Elastomers. ACS Applied Materials & Interfaces, 2022, 14, 4552-4561.	4.0	15
117	Piezoelectric Moduli of Piezoelectric Ceramics. Journal of the American Ceramic Society, 1996, 79, 2563-2566.	1.9	14
118	The use of polarization in the piezospectroscopic determination of the residual stresses in polycrystalline alumina films. Acta Materialia, 2006, 54, 5551-5557.	3.8	14
119	Resistance to Lowâ€Temperature Degradation of Equimolar YO_{1.5}â€“TaO_{2.5} Stabilized Tetragonal ZrO₂ Ceramics in Air. Journal of the American Ceramic Society, 2010, 93, 2024-2027.	1.9	13
120	Optical and vibrational properties of (ZnO)k In2O3 natural superlattice nanostructures. Journal of Applied Physics, 2016, 119, .	1.1	11
121	Electric-field induced surface instabilities of soft dielectrics and their effects on optical transmittance and scattering. Journal of Applied Physics, 2018, 123, .	1.1	11
122	Aqueous Epitaxial Growth of ZnO on Single Crystalline Au Microplates. Crystal Growth and Design, 2013, 13, 986-991.	1.4	10
123	Pattern formation in plastic liquid films on elastomers by ratcheting. Soft Matter, 2016, 12, 3820-3827.	1.2	10
124	Power generation performance of dielectric elastomer generator with laterally-constrained configuration. Smart Materials and Structures, 2020, 29, 015018.	1.8	10
125	Recent advances in piezospectroscopy. International Journal of Materials Research, 2007, 98, 756-762.	0.1	10
126	Composition-Size Effects in Nickelâ€“Zinc Ferrite Nanoparticles Prepared by Aqueous Coprecipitation. Journal of the American Ceramic Society, 2008, 91, 1253-1257.	1.9	9

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127	A numerical solution based parameter estimation method for flash thermal diffusivity measurements. Computational Materials Science, 2009, 45, 342-348.	1.4	9
128	Use of polarization in imaging the residual stresses in polycrystalline alumina films. Acta Materialia, 2007, 55, 3431-3436.	3.8	7
129	Vibration Damping of Thermal Barrier Coatings Containing Ductile Metallic Layers. Journal of Applied Mechanics, Transactions ASME, 2014, 81, .	1.1	7
130	Voltage-tunable elastomer composites that use shape instabilities for rapid structural color changes. Materials Horizons, 2022, 9, 1954-1961.	6.4	7
131	Effect of Residual Stress on the Luminescence Lifetime of R-Line Emission from Polycrystalline Alumina Formed by Oxidation. Journal of the American Ceramic Society, 2007, 90, 1798-1801.	1.9	6
132	Optical measurement of the thermal diffusivity of intact thermal barrier coatings. Journal of Applied Physics, 2008, 104, 113119.	1.1	6
133	Stress anisotropy of the R-line luminescence lifetime in single crystal Cr-doped sapphire (ruby). Journal of Applied Physics, 2007, 101, 093521.	1.1	5
134	Single layer In-O atomic sheets as phonon and electron barriers in ZnO-In2O3 natural superlattices: Implications for thermoelectricity. Journal of Applied Physics, 2018, 124, .	1.1	5
135	Architectural Glass. Annual Review of Materials Research, 2022, 52, 561-592.	4.3	3
136	Aqueous lateral epitaxy overgrowth of ZnO on (0001) GaN at 90Â°C. Thin Solid Films, 2010, 518, 6030-6035.	0.8	2
137	Confocal microscopy observations of electrical pre-breakdown of bi-layer elastomer dielectrics. Extreme Mechanics Letters, 2021, 49, 101473.	2.0	2
138	Turbine Materials and Mechanics. , 2014, , 495-553.		2
139	Characterization of Tetragonal-Monoclinic, Ferroelastic Transformation and Domain Boundaries in Zirconia-Alloyed Yttrium Tantalate. Microscopy and Microanalysis, 2014, 20, 1930-1931.	0.2	1
140	Imaging Spatial Variations in Resistance Along Interconnects. Materials Research Society Symposia Proceedings, 1998, 514, 139.	0.1	0
141	YMnO3-ZnO Thermoelectrics. Zeitschrift Fur Anorganische Und Allgemeine Chemie, 2012, 638, 1630-1630.	0.6	0
142	High temporal & spatial resolution imaging of catastrophic & soft breakdown in self-assembled nanodielectrics (SANDs) films. , 2017, , .		0