

Neil D Mathur

List of Publications by Year in descending order

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103
papers

17,029
citations

76196

40
h-index

34900

98
g-index

106
all docs

106
docs citations

106
times ranked

12642
citing authors

#	ARTICLE	IF	CITATIONS
1	Multiferroic and magnetoelectric materials. Nature, 2006, 442, 759-765.	13.7	7,032
2	Magnetically mediated superconductivity in heavy fermion compounds. Nature, 1998, 394, 39-43.	13.7	1,543
3	Giant Electrocaloric Effect in Thin-Film PbZr _{0.95} Ti _{0.05} O ₃ . Science, 2006, 311, 1270-1271.	6.0	1,424
4	Caloric materials near ferroic phase transitions. Nature Materials, 2014, 13, 439-450.	13.3	1,129
5	Giant sharp and persistent converse magnetoelectric effects in multiferroic epitaxial heterostructures. Nature Materials, 2007, 6, 348-351.	13.3	678
6	Large low-field magnetoresistance in La _{0.7} Ca _{0.3} MnO ₃ induced by artificial grain boundaries. Nature, 1997, 387, 266-268.	13.7	433
7	Giant Electrocaloric Strength in Single-Crystal BaTiO ₃ . Advanced Materials, 2013, 25, 1360-1365.	11.1	430
8	Giant and reversible extrinsic magnetocaloric effects in La _{0.7} Ca _{0.3} MnO ₃ films due to strain. Nature Materials, 2013, 12, 52-58.	13.3	226
9	Too cool to work. Nature Physics, 2015, 11, 202-205.	6.5	221
10	Investigation of the electrocaloric effect in a PbMg _{2/3} Nb _{1/3} O ₃ -PbTiO ₃ relaxor thin film. Applied Physics Letters, 2009, 95, .	1.5	194
11	Direct and indirect electrocaloric measurements using multilayer capacitors. Journal Physics D: Applied Physics, 2010, 43, 032002.	1.3	180
12	Large electrocaloric effects in oxide multilayer capacitors over a wide temperature range. Nature, 2019, 575, 468-472.	13.7	171
13	Giant barocaloric effects at low pressure in ferroelectric ammonium sulphate. Nature Communications, 2015, 6, 8801.	5.8	160
14	Caloric materials for cooling and heating. Science, 2020, 370, 797-803.	6.0	159
15	Defect-induced spin disorder and magnetoresistance in single-crystal and polycrystal rare-earth manganite thin films. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 1998, 356, 1593-1615.	1.6	152
16	Colossal barocaloric effects near room temperature in plastic crystals of neopentylglycol. Nature Communications, 2019, 10, 1803.	5.8	144
17	Magnetoresistance of artificial La _{0.7} Sr _{0.3} MnO ₃ grain boundaries as a function of misorientation angle. Applied Physics Letters, 1998, 72, 2038-2040.	1.5	126
18	The Electrocaloric Efficiency of Ceramic and Polymer Films. Advanced Materials, 2013, 25, 3337-3342.	11.1	123

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19	Negative magnetocaloric effect from highly sensitive metamagnetism in $\text{CoMnSi}_{1-x}\text{Ge}_x$. <i>Physical Review B</i> , 2006, 74, .	1.1	121
20	New developments in caloric materials for cooling applications. <i>AIP Advances</i> , 2015, 5, .	0.6	112
21	Non-volatile electrically-driven repeatable magnetization reversal with no applied magnetic field. <i>Nature Communications</i> , 2013, 4, 1453.	5.8	111
22	Predicted cooling powers for multilayer capacitors based on various electrocaloric and electrode materials. <i>Applied Physics Letters</i> , 2009, 95, .	1.5	105
23	Giant barocaloric effects over a wide temperature range in superionic conductor AgI . <i>Nature Communications</i> , 2017, 8, 1851.	5.8	95
24	Enhanced electrocaloric efficiency via energy recovery. <i>Nature Communications</i> , 2018, 9, 1827.	5.8	87
25	Reversible and irreversible colossal barocaloric effects in plastic crystals. <i>Journal of Materials Chemistry A</i> , 2020, 8, 639-647.	5.2	85
26	Growth of highly resistive BiMnO_3 films. <i>Applied Physics Letters</i> , 2005, 87, 101906.	1.5	80
27	Multicaloric materials and effects. <i>MRS Bulletin</i> , 2018, 43, 295-299.	1.7	76
28	Direct electrocaloric measurements of a multilayer capacitor using scanning thermal microscopy and infra-red imaging. <i>Applied Physics Letters</i> , 2013, 102, .	1.5	73
29	The Materials Science of Functional Oxide Thin Films. <i>Advanced Materials</i> , 2009, 21, 3827-3839.	11.1	66
30	Resistance of a domain wall in $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$. <i>Journal of Applied Physics</i> , 1999, 86, 6287-6290.	1.1	65
31	Perpendicular Local Magnetization Under Voltage Control in Ni Films on Ferroelectric BaTiO_3 Substrates. <i>Advanced Materials</i> , 2015, 27, 1460-1465.	11.1	64
32	Inverse barocaloric effects in ferroelectric BaTiO_3 ceramics. <i>APL Materials</i> , 2016, 4, .	2.2	64
33	Giant and Reversible Inverse Barocaloric Effects near Room Temperature in Ferromagnetic $\text{MnCoGeB}_{0.03}$. <i>Advanced Materials</i> , 2019, 31, e1903577.	11.1	60
34	Current-voltage characteristics and electrical transport properties of grain boundaries in $\text{La}_{1-x}(\text{Sr}/\text{Ca})_x\text{MnO}_3$. <i>Journal of Applied Physics</i> , 1999, 85, 7263-7266.	1.1	50
35	Large magnetoelectric coupling in multiferroic oxide heterostructures assembled via epitaxial lift-off. <i>Nature Communications</i> , 2020, 11, 3190.	5.8	48
36	Direct electrocaloric measurement of $0.9\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ - 0.1PbTiO_3 films using scanning thermal microscopy. <i>Applied Physics Letters</i> , 2016, 108, .	1.5	46

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37	Shear-strain-mediated magnetoelectric effects revealed by imaging. <i>Nature Materials</i> , 2019, 18, 840-845.	13.3	46
38	Mesoscale magnetism at the grain boundaries in colossal magnetoresistive films. <i>Physical Review B</i> , 2000, 63, .	1.1	45
39	Observation of a magnetic precursor behavior in $\text{PbSc}_{0.5}\text{Ta}_{0.5}\text{O}_3$. <i>Physical Review B</i> , 2000, 63, .	1.1	45
40	Evidence of high rate visible light photochemical decolourisation of Rhodamine B with BiFeO_3 nanoparticles associated with BiFeO_3 photocorrosion. <i>RSC Advances</i> , 2012, 2, 11843.	1.7	44
41	Magnetic anisotropy of thin film $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ on untwinned paramagnetic NdGaO_3 (001). <i>Journal of Applied Physics</i> , 2001, 89, 3388-3392.	1.1	40
42	Restoration of the third law in spin ice thin films. <i>Nature Communications</i> , 2014, 5, 3439.	5.8	40
43	Experimental difficulties and artefacts in multiferroic and magnetoelectric thin films of BiFeO_3 , $\text{Bi}_{0.6}\text{Tb}_{0.3}\text{La}_{0.1}\text{FeO}_3$ and BiMnO_3 . <i>Philosophical Magazine Letters</i> , 2007, 87, 249-257.	0.5	38
44	Long Spin Diffusion Length in Few-Layer Graphene Flakes. <i>Physical Review Letters</i> , 2016, 117, 147201.	2.9	37
45	Magnetically tuned mechanical resonances in magnetoelectric multilayer capacitors. <i>Applied Physics Letters</i> , 2009, 95, .	1.5	36
46	Progress on electrocaloric multilayer ceramic capacitor development. <i>APL Materials</i> , 2016, 4, .	2.2	35
47	Transmission electron microscopy and x-ray structural investigation of $\text{La}_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ thin films. <i>Journal of Materials Research</i> , 1998, 13, 2161-2169.	1.2	34
48	Coherent magnetic reversal in half-metallic manganite tunnel junctions. <i>Applied Physics Letters</i> , 2000, 77, 3803-3805.	1.5	33
49	Electrocaloric effects in multilayer capacitors for cooling applications. <i>MRS Bulletin</i> , 2018, 43, 291-294.	1.7	31
50	Equivalence of direct and converse magnetoelectric coefficients in strain-coupled two-phase systems. <i>Applied Physics Letters</i> , 2012, 100, .	1.5	30
51	Converse magnetoelectric coupling in multilayer capacitors. <i>Applied Physics Letters</i> , 2008, 93, .	1.5	28
52	Temperature dependent phenomena in $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ films studied by magnetic force microscopy. <i>Journal of Applied Physics</i> , 2000, 87, 6743-6745.	1.1	27
53	Nonlinear effects of current on transport in manganite films. <i>Physical Review B</i> , 2005, 71, .	1.1	27
54	Large linear anhysteretic magnetoelectric voltage coefficients in CoFe_2O_4 /polyvinylidene fluoride nanocomposites. <i>Journal of Nanoparticle Research</i> , 2013, 15, 1.	0.8	27

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55	Strain control of superlattice implies weak charge-lattice coupling in La _{0.5} Ca _{0.5} MnO ₃ . Physical Review B, 2006, 73, .	1.1	26
56	Giant non-volatile magnetoelectric effects via growth anisotropy in Co ₄₀ Fe ₄₀ B ₂₀ films on PMN-PT substrates. Applied Physics Letters, 2019, 114, .	1.5	26
57	Effect of inactive volume on thermocouple measurements of electrocaloric temperature change in multilayer capacitors of 0.9Pb(Mg _{1/3} Nb _{2/3})O ₃ ∼ 0.1PbTiO ₃ . Journal Physics D: Applied Physics, 2017, 50, 424002.	1.3	24
58	Voltage control of magnetic single domains in Ni discs on ferroelectric BaTiO ₃ . Journal Physics D: Applied Physics, 2018, 51, 224007.	1.3	23
59	Eliminating the Temperature Dependence of the Response of Magnetoelectric Magnetic-Field Sensors. IEEE Sensors Journal, 2010, 10, 914-917.	2.4	21
60	Magnetic domain structure and lattice distortions in manganite films under tensile strain. Journal of Applied Physics, 2003, 93, 8322-8324.	1.1	20
61	Single ferroelectric-domain photovoltaic switch based on lateral BiFeO ₃ cells. NPG Asia Materials, 2013, 5, e38-e38.	3.8	20
62	Not just a load of bolometers. Nature, 1997, 390, 229-231.	13.7	17
63	Low field magnetotransport in La _{0.7} Sr _{0.3} MnO ₃ films. Journal of Applied Physics, 1998, 83, 7157-7159.	1.1	17
64	Structural, Magnetic, and Electrical Properties of Bi _{1-x} La _x MnO ₃ (x = 0.0, 0.1, and 0.2) Solid Solutions. Chemistry of Materials, 2012, 24, 199-208.	3.2	17
65	Magnetic phases to order. Nature, 1999, 400, 405-406.	13.7	15
66	Very weak electron-phonon coupling and strong strain coupling in manganites. Physical Review B, 2008, 78, .	1.1	15
67	Magnetization reversal probed by spin-polarized tunneling. Applied Physics Letters, 2002, 80, 2722-2724.	1.5	13
68	Electrical transport between epitaxial manganites and carbon nanotubes. Applied Physics Letters, 2006, 88, 083120.	1.5	13
69	Translating reproducible phase-separated texture in manganites into reproducible two-state low-field magnetoresistance: An imaging and transport study. Physical Review B, 2008, 78, .	1.1	13
70	Magnetoresistive dynamics and noise in low-strain manganite films. Physical Review B, 2005, 71, .	1.1	12
71	Electrocaloric Materials for Cooling Applications. Ferroelectrics, 2012, 433, 107-110.	0.3	12
72	Elastic and anelastic relaxation behaviour of perovskite multiferroics II: PbZr _{0.53} Ti _{0.47} O ₃ (PZT) ∼ PbFe _{0.5} Ta _{0.5} O ₃ (PFT). Journal of Materials Science, 2017, 52, 285-304.	1.7	11

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73	Voltage-driven annihilation and creation of magnetic vortices in Ni discs. <i>Nanoscale</i> , 2020, 12, 5652-5657.	2.8	10
74	Role of disorder in phase coexistence in manganites: Noise in layered films. <i>Physical Review B</i> , 2005, 72, .	1.1	9
75	Ground state and constrained domain walls in Gd ³⁺ /Fe multilayers. <i>Journal of Applied Physics</i> , 2005, 97, 063904.	1.1	9
76	Magnetotransport of manganite superlattices: Investigating the role of a magnetic insulating spacer. <i>Applied Physics Letters</i> , 2008, 93, .	1.5	9
77	Turn your phonon. <i>Nature Materials</i> , 2017, 16, 784-785.	13.3	9
78	Spintronic investigation of the phase separated manganite (La,Ca)MnO ₃ . <i>Journal of Applied Physics</i> , 2006, 100, 023903.	1.1	8
79	Limited local electron-lattice coupling in manganites: An electron diffraction study. <i>Physical Review B</i> , 2008, 77, .	1.1	8
80	Magnetoelectric phenomena and devices. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2014, 372, 20120453.	1.6	8
81	Large electrocaloric effects in single-crystal ammonium sulfate. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2016, 374, 20150313.	1.6	8
82	Dependence on film thickness of grain boundary low-field magnetoresistance in thin films of La _{0.7} Ca _{0.3} MnO ₃ . <i>Journal of Applied Physics</i> , 2001, 89, 6970-6972.	1.1	7
83	Effect of ferromagnetic/antiferromagnetic interfaces on the magnetic properties of La ₂ ~ ³ Sr ₁ ~ ³ MnO ₃ ~ ³ Pr ₂ ~ ³ Ca ₁ ~ ³ MnO ₃ superlattices. <i>Journal of Applied Physics</i> , 2006, 99, 08C903.	1.1	6
84	Quasi-indirect measurement of electrocaloric temperature change in PbSc _{0.5} Ta _{0.5} O ₃ via comparison of adiabatic and isothermal electrical polarization data. <i>APL Materials</i> , 2021, 9, .	2.2	6
85	Voltage-driven displacement of magnetic vortex cores. <i>Journal Physics D: Applied Physics</i> , 2020, 53, 434003.	1.3	6
86	Preface to Special Topic: Caloric Materials. <i>APL Materials</i> , 2016, 4, .	2.2	5
87	Non-volatile voltage control of in-plane and out-of-plane magnetization in polycrystalline Ni films on ferroelectric PMN~ ³ PT (001)pc substrates. <i>Journal of Applied Physics</i> , 2021, 129, 154101.	1.1	5
88	Absence of spin scattering of in-plane spring domain walls. <i>Physical Review B</i> , 2005, 71, .	1.1	4
89	It's™s not about the mass. <i>Nature Energy</i> , 2020, 5, 941-942.	19.8	4
90	Double bond with a licence to chill. <i>Joule</i> , 2022, 6, 289-290.	11.7	3

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91	XPEEM and MFM Imaging of Ferroic Materials. <i>Advanced Electronic Materials</i> , 2022, 8, .	2.6	3
92	Magnetotransport and Interface Magnetism in Manganite Heterostructures: Implications for Spin Polarized Tunneling. <i>Materials Research Society Symposia Proceedings</i> , 1999, 602, 3.	0.1	2
93	Giant magnetic domain-wall resistance in phase-separated manganite films. <i>Applied Physics Letters</i> , 2010, 97, 253501.	1.5	2
94	Exploiting phase separation in monolithic La _{0.6} Ca _{0.4} MnO ₃ devices. <i>Applied Physics Letters</i> , 2013, 103, 062404.	1.5	2
95	Another brick in the wall. <i>Nature Physics</i> , 2006, 2, 307-308.	6.5	1
96	Advances in Ferroelectric and Multiferroic Materials. <i>Advanced Electronic Materials</i> , 2022, 8, .	2.6	1
97	A scanning tunneling microscopy and potentiometry study of epitaxial thin films of La _{0.7} Ca _{0.3} MnO ₃ . <i>Materials Research Society Symposia Proceedings</i> , 2002, 738, 7211.	0.1	0
98	Biaxial strain induced electrical inhomogenities and phase separation in the ferromagnetic metallic phase in thin films of La _{0.7} Ca _{0.3} MnO ₃ : A scanning tunneling potentiometry/spectroscopy study.. <i>Materials Research Society Symposia Proceedings</i> , 2004, 838, 145.	0.1	0
99	Schrödinger's mousetrap. <i>Nature</i> , 2005, 433, 363-363.	13.7	0
100	Don't mention the "F" word. <i>Nature</i> , 2005, 436, 440-440.	13.7	0
101	A New Approach to Interconversion of Thermal and Electrical Energy. , 2006, , .		0
102	Photodetection: Spatially Resolved Photodetection in Leaky Ferroelectric BiFeO ₃ (<i>Adv. Mater.</i> 10/2012). <i>Advanced Materials</i> , 2012, 24, OP48-OP48.	11.1	0
103	Taking the temperature of phase transitions in cool materials. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2016, 374, 20150314.	1.6	0