Olivier A Delaire

List of Publications by Year
in descending order

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97 papers	5,844 citations	101384 36 h-index	74018 75 g-index
103 all docs	103 docs citations	103 times ranked	7131 citing authors

#	Article	IF	Citations
1	Giant anharmonic phonon scattering in PbTe. Nature Materials, 2011, 10, 614-619.	13.3	561
2	Orbitally driven giant phonon anharmonicity inÂSnSe. Nature Physics, 2015, 11, 1063-1069.	6.5	539
3	Recent progresses on physics and applications of vanadium dioxide. Materials Today, 2018, 21, 875-896.	8.3	318
4	Anomalously low electronic thermal conductivity in metallic vanadium dioxide. Science, 2017, 355, 371-374.	6.0	307
5	Metallization of vanadium dioxide driven by large phonon entropy. Nature, 2014, 515, 535-539.	13.7	252
6	A practical field guide to thermoelectrics: Fundamentals, synthesis, and characterization. Applied Physics Reviews, 2018, 5, 021303.	5.5	223
7	Design and operation of the wide angular-range chopper spectrometer ARCS at the Spallation Neutron Source. Review of Scientific Instruments, 2012, 83, 015114.	0.6	210
8	Glass-like phonon scattering from a spontaneous nanostructure in AgSbTe2. Nature Nanotechnology, 2013, 8, 445-451.	15.6	161
9	Ultrafast disordering of vanadium dimers in photoexcited VO ₂. Science, 2018, 362, 572-576.	6.0	159
10	Tuning mobility and stability of lithium ion conductors based on lattice dynamics. Energy and Environmental Science, 2018, 11, 850-859.	15.6	158
11	Phonon Self-Energy and Origin of Anomalous Neutron Scattering Spectra in SnTe and PbTe Thermoelectrics. Physical Review Letters, 2014, 112, 175501.	2.9	125
12	Comparing the Descriptors for Investigating the Influence of Lattice Dynamics on Ionic Transport Using the Superionic Conductor Na₃PS_{4â€“x}Se_x. Journal of the American Chemical Society, 2018, 140, 14464-14473.	6.6	122
13	Microscopic mechanism of low thermal conductivity in lead telluride. Physical Review B, 2012, 85, .	1.1	115
14	Phonon localization drives polar nanoregions in a relaxor ferroelectric. Nature Communications, 2014, 5, 3683.	5.8	98
15	Phonons in aluminum at high temperatures studied by inelastic neutron scattering. Physical Review B, 2008, 77, .	1.1	96
16	Phonon softening and metallization of a narrow-gap semiconductor by thermal disorder. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 4725-4730.	3.3	96
17	Phonon anharmonicity and negative thermal expansion in SnSe. Physical Review B, 2016, 94, .	1.1	90
18	Phonon density of states and heat capacity of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>La</mml:mtext></mml:mrow><mml:mrow><mml:mn>3</mml:mn></mml:mr Physical Review B, 2009, 80, .	1.1	89

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19	Itinerant Antiferromagnetism in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>RuO</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math>. Physical Review Letters, 2017, 118, 077201.	2.9	89
20	Two-dimensional overdamped fluctuations of the soft perovskite lattice in CsPbBr3. Nature Materials, 2021, 20, 977-983.	13.3	89
21	Selective breakdown of phonon quasiparticles across superionic transition in CuCrSe2. Nature Physics, 2019, 15, 73-78.	6.5	88
22	Thermoelectric transport properties of CaMg<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>Bi<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>, EuMg<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mml:	1.1	75
23	Twisting phonons in complex crystals with quasi-one-dimensional substructures. Nature Communications, 2015, 6, 6723.	5.8	75
24	Anharmonic lattice dynamics and superionic transition in AgCrSe ₂. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 3930-3937.	3.3	73
25	Low-temperature heat capacity and localized vibrational modes in natural and synthetic tetrahedrites. Journal of Applied Physics, 2014, 115, 193515.	1.1	69
26	Neutron scattering measurements of phonons in nickel at elevated temperatures. Physical Review B, 2007, 75, .	1.1	66
27	Phonon Density of States of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>LaFeAsO</mml:mi><mml:mrow><mml:mn>1</mml:mn><mml:mo>â^’</mml:mo><mml:mi>x</mml:mi></mml:mrow></mml:msub><mml:msub><mml:mi mathvariant="normal">F</mml:mi><mml:mi>x</mml:mi></mml:msub></mml:math>. Physical Review Letters, 2008, 101, 157004.	2.9	65
28	Thermoelectric properties of Co-, Ir-, and Os-doped FeSi alloys: Evidence for strong electron-phonon coupling. Physical Review B, 2011, 83, .	1.1	64
29	Anharmonicity and atomic distribution of SnTe and PbTe thermoelectrics. Physical Review B, 2014, 90, .	1.1	64
30	Negative Entropy of Mixing for Vanadium-Platinum Solutions. Physical Review Letters, 2004, 93, 185704.	2.9	61
31	The origin of incipient ferroelectricity in lead telluride. Nature Communications, 2016, 7, 12291.	5.8	58
32	Soft anharmonic phonons and ultralow thermal conductivity in Mg ₃ (Sb, Bi) ₂ thermoelectrics. Science Advances, 2021, 7, .	4.7	52
33	Properties of single crystalline AZn2Sb2 (Aâ€‰=â€‰Ca,Eu,Yb). Journal of Applied Physics, 2012, 111, .	1.1	50
34	Structural phase transition and phonon instability in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Cu</mml:mi><mml:mn>12</mml:mn></mml:mrow><mml:mi mathvariant="normal">S</mml:mi><mml:mn>13</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2016, 93, .	1.1	48
35	Extended anharmonic collapse of phonon dispersions in SnS and SnSe. Nature Communications, 2020, 11, 4430.	5.8	46
36	Phase transition and anharmonicity in SnSe. Materials Today Physics, 2019, 10, 100093.	2.9	45

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37	Adiabatic Electron-Phonon Interaction and High-Temperature Thermodynamics of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>A</mml:mi><mml:mn>15</mml:mn></mml:math>Compounds. Physical Review Letters, 2008, 101, 105504.	2.9	39
38	Electron-phonon interactions and high-temperature thermodynamics of vanadium and its alloys. Physical Review B, 2008, 77, .	1.1	36
39	Fast Na diffusion and anharmonic phonon dynamics in superionic Na₃PS₄. Energy and Environmental Science, 2021, 14, 6554-6563.	15.6	36
40	Vibrational entropy of spinodal decomposition in FeCr. Physical Review B, 2005, 72, .	1.1	35
41	Positive Vibrational Entropy of Chemical Ordering in FeV. Physical Review Letters, 2011, 107, 115501.	2.9	35
42	No role for phonon entropy in thefccâ†'fccvolume collapse transition inCe0.9Th0.1at ambient pressure. Physical Review B, 2003, 67, .	1.1	34
43	Anharmonic Eigenvectors and Acoustic Phonon Disappearance in Quantum Paraelectric <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>SrTiO</mml:mi></mml:mrow><mml:mrow><mml:mn>3</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math>. Physical Review Letters, 2020, 124, 145901.	2.9	33
44	Observation of second-phase particles in bulk zirconium alloys using synchrotron radiation. Journal of Nuclear Materials, 2001, 294, 299-304.	1.3	32
45	Anharmonic phonons and magnons in BiFeO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>3</mml:mn></mml:msub></mml:math>. Physical Review B, 2012, 85, .	1.1	31
46	Heavy-impurity resonance, hybridization, and phonon spectral functions in<mml:math		

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55	Neutron and x-ray scattering study of phonon dispersion and diffuse scattering in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mrow><mml:mo>(</mml:mo><mml:mi>Na</mml:mi><mml:m mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub><mml:mtext>â^'</mml:mtext><mml:mi>x</mml:mi><mml:mi mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:mrow>. Physical Review B, 2017, 96, .	1.1	20
56	Effects of composition, temperature, and magnetism on phonons in bcc Fe-V alloys. Physical Review B, 2010, 82, .	1.1	19
57	Electron-phonon coupling and thermal transport in the thermoelectric compound<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Mo</mml:mi><mml:mn>3</mml:mn></m Physical Review B, 2015, 92, .	1.3	19
58	Lattice dynamics and thermal transport in multiferroic<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="bold">CuCrO</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math>. Physical Review B, 2017, 95, .	1.1	19
59	Temperature and pressure dependence of the Fe-specific phonon density of states in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mtext>Ba</mml:mtext><mml:msub><mml:mrow><mml:mrow><mml:mo>(</mml:mo><mml:mrow Physical Review B, 2010, 81, .	1.1	18
60	Vibrations of Micro-eV Energies in Nanocrystalline Microstructures. Physical Review Letters, 2004, 93, 205501.	2.9	15
61	Charge Redistribution and Phonon Entropy of Vanadium Alloys. Physical Review Letters, 2006, 97, 245701.	2.9	15
62	High Thermoelectric Performance of AgSb_{1â€"<i>x</i>}Pb_{<i>x</i>}Se₂ Prepared by Fast Nonequilibrium Synthesis. ACS Applied Materials & Interfaces, 2020, 12, 41333-41341.	4.0	15
63	A two-dimensional type I superionic conductor. Nature Materials, 2021, 20, 1683-1688.	13.3	15
64	Weak coupling of pseudoacoustic phonons and magnon dynamics in the incommensurate spin-ladder compound <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi mathvariant="normal">S</mml:mi><mml:msub><mml:mi mathvariant="normal">r</mml:mi><mml:mn>14</mml:mn></mml:msub><mml:mi mathvariant="normal">C</mml:mi><mml:msub><mml:mi mathvariant="normal">u</mml:mi><mml:mn>24</mml:mn></mml:msub><mml:msub><mml:mi mathvaria	1.1	14
65	Frustrated Magnetism in Mott Insulating <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mo stretchy="false">(</mml:mo><mml:msub><mml:mrow><mml:mi) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 342 Td (mathvariant= 2019, 9, .	2.8	14
66	Anisotropic Structural Collapse of Mg₃Sb₂ and Mg₃Bi₂ at High Pressure. Chemistry of Materials, 2021, 33, 567-573.	3.2	14
67	Vibrational entropy of the Î³â^'Î± martensitic transformation in Fe71Ni29. Philosophical Magazine, 2005, 85, 3567-3583.	0.7	13
68	Effects of chemical composition and B2 order on phonons in bcc Feâ€"Co alloys. Journal of Applied Physics, 2010, 108, .	1.1	13
69	Phonon scattering rates and atomic ordering in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Ag</mml:mi><mml:mrow><mml:mn>1</m		

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73	Observation of a Novel Lattice Instability in Ultrafast Photoexcited SnSe. Physical Review X, 2022, 12, .	2.8	10
74	Anisotropic magnon damping by zero-temperature quantum fluctuations in ferromagnetic CrGeTe3. Nature Communications, 2022, 13, .	5.8	10
75	Lattice dynamics of the hybrid improper ferroelectrics <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mrow><mml:mo>(</mml:mo><mml:mi>Ca</mml:mi><mml:mi mathvariant="normal">O</mml:mi><mml:mn>7</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2019, 100, .	1.1	9
76	Clathrate BaNi₂P₄: An Interplay of Heat and Charge Transport Due to Strong Hostâ€“Guest Interactions. Chemistry of Materials, 2020, 32, 7932-7940.	3.2	9
77	CHESS: The future direct geometry spectrometer at the second target station. Review of Scientific Instruments, 2022, 93, .	0.6	9
78	Controlling phonon lifetimes via sublattice disordering in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Ag</mml:mi><mml:mi>Bi</mml:mi><mml:msub><mml:m Physical Review Materials, 2020, 4, .	0.9	8
79	Effects of vacancies on phonon entropy of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>B</mml:mi><mml:mn>2</mml:mn></mml:mrow></mml:math>FeAl. Physical Review B, 2009, 80, .	1.1	7
80	Dynamically Tunable Terahertz Emission Enabled by Anomalous Optical Phonon Responses in Lead Telluride. ACS Photonics, 2021, 8, 3633-3640.	3.2	7
81	Solidlike to liquidlike behavior of Cu diffusion in superionic <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>Cu</mml:mi><mml:mn>2</mml:mn></mml: mathvariant="normal">X</mml:mi></mml:mrow></mml:math> <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mo>(</mml:mo><mml:mi>X</mml:mi><mml:mo>=</mml: : A. Physical Review Materials, 2022, 6, .	0.9	7
82	Observation of low temperature metastable states in complex CaMn₇O₁₂. Journal of Physics Condensed Matter, 2018, 30, 075801.	0.7	6
83	High-resolution phonon energy shift measurements with the inelastic neutron spin echo technique. Journal of Applied Crystallography, 2019, 52, 755-760.	1.9	6
84	Direct Detection of V-V Atom Dimerization and Rotation Dynamic Pathways upon Ultrafast Photoexcitation in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>VO</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml: Physical Review X, 2022, 12, .	2.8	6
85	Origins of large enhancement in electromechanical coupling for nonpolar directions in ferroelectric BaTiO3. Physical Review B, 2013, 88, .	1.1	5
86	Hierarchical domain structure of lead-free piezoelectric (Na1/2 Bi1/2)TiO3-(K1/2 Bi1/2)TiO3 single crystals. Journal of Applied Physics, 2016, 119, 174102.	1.1	5
87	Nonharmonic phonons in MgB2at elevated temperatures. Physical Review B, 2011, 83, .	1.1	4
88	Modeling non-harmonic behavior of materials from experimental inelastic neutron scattering and thermal expansion measurements. Journal of Physics Condensed Matter, 2016, 28, 385201.	0.7	4
89	Stoichiometric tuning of lattice flexibility and Na diffusion in NaAlSiO₄: quasielastic neutron scattering experiment and ab initio molecular dynamics simulations. Journal of Materials Chemistry A, 2021, 9, 16129-16136.	5.2	4
90	Nanoscale Structure in AgSbTe2 Determined by Diffuse Elastic Neutron Scattering. Journal of Electronic Materials, 2015, 44, 1536-1539.	1.0	3

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91	Complex optimization for big computational and experimental neutron datasets. Nanotechnology, 2016, 27, 484002.	1.3	3
92	Observation of photo-induced plasmonâ€“phonon coupling in PbTe via ultrafast x-ray scattering. Structural Dynamics, 2022, 9, 024301.	0.9	3
93	Studies of high-temperature electronâ€“phonon interactions withÂinelastic neutron scattering and first-principles computations. Applied Physics A: Materials Science and Processing, 2010, 99, 523-529.	1.1	2
94	Hierarchical optimization for neutron scattering problems. Journal of Computational Physics, 2016, 315, 39-51.	1.9	2
95	Orthorhombic to monoclinic phase transition in NbNiTe2. Physical Review B, 2019, 100, .	1.1	1
96	Integrating Advanced Materials Simulation Techniques into an Automated Data Analysis Workflow at the Spallation Neutron Source. , 2014, , 297-308.		1
97	The importance of high temperature electron-phonon coupling to the thermodynamic properties of Ce0.9Th0.1 and other f-electron bonded metals. Materials Research Society Symposia Proceedings, 2003, 802, 43.	0.1	0