

Andrea Cavalleri

List of Publications by Year in descending order

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133
papers

15,713
citations

19657

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15732

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136
all docs

136
docs citations

136
times ranked

9963
citing authors

#	ARTICLE	IF	CITATIONS
1	Femtosecond Structural Dynamics in VO ₂ during an Ultrafast Solid-Solid Phase Transition. Physical Review Letters, 2001, 87, 237401.	7.8	1,082
2	Light-Induced Superconductivity in a Stripe-Ordered Cuprate. Science, 2011, 331, 189-191.	12.6	883
3	Evidence for a structurally-driven insulator-to-metal transition in VO ₂ : A view from the ultrafast timescale. Physical Review B, 2004, 70, .	3.2	599
4	Possible light-induced superconductivity in K ₃ C ₆₀ at high temperature. Nature, 2016, 530, 461-464.	27.8	572
5	Femtosecond X-ray measurement of coherent lattice vibrations near the Lindemann stability limit. Nature, 2003, 422, 287-289.	27.8	566
6	Picosecond Ångström lattice dynamics measured by ultrafast X-ray diffraction. Nature, 1999, 398, 310-312.	27.8	531
7	Control of the electronic phase of a manganite by mode-selective vibrational excitation. Nature, 2007, 449, 72-74.	27.8	512
8	Transient States of Matter during Short Pulse Laser Ablation. Physical Review Letters, 1998, 81, 224-227.	7.8	511
9	Detection of Nonthermal Melting by Ultrafast X-ray Diffraction. Science, 1999, 286, 1340-1342.	12.6	506
10	Light-induced anomalous Hall effect in graphene. Nature Physics, 2020, 16, 38-41.	16.7	487
11	Snapshots of non-equilibrium Dirac carrier distributions in graphene. Nature Materials, 2013, 12, 1119-1124.	27.5	397
12	Nonlinear lattice dynamics as a basis for enhanced superconductivity in YBa ₂ Cu ₃ O _{6.5} . Nature, 2014, 516, 71-73.	27.8	391
13	Nonlinear phononics as an ultrafast route to lattice control. Nature Physics, 2011, 7, 854-856.	16.7	369
14	Optically enhanced coherent transport in YBa ₂ Cu ₃ O _{6.5} by ultrafast redistribution of interlayer coupling. Nature Materials, 2014, 13, 705-711.	27.5	333
15	Band-Selective Measurements of Electron Dynamics in VO ₂ Using Femtosecond Near-Edge X-Ray Absorption. Physical Review Letters, 2005, 95, 067405.	7.8	247
16	Femtosecond X-Ray Measurement of Ultrafast Melting and Large Acoustic Transients. Physical Review Letters, 2001, 87, 225701.	7.8	236
17	Optically induced coherent transport far above T_c in underdoped YBa ₂ Cu ₃ O _{6-x} . Physical Review B, 2014, 89, .	3.2	230
18	Metastable ferroelectricity in optically strained SrTiO ₃ . Science, 2019, 364, 1075-1079.	12.6	227

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19	Ultrafast single-shot diffraction imaging of nanoscale dynamics. Nature Photonics, 2008, 2, 415-419.	31.4	221
20	Transient photoinduced ϵ -hidden ϵ^{TM} phase in Mn^{2+} manganite. Nature Materials, 2011, 10, 101-105.	27.5	216
21	An effective magnetic field from optically driven A^{A} phonons. Nature Physics, 2017, 13, 132-136.	16.7	216
22	Enhanced Photosusceptibility near T_c for the Light-Induced Insulator-to-Metal Phase Transition in Vanadium Dioxide. Physical Review Letters, 2007, 99, 226401.	7.8	203
23	Femtosecond melting and ablation of semiconductors studied with time of flight mass spectroscopy. Journal of Applied Physics, 1999, 85, 3301-3309.	2.5	189
24	Clocking the Melting Transition of Charge and Lattice Order in TaS_2 with Ultrafast Extreme-Ultraviolet Angle-Resolved Photoemission Spectroscopy. Physical Review Letters, 2011, 107, 177402.	7.8	186
25	Nonlinear light-matter interaction at terahertz frequencies. Advances in Optics and Photonics, 2016, 8, 401.	25.5	183
26	Theory of nonlinear phononics for coherent light control of solids. Physical Review B, 2014, 89, .	3.2	178
27	Ultrafast Reversal of the Ferroelectric Polarization. Physical Review Letters, 2017, 118, 197601.	7.8	178
28	Photoinduced phase transition in VO_2 nanocrystals: ultrafast control of surface-plasmon resonance. Optics Letters, 2005, 30, 558.	3.3	175
29	Thermal and nonthermal melting of gallium arsenide after femtosecond laser excitation. Physical Review B, 1998, 58, R11805-R11808.	3.2	159
30	Cavity-Mediated Electron-Photon Superconductivity. Physical Review Letters, 2019, 122, 133602.	7.8	149
31	Coherent acoustic oscillations in metallic nanoparticles generated with femtosecond optical pulses. Physical Review B, 1997, 55, R13424-R13427.	3.2	144
32	Coherent orbital waves in the photo-induced insulator-metal dynamics of Mn^{2+} magnetoresistive manganite. Nature Materials, 2007, 6, 643-647.	27.5	139
33	Anharmonic Lattice Dynamics in Germanium Measured with Ultrafast X-Ray Diffraction. Physical Review Letters, 2000, 85, 586-589.	7.8	137
34	Quantum interference between charge excitation paths in a solid-state Mott insulator. Nature Physics, 2011, 7, 114-118.	16.7	134
35	Ultrafast Strain Engineering in Complex Oxide Heterostructures. Physical Review Letters, 2012, 108, 136801.	7.8	131
36	Driving magnetic order in a manganite by ultrafast lattice excitation. Physical Review B, 2011, 84, .	3.2	130

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37	Optical switching in VO2 films by below-gap excitation. Applied Physics Letters, 2008, 92, .	3.3	126
38	Microscopic theory for the light-induced anomalous Hall effect in graphene. Physical Review B, 2019, 99, .	3.2	117
39	Spatially resolved ultrafast magnetic dynamics initiated at a complex oxide heterointerface. Nature Materials, 2015, 14, 883-888.	27.5	109
40	Probing the interatomic potential of solids with strong-field nonlinear phononics. Nature, 2018, 555, 79-82.	27.8	105
41	Optically induced superconductivity in striped $\text{La}_{1-x}\text{Sr}_x\text{CuO}_2$ by polarization-selective excitation in the near infrared. Physical Review B, 2014, 90, .	7.2	102
42	Generation of narrowband, high-intensity, carrier-envelope phase-stable pulses tunable between 4 and 18 THz. Optics Letters, 2017, 42, 129.	3.3	99
43	Polarizing an antiferromagnet by optical engineering of the crystal field. Nature Physics, 2020, 16, 937-941.	16.7	99
44	Photo-induced superconductivity. Contemporary Physics, 2018, 59, 31-46.	1.8	95
45	Tracking the motion of charges in a terahertz light field by femtosecond X-ray diffraction. Nature, 2006, 442, 664-666.	27.8	94
46	Non-equilibrium control of complex solids by nonlinear phononics. Reports on Progress in Physics, 2016, 79, 064503.	20.1	92
47	Single-shot detection and direct control of carrier phase drift of midinfrared pulses. Optics Letters, 2010, 35, 757.	3.3	90
48	Photoinduced Melting of Antiferromagnetic Order in $\text{La}_{0.5}\text{Sr}_{0.5}\text{CuO}_2$ Using Ultrafast Resonant Soft X-Ray Diffraction. Physical Review Letters, 2011, 106, 217401.	7.8	89
49	Bi-directional ultrafast electric-field gating of interlayer charge transport in a cuprate superconductor. Nature Photonics, 2011, 5, 485-488.	31.4	89
50	Ultrafast Electronic Phase Transition in LaCuO_3 : Coherent Vibrational Excitation: Evidence for Nonthermal Melting of Orbital Order. Physical Review Letters, 2008, 101, 197404.	7.8	85
51	Engineering crystal structures with light. Nature Physics, 2021, 17, 1087-1092.	16.7	85
52	Optical excitation of Josephson plasma solitons in a cuprate superconductor. Nature Materials, 2013, 12, 535-541.	27.5	82
53	Melting of Charge Stripes in Vibrationally Driven $\text{La}_{1.875}\text{Sr}_{0.125}\text{CuO}_4$: Assessing the Respective Roles of Electronic a. Physical Review Letters, 2014, 112, 157002.	7.8	82
54	Evidence for metastable photo-induced superconductivity in K3C60. Nature Physics, 2021, 17, 611-618.	16.7	80

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55	Probing dynamics in quantum materials with femtosecond X-rays. Nature Reviews Materials, 2018, 3, 299-311.	48.7	78
56	Pressure tuning of light-induced superconductivity in K3C60. Nature Physics, 2018, 14, 837-841.	16.7	78
57	Quantum Electrodynamic Control of Matter: Cavity-Enhanced Ferroelectric Phase Transition. Physical Review X, 2020, 10, .	8.9	72
58	THz-Frequency Modulation of the Hubbard U in an Organic Mott Insulator. Physical Review Letters, 2015, 115, 187401.	7.8	69
59	Proposed Parametric Cooling of Bilayer Cuprate Superconductors by Terahertz Excitation. Physical Review Letters, 2015, 114, 137001.	7.8	67
60	Strongly correlated electron-photon systems. Nature, 2022, 606, 41-48.	27.8	66
61	Probing optically silent superfluid stripes in cuprates. Science, 2018, 359, 575-579.	12.6	65
62	Parametric amplification of a superconducting plasma wave. Nature Physics, 2016, 12, 1012-1016.	16.7	59
63	Photomolecular High-Temperature Superconductivity. Physical Review X, 2020, 10, .	8.9	59
64	Pressure-Dependent Relaxation in the Photoexcited Mott Insulator ET \hat{c} μ ν F ν 2 ν T ν $TCNQ$. Physical Review Letters, 2014, 112, 117801.	7.8	58
65	Mode-Selective Control of the Crystal Lattice. Accounts of Chemical Research, 2015, 48, 380-387.	15.6	58
66	Ultrafast insulator-to-metal phase transition as a switch to measure the spectrogram of a supercontinuum light pulse. Applied Physics Letters, 2010, 96, .	3.3	55
67	Femtosecond laser ablation of gallium arsenide investigated with time-of-flight mass spectroscopy. Applied Physics Letters, 1998, 72, 2385-2387.	3.3	50
68	Parametric amplification of optical phonons. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12148-12151.	7.1	50
69	Theory of Enhanced Interlayer Tunneling in Optically Driven High- T_c Superconductors. Physical Review Letters, 2016, 117, 227001.	7.8	49
70	Coherent single-cycle pulses with MV/cm field strengths from a relativistic transition radiation light source. Optics Letters, 2011, 36, 4473.	3.3	48
71	Displacive lattice excitation through nonlinear phononics viewed by femtosecond X-ray diffraction. Solid State Communications, 2013, 169, 24-27.	1.9	48
72	Ultra-Broadband Femtosecond Measurements of the Photo-Induced Phase Transition in VO ₂ : From the Mid-IR to the Hard X-rays. Journal of the Physical Society of Japan, 2006, 75, 011004.	1.6	47

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73	Enhancement of superexchange pairing in the periodically driven Hubbard model. Physical Review B, 2017, 96, .	3.2	47
74	Femtosecond x rays link melting of charge-density wave correlations and light-enhanced coherent transport in YBaCuO . Physical Review B, 2017, 96, .	3.2	46
75	Enhanced electron-phonon coupling in graphene with periodically distorted lattice. Physical Review B, 2017, 95, .	3.2	45
76	Enhanced electron-phonon coupling in graphene with periodically distorted lattice. Physical Review B, 2017, 95, .	3.2	45
77	Designing and controlling the properties of transition metal oxide quantum materials. Nature Materials, 2021, 20, 1462-1468.	27.5	42
78	Wavelength-dependent optical enhancement of superconducting interlayer coupling in YBaCuO . Physical Review B, 2017, 96, .	3.2	41
79	Optical Properties of a Vibrationally Modulated Solid State Mott Insulator. Scientific Reports, 2014, 4, 3823.	3.3	40
80	Population inversion in monolayer and bilayer graphene. Journal of Physics Condensed Matter, 2015, 27, 164204.	1.8	40
81	Pump Frequency Resonances for Light-Induced Incipient Superconductivity in YBaCuO . Physical Review X, 2020, 10, .	3.3	38
82	Photoinduced Electron Pairing in a Driven Cavity. Physical Review Letters, 2020, 125, 053602.	7.8	37
83	Floquet dynamics in light-driven solids. Physical Review Research, 2020, 2, .	3.6	33
84	Possible observation of parametrically amplified coherent phasons in KMoO_3 . Physical Review B, 2013, 88, .	3.2	32
85	Redistribution of phase fluctuations in a periodically driven cuprate superconductor. Physical Review B, 2015, 91, .	3.2	30
86	Two distinct kinetic regimes for the relaxation of light-induced superconductivity in KMoO_3 . Physical Review B, 2013, 88, .	3.2	30
87	Josephson plasmonics in layered superconductors. Advances in Physics: X, 2016, 1, 387-411.	4.1	30
88	Generation and application of ultrashort X-ray pulses. Laser and Particle Beams, 2001, 19, 15-22.	1.0	29
89	Phonon-Pump Extreme-Ultraviolet-Photoemission Probe in Graphene: Anomalous Heating of Dirac Carriers by Lattice Deformation. Physical Review Letters, 2015, 114, 125503.	7.8	29
90	Dynamical Order and Superconductivity in a Frustrated Many-Body System. Physical Review Letters, 2020, 125, 137001.	7.8	29

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91	Non-equilibrium Dirac carrier dynamics in graphene investigated with time- and angle-resolved photoemission spectroscopy. Faraday Discussions, 2014, 171, 311-321.	3.2	26
92	Parametric resonance of Josephson plasma waves: A theory for optically amplified interlayer superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$. Physical Review B, 2020, 102, .	3.2	26
93	Optically induced lattice deformations, electronic structure changes, and enhanced superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{6.48}$. Structural Dynamics, 2017, 4, 044007.	2.3	25
94	Restoring interlayer Josephson coupling in $\text{La}_{1-x}\text{Sr}_x\text{CuO}_2$ charge transfer melting of stripe order. Physical Review B, 2016, 93, .	2.4	1.885
95	Nonlocal nonlinear phononics. Nature Physics, 2022, 18, 457-461.	16.7	24
96	Dynamical decoherence of the light induced interlayer coupling in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$. Physical Review B, 2020, 102, .	3.2	21
97	Transiently enhanced interlayer tunneling in optically driven high- T_c superconductors. Physical Review B, 2017, 96, .	2.1	21
98	Multiple Supersonic Phase Fronts Launched at a Complex-Oxide Heterointerface. Physical Review Letters, 2017, 118, 027401.	7.8	21
99	Magnetic-Field Tuning of Light-Induced Superconductivity in Striped $\text{La}_{1-x}\text{Sr}_x\text{CuO}_2$. Physical Review Letters, 2018, 121, 267003.	7.8	21
100	Single-pulse time- and fluence-resolved optical measurements at femtosecond excited surfaces. Applied Physics A: Materials Science and Processing, 1999, 69, 577-579.	2.3	20
101	All at Once. Science, 2007, 318, 755-756.	12.6	20
102	Evolution of three-dimensional correlations during the photoinduced melting of antiferromagnetic order in $\text{La}_{0.5}\text{Sr}_{0.5}\text{CuO}_2$. Physical Review B, 2009, 80, .	3.2	19
103	Transient electronic structure of the photoinduced phase of MnO with soft x-ray pulses. Physical Review B, 2009, 80, .	3.2	18.7
104	Dynamical Stability Limit for the Charge Density Wave in $\text{Pr}_{0.3}\text{Ca}_{0.7}\text{MnO}_3$. Physical Review Letters, 2017, 118, 116402.	7.8	18
105	Higgs-Mediated Optical Amplification in a Nonequilibrium Superconductor. Physical Review X, 2021, 11, .	8.9	18
106	Generation of the low-density liquid phase of carbon by non-thermal melting of fullerite. Europhysics Letters, 2002, 57, 281-287.	2.0	16
107	Proposed cavity Josephson plasmonics with complex-oxide heterostructures. Physical Review B, 2016, 93, .	3.2	16
108	Narrowband carrier-envelope phase stable mid-infrared pulses at wavelengths beyond $10\frac{1}{4}\mu\text{m}$ by chirped-pulse difference frequency generation. Optics Letters, 2017, 42, 663.	3.3	15

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109	Pulse shaping in the mid-infrared by a deformable mirror. <i>Optics Letters</i> , 2014, 39, 1485.	3.3	14
110	Anomalous relaxation kinetics and charge-density-wave correlations in underdoped BaPb _{1-x} Bi _x O ₃ . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 9020-9025.	7.1	14
111	Terahertz field control of interlayer transport modes in cuprate superconductors. <i>Physical Review B</i> , 2017, 96, .	3.2	13
112	Phase Diagram for Light-Induced Superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$. <i>Physical Review X</i> , 2022, 12, .	7.8	13
113	MATERIALS SCIENCE: Creating Transient Crystal Structures with Light. <i>Science</i> , 2003, 300, 591-592.	12.6	11
114	Measuring non-equilibrium dynamics in complex solids with ultrashort X-ray pulses. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2019, 377, 20170478.	3.4	11
115	Amplification of Superconducting Fluctuations in Driven $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$. <i>Physical Review X</i> , 2022, 12, .	7.8	11
116	Generalized Fresnel-Floquet equations for driven quantum materials. <i>Physical Review B</i> , 2022, 105, .	3.2	9
117	Optical melting of the transverse Josephson plasmon: A comparison between bilayer and trilayer cuprates. <i>Physical Review B</i> , 2017, 95, .	3.2	8
118	Double vision. <i>Nature</i> , 2007, 448, 651-652.	27.8	7
119	Melted in a flash. <i>Nature</i> , 2009, 458, 42-43.	27.8	6
120	Hybrid CO ₂ -Ti:sapphire laser with tunable pulse duration for mid-infrared-pump terahertz-probe spectroscopy. <i>Optics Express</i> , 2021, 29, 3575.	3.4	4
121	Terahertz phase slips in striped $\text{LaO}_4\text{Cu}_2\text{O}_7$. <i>Physical Review B</i> , 2022, 105, .	3.2	4
122	Synthesis of carbon nano- and meso-structures by laser-induced coalescence of fullerenes. <i>Carbon</i> , 1998, 36, 495-497.	10.3	3
123	Femtosecond X-ray Studies of Photo-induced Structural Phase Transitions. <i>Phase Transitions</i> , 2002, 75, 769-777.	1.3	3
124	Self organized growth and ultrafast electron dynamics of metallic nanoparticles. <i>Thin Solid Films</i> , 1998, 318, 73-75.	1.8	2
125	Disorder at the border. <i>Science</i> , 2018, 362, 525-526.	12.6	2
126	Trace phase detection and strain characterization from serial X-ray free-electron laser crystallography of a Pr _{0.5} Ca _{0.5} MnO ₃ powder. <i>Powder Diffraction</i> , 2015, 30, S25-S30.	0.2	1

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127	Tuning Metastable Light-Induced Superconductivity in K3C60 with a Hybrid CO2-Ti:Sapphire Laser. , 2021, , .		1
128	Relativistic generation and characterization of ultrafast X-rays for time-resolved diffraction and spectroscopy. , 0, , .		0
129	Propagation of picosecond acoustic pulses in semiconductor heterostructures probed by ultrafast X-ray diffraction. , 0, , .		0
130	Relativistic generation and characterization of ultrafast X-rays for time-resolved diffraction and spectroscopy. , 0, , .		0
131	Time resolved conductivity dynamics in vanadium dioxide. , 2006, , .		0
132	Terahertz Josephson plasma solitons in high-Tc superconductors. , 2013, , .		0
133	TeraHertz Josephson Plasmonics: Controlling Supercurrents in Cuprates. , 2019, , .		0