Thomas Baumert

List of Publications by Year
in descending order

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146 papers	7,636 citations	50276 46 h-index	74163 75 g-index
156 all docs	156 docs citations	156 times ranked	3585 citing authors

#	Article	IF	Citations
1	Control of Chemical Reactions by Feedback-Optimized Phase-Shaped Femtosecond Laser Pulses. , 1998, 282, 919-922.		1,482
2	Femtosecond pulse shaping by an evolutionary algorithm with feedback. Applied Physics B: Lasers and Optics, 1997, 65, 779-782.	2.2	305
3	Femtosecond time-resolved molecular multiphoton ionization: TheNa2system. Physical Review Letters, 1991, 67, 3753-3756.	7.8	250
4	Quantum Control by Ultrafast Polarization Shaping. Physical Review Letters, 2004, 92, 208301.	7.8	244
5	Circular Dichroism in the Photoelectron Angular Distributions of Camphor and Fenchone from Multiphoton Ionization with Femtosecond Laser Pulses. Angewandte Chemie - International Edition, 2012, 51, 5001-5005.	13.8	218
6	FEMTOSECOND LASER PHOTOELECTRON SPECTROSCOPY ON ATOMS AND SMALL MOLECULES: Prototype Studies in Quantum Control. Annual Review of Physical Chemistry, 2005, 56, 25-56.	10.8	195
7	Control of ionization processes in high band gap materials via tailored femtosecond pulses. Optics Express, 2007, 15, 17855.	3.4	166
8	Femtosecond pumpâ€"probe study of the spreading and recurrence of a vibrational wave packet in Na2. Chemical Physics Letters, 1992, 191, 639-644.	2.6	143
9	Femtosecond pump-probe photoelectron spectroscopy: Mapping of vibrational wave-packet motion. Physical Review A, 1996, 54, R4605-R4608.	2.5	136
10	Femtosecond laser-induced-breakdown spectrometry for Ca2+ analysis of biological samples with high spatial resolution. Applied Physics B: Lasers and Optics, 2003, 77, 391-397.	2.2	129
11	High laser field effects in multiphoton ionization of Na2. Experiment and quantum calculations. Chemical Physics Letters, 1992, 200, 488-494.	2.6	127
12	Interferences of Ultrashort Free Electron Wave Packets. Physical Review Letters, 2002, 89, 173001.	7.8	124
13	Coherent control by a single phase shaped femtosecond laser pulse. Chemical Physics Letters, 1996, 259, 488-494.	2.6	123
14	Femtosecond realâ€time probing of reactions. XI. The elementary OClO fragmentation. Journal of Chemical Physics, 1993, 99, 4430-4440.	3.0	114
15	Femtosecond strong-field quantum control with sinusoidally phase-modulated pulses. Physical Review A, 2006, 73, .	2.5	111
16	Femtosecond time-resolved wave packet motion in molecular multiphoton ionization and fragmentation. The Journal of Physical Chemistry, 1991, 95, 8103-8110.	2.9	108
17	The ultrafast photodissociation of Fe(CO)5 in the gas phase. Journal of Chemical Physics, 1998, 108, 5799-5811.	3.0	97
18	Three-dimensional tomographic reconstruction ofÂultrashort freeÂelectron wave packets. Applied Physics B: Lasers and Optics, 2009, 95, 647-651.	2.2	89

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19	Phase control of a two-photon transition with shaped femtosecond laser-pulse sequences. Physical Review A, 2004, 70, .	2.5	86
20	Photoelectron Circular Dichroism of Bicyclic Ketones from Multiphoton Ionization with Femtosecond Laser Pulses. ChemPhysChem, 2015, 16, 115-137.	2.1	84
21	Femtosecond spectroscopy of molecular autoionization and fragmentation. Physical Review Letters, 1990, 64, 733-736.	7.8	83
22	Zeptosecond precision pulse shaping. Optics Express, 2011, 19, 11638.	3.4	83
23	Femtosecond two-photon ionization spectroscopy of the B state of Na3 clusters. Chemical Physics Letters, 1993, 209, 29-34.	2.6	81
24	Compact, robust, and flexible setup for femtosecond pulse shaping. Review of Scientific Instruments, 2003, 74, 4950-4953.	1.3	81
25	Adaptive control of molecular alignment. Physical Review A, 2006, 73, .	2.5	81
26	Control of interferences in an Autler-Townes doublet: Symmetry of control parameters. Physical Review A, 2003, 68, .	2.5	80
27	Fundamental Interactions of Molecules (Na₂, Na₃) with Intense Femtosecond Laser Pulses. Israel Journal of Chemistry, 1994, 34, 103-114.	2.3	76
28	Coherent strong-field control of multiple states by a single chirped femtosecond laser pulse. New Journal of Physics, 2009, 11, 105051.	2.9	75
29	Quantum control by selective population of dressed states using intense chirped femtosecond laser pulses. Applied Physics B: Lasers and Optics, 2006, 82, 183-188.	2.2	74
30	Material processing of dielectrics with temporally asymmetric shaped femtosecond laser pulses on the nanometer scale. Applied Physics A: Materials Science and Processing, 2008, 92, 749-753.	2.3	73
31	Ultrafast laser control of electron dynamics in atoms, molecules and solids. Faraday Discussions, 2011, 153, 9.	3.2	73
32	Femtosecond photodissociation dynamics of Fe(CO)5 in the gas phase. Chemical Physics Letters, 1997, 267, 141-148.	2.6	70
33	Enantiomeric Excess Sensitivity to Below One Percent by Using Femtosecond Photoelectron Circular Dichroism. ChemPhysChem, 2016, 17, 1119-1122.	2.1	69
34	Photoelectron Circular Dichroism with Two Overlapping Laser Pulses of Carrier Frequencies <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>Ï‰</mml:mi></mml:math> and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mn>2</mml:mn><mml:mi>Ï‰</mml:mi></mml:math> Linearly Polarized in Two Mutually Orthogonal Directions. Physical Review Letters, 2018, 121, 253201.	7.8	68
35	Photoelectron angular distributions from strong-field coherent electronic excitation. Applied Physics B: Lasers and Optics, 2009, 95, 245-259.	2.2	67
36	Strong field quantum control by selective population of dressed states. Journal of Optics B: Quantum and Semiclassical Optics, 2005, 7, S270-S276.	1.4	63

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37	Femtosecond Spectroscopy of Molecules and Clusters11Work has been performed at the University of Freiburg, Germany.. Advances in Atomic, Molecular and Optical Physics, 1995, 35, 163-208.	2.3	59
38	Real-time observation of transient electron density in water irradiated with tailored femtosecond laser pulses. New Journal of Physics, 2012, 14, 075021.	2.9	59
39	Femtosecond probing of sodium cluster ionNan+fragmentation. Physical Review Letters, 1992, 69, 1512-1515.	7.8	57
40	Spatio-temporal resolution studies on a highly compact ultrafast electron diffractometer. New Journal of Physics, 2015, 17, 043050.	2.9	56
41	Quantum control and quantum control landscapes using intense shaped femtosecond pulses. Journal of Modern Optics, 2005, 52, 2187-2195.	1.3	54
42	Diode-laser-seeded optical parametric oscillator for airborne water vapor DIAL application in the upper troposphere and lower stratosphere. Applied Physics B: Lasers and Optics, 1998, 67, 427-431.	2.2	53
43	Quantum control by ultrafast dressed states tailoring. Chemical Physics Letters, 2006, 419, 184-190.	2.6	53
44	Emission signal enhancement of laser ablation of metals (aluminum and titanium) by time delayed femtosecond double pulses from femtoseconds to nanoseconds. Applied Surface Science, 2014, 302, 291-298.	6.1	53
45	Mapping molecular dynamics (Na2) in intense laser fields: another dimension to femtochemistry. Chemical Physics Letters, 1999, 312, 447-454.	2.6	52
46	Robust Photon Locking. Physical Review Letters, 2009, 102, 023004.	7.8	50
47	Plasma dynamics of water breakdown at a water surface induced by femtosecond laser pulses. Applied Physics Letters, 2006, 88, 261109.	3.3	49
48	Femtosecond Laser Pulses: Linear Properties, Manipulation, Generation and Measurement. , 2007, , 937-983.		49
49	Strong-field control landscapes of coherent electronic excitation. Journal of Physics B: Atomic, Molecular and Optical Physics, 2008, 41, 074007.	1.5	47
50	Temporal Airy pulses for controlled high aspect ratio nanomachining of dielectrics. Optica, 2016, 3, 389.	9.3	46
51	Intermediate state dependence of the photoelectron circular dichroism of fenchone observed via femtosecond resonance-enhanced multi-photon ionization. Journal of Chemical Physics, 2017, 147, 013926.	3.0	44
52	Femtosecond time-resolved molecular multiphoton ionization and fragmentation of Na2: experiment and quantum mechanical calculations. Zeitschrift FÃ¼r Physik D-Atoms Molecules and Clusters, 1993, 28, 37-47.	1.0	42
53	Femtosecond real-time probing of reactions. 12. Vectorial dynamics of transition states. The Journal of Physical Chemistry, 1993, 97, 12447-12459.	2.9	41
54	Nanofabrication of Tailored Surface Structures in Dielectrics Using Temporally Shaped Femtosecond-Laser Pulses. ACS Applied Materials & Interfaces, 2015, 7, 6613-6619.	8.0	41

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55	Ultrafast strong field quantum control on K2 dimers. Journal of Photochemistry and Photobiology A: Chemistry, 2006, 180, 248-255.	3.9	40
56	Complete Photoionization Experiments via Ultrafast Coherent Control with Polarization Multiplexing. Physical Review Letters, 2014, 112, 223001.	7.8	39
57	Photofragmentation ofNa2+in Intense Femtosecond Laser Fields: From Photodissociation on Light-Induced Potentials to Field Ionization. Physical Review Letters, 2001, 86, 5695-5698.	7.8	37
58	Three-state selective population of dressed states via generalized spectral phase-step modulation. Physical Review A, 2010, 81, .	2.5	37
59	Femtosecond pumpâ€“probe photoelectron spectroscopy on Na2: a tool to study basic coherent control schemes. Applied Physics B: Lasers and Optics, 2000, 71, 259-266.	2.2	36
60	Laser amplification in excited dielectrics. Nature Physics, 2018, 14, 74-79.	16.7	36
61	Time-resolved studies of neutral and ionized Nan clusters with femtosecond light pulses. Zeitschrift FÃ¼r Physik D-Atoms Molecules and Clusters, 1993, 26, 131-134.	1.0	34
62	Efficient and robust strong-field control of population transfer in sensitizer dyes with designed femtosecond laser pulses. Physical Chemistry Chemical Physics, 2011, 13, 8733.	2.8	33
63	Charge Oscillation Controlled Molecular Excitation. Physical Review Letters, 2013, 110, 123003.	7.8	33
64	Tomographic Reconstruction of Designer Freeâ€Electron Wave Packets. ChemPhysChem, 2013, 14, 1341-1349.	2.1	32
65	Photoelectron circular dichroism observed in the above-threshold ionization signal from chiral molecules with femtosecond laser pulses. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 02LT01.	1.5	30
66	Improved renormalization of lattice operators: A critical reappraisal. European Physical Journal C, 1998, 4, 145-171.	3.9	29
67	Femtosecond transition state dynamics of cis -stilbene. Applied Physics B: Lasers and Optics, 2001, 72, 105-108.	2.2	29
68	Coherent Control With Femtosecond Laser Pulses. Advances in Chemical Physics, 2007, , 47-82.	0.3	28
69	Femtosecond spectroscopy of the (2)1? u + double minimum state of Na2: time domain and frequency spectroscopy. Zeitschrift FÃ¼r Physik D-Atoms Molecules and Clusters, 1996, 36, 265-271.	1.0	26
70	Probing spatial properties of electronic excitation in water after interaction with temporally shaped femtosecond laser pulses: Experiments and simulations. Applied Surface Science, 2016, 374, 235-242.	6.1	26
71	Use of femtosecond laser-induced breakdown spectroscopy (fs-LIBS) for micro-crack analysis on the surface. Engineering Fracture Mechanics, 2010, 77, 1874-1883.	4.3	25
72	Femtosecond real-time probing of reactions. 13. Multiphoton dynamics of mercury iodide (IHgI). The Journal of Physical Chemistry, 1993, 97, 12460-12465.	2.9	24

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73	Molecules in intense femtosecond laser fields. Physica Scripta, 1997, T72, 53-68.	2.5	24
74	Theoretical analysis of femtosecond excitation and fragmentation dynamics of Fe(CO)5. Chemical Physics Letters, 2000, 316, 585-592.	2.6	24
75	Pulse shaping control of alignment dynamics in N2. Journal of Raman Spectroscopy, 2007, 38, 543-550.	2.5	24
76	Coherent Control. Journal of Physics B: Atomic, Molecular and Optical Physics, 2008, 41, 070201.	1.5	24
77	Morphology of nanoscale structures on fused silica surfaces from interaction with temporally tailored femtosecond pulses. Journal of Laser Applications, 2012, 24, 042002.	1.7	24
78	Changes of the electronic structure along the internuclear coordinate studied by ultrafast photoelectron spectroscopy: the 21Î£u+ Na2 double-minimum state. Chemical Physics Letters, 2003, 376, 457-464.	2.6	23
79	High-resolution resonance-enhanced multiphoton photoelectron circular dichroism. Physical Chemistry Chemical Physics, 2020, 22, 7404-7411.	2.8	22
80	Femtosecond time-resolved observation of above-threshold ionization inNa2. Physical Review A, 1997, 55, 1899-1902.	2.5	21
81	Filling a spectral hole via self-phase modulation. Applied Physics Letters, 2005, 87, 121113.	3.3	19
82	Parallel generation of nanochannels in fused silica with a single femtosecond laser pulse: Exploiting the optical near fields of triangular nanoparticles. Applied Physics Letters, 2009, 95, 063101.	3.3	18
83	Control of Ionization Processes in High Band Gap Materials. Journal of Laser Micro Nanoengineering, 2009, 4, 144-151.	0.1	18
84	Tuning nanopatterns on fused silica substrates: a theoretical and experimental approach. Journal of Materials Chemistry, 2011, 21, 4076.	6.7	17
85	Strong Differential Photoion Circular Dichroism in Strong-Field Ionization of Chiral Molecules. Physical Review Letters, 2021, 126, 083201.	7.8	17
86	Temporal Pulse Tailoring in Ultrafast Laser Manufacturing Technologies. Springer Series in Materials Science, 2010, , 121-144.	0.6	17
87	Optimal Control of Atomic, Molecular and Electron Dynamics with Tailored Femtosecond Laser Pulses. , 2005, , 225-266.		16
88	Observation of Photoelectron Circular Dichroism Using a Nanosecond Laser. ChemPhysChem, 2019, 20, 1416-1419.	2.1	16
89	Coherent matter waves for ultrafast laser pulse characterization. Optics Communications, 2006, 264, 285-292.	2.1	15
90	Coupled electron-nuclear wavepacket dynamics in potassium dimers. Journal of Physics B: Atomic, Molecular and Optical Physics, 2014, 47, 124015.	1.5	15

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91	Local deformation at microâ€notches and crack initiation in an intermetallic Î³â€TiAlâ€alloy. Fatigue and Fracture of Engineering Materials and Structures, 2016, 39, 227-237.	3.4	14
92	Maximum-information photoelectron metrology. Physical Review A, 2015, 92, .	2.5	13
93	Modelling of ultrafast coherent strong-field dynamics in potassium with neural networks. Journal of Physics B: Atomic, Molecular and Optical Physics, 2008, 41, 074019.	1.5	12
94	Temporal femtosecond pulse tailoring for nanoscale laser processing of wide-bandgap materials. Proceedings of SPIE, 2010, , .	0.8	12
95	Temporal Airy pulses control cell poration. APL Photonics, 2016, 1, 046102.	5.7	12
96	Detecting chirality in mixtures using nanosecond photoelectron circular dichroism. Physical Chemistry Chemical Physics, 2022, 24, 2758-2761.	2.8	12
97	One-parameter control of quantum dynamics using femtosecond pump-probe photoelectron spectroscopy on a model system. Applied Physics B: Lasers and Optics, 2002, 74, s121-s125.	2.2	11
98	Coherent Control of Colloidal Semiconductor Nanocrystals. Journal of Physical Chemistry C, 2013, 117, 11780-11790.	3.1	11
99	Microstructuring of soft organic matter by temporally shaped femtosecond laser pulses. Applied Surface Science, 2014, 302, 231-235.	6.1	10
100	Coherent control of photoelectron wavepacket angular interferograms. Journal of Physics B: Atomic, Molecular and Optical Physics, 2015, 48, 214004.	1.5	10
101	Ultrafast and Efficient Control of Coherent Electron Dynamics via SPODS. Advances in Chemical Physics, 0, , 235-282.	0.3	10
102	Use of Femtosecond Laser Technique for Studying Physically Small Cracks. International Journal of Fracture, 2006, 139, 561-568.	2.2	9
103	Complete photoionization experiments via ultrafast coherent control with polarization multiplexing. II. Numerics and analysis methodologies. Physical Review A, 2015, 92, .	2.5	9
104	Live cells assessment of opto-poration by a single femtosecond temporal Airy laser pulse. AIP Advances, 2018, 8, 125105.	1.3	9
105	Unveiling nonlinear regimes of light amplification in fused silica with femtosecond imaging spectroscopy. Physical Review Research, 2020, 2, .	3.6	9
106	Complete analysis of a transmission electron diffraction pattern of a MoS2â€“graphite heterostructure. Ultramicroscopy, 2016, 166, 9-15.	1.9	8
107	Chiral photoelectron angular distributions from ionization of achiral atomic and molecular species. Physical Review Research, 2020, 2, .	3.6	8
108	Control of Ultrafast Electron Dynamics with Shaped Femtosecond Laser Pulses: From Atoms to Solids. Springer Series on Atomic, Optical, and Plasma Physics, 2016, , 63-122.	0.2	7

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109	Coherent control of electrons, atoms and molecules with intense shaped light pulses. Journal of Physics: Conference Series, 2007, 88, 012053.	0.4	6
110	Short and Ultrashort Laser Pulses. , 2012, , 1047-1094.		6
111	Self-referencing circular dichroism ion yield measurements for improved statistics using femtosecond laser pulses. Review of Scientific Instruments, 2021, 92, 033001.	1.3	6
112	Simultaneous observation of transient and final state dynamics in ultrafast strong-field excitation via time-resolved photoelectron spectroscopy. Journal of Modern Optics, 2017, 64, 1042-1053.	1.3	5
113	Local near field assisted ablation of fused silica. Applied Physics A: Materials Science and Processing, 2013, 110, 743-749.	2.3	4
114	Laser interaction with materials: introduction. Applied Optics, 2014, 53, LIM1.	2.1	4
115	Micronotches for studying growth of small cracks. Fatigue and Fracture of Engineering Materials and Structures, 2015, 38, 673-680.	3.4	4
116	The Interplay of Nuclear and Electron Wavepacket Motion in the Control of Molecular Processes: A Theoretical Perspective. Physical Chemistry in Action, 2014, , 213-248.	0.6	3
117	Automated Coherent Control of Chemical Reactions and Pulse Compression by an Evolutionary Algorithm with Feedback. Springer Series in Chemical Physics, 1998, , 471-473.	0.2	3
118	Electron generation in laser-irradiated insulators: theoretical descriptions and their application. , 2008, , .		2
119	Wave packets get a kick. Nature Physics, 2011, 7, 373-374.	16.7	2
120	Efficient attosecond control of electron dynamics in molecules. EPJ Web of Conferences, 2013, 41, 02026.	0.3	2
121	Modelling, design and fabrication of dielectric photonic crystal structures using temporally asymmetric shaped femtosecond laser pulses. , 2014, , .		2
122	Molecular ATI and ATD with Femtosecond Laser Pulses. Springer Series in Chemical Physics, 1996, , 270-271.	0.2	2
123	Femtosecond Pulse Tailoring For Nanoscale Laser Processing Of Wide-Bandgap Materials: Temporal Asymmetric Pulses Versus Frequency Sweeps. , 2010, , .		1
124	Temporally shaped femtosecond laser pulses as direct patterning method for dielectric materials in nanophotonic applications. , 2014, , .		1
125	Photoelectron Circular Dichroism of Bicyclic Ketones from Multiphoton Ionization with Femtosecond Laser Pulses. ChemPhysChem, 2015, 16, 7-7.	2.1	1
126	2D Strong-Field Spectroscopy to Elucidate Impulsive and Adiabatic Ultrafast Electronic Control Schemes in Molecules. , 2021, , 79-112.		1

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127	Ultrafast Switching of Coherent Electronic Excitation: Great Promise for Reaction Control on the Femtosecond Time Scale. Springer Proceedings in Physics, 2009, , 327-335.	0.2	1
128	Femtosecond Dynamics of Molecular and Cluster Ionization and Fragmentation. Springer Series in Chemical Physics, 1993, , 83-86.	0.2	1
129	Principles of femtosecond pulse tailoring for advanced material processing. , 2009, , .		0
130	Nanoscale morphology resulting from interaction of temporally tailored femtosecond pulses with fused silica. , 2012, , .		0
131	Titelbild: Zirkulardichroismus in den Photoelektronen-Winkelverteilungen von Campher und Fenchon aus der Multiphotonenionisation mit Femtosekunden-Laserpulsen (Angew. Chem. 20/2012). Angewandte Chemie, 2012, 124, 4837-4837.	2.0	0
132	The influence of nuclear motion on the electron dynamics in an efficient sub-cycle control of the molecule K2. , 2013, , .		0
133	Laser interaction with materials: introduction. Journal of the Optical Society of America B: Optical Physics, 2014, 31, LIM1.	2.1	0
134	3. Temporally shaped femtosecond laser pulses for creation of functional sub-100nm structures in dielectrics. , 2015, , 47-72.		0
135	Temporal Airy Pulses: High Aspect Ratio Nanomachining of Dielectrics, Cell Poration and Light Amplification in Excited Dielectrics. , 2019, , .		0
136	Quantum control beyond spectral interference and population control: Can resonant intense laser pulses freeze the population?. , 2004, , 139-142.		0
137	Adaptive polarization control of molecular dynamics. Springer Series in Chemical Physics, 2005, , 864-866.	0.2	0
138	Quantum Control by Ultrafast Dressed State Tailoring. , 2006, , .		0
139	Pulse shaping control of spatially aligned rotational wavepackets of N2 and O2. , 2006, , 510-513.		0
140	Tailored Femtosecond Pulses for Nanoscale Laser Processing of Dielectrics. Springer Series in Chemical Physics, 2009, , 976-978.	0.2	0
141	Photodissociation of Na2 + in intense femtosecond laser fields. Springer Series in Chemical Physics, 1998, , 453-455.	0.2	0
142	Ultrafast Photodissociation Dynamics of Isolated Ironpentacarbonyl. , 1998, , 311-317.		0
143	Material Processing of Dielectrics via Temporally Shaped Femtosecond Laser Pulses as Direct Patterning Method for Nanophotonic Applications. NATO Science for Peace and Security Series A: Chemistry and Biology, 2015, , 29-34.	0.5	0
144	Cell Poration of Fixed and Live Cells by Phase Shaped Femtosecond Pulses. NATO Science for Peace and Security Series B: Physics and Biophysics, 2018, , 399-400.	0.3	0

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145	Revealing regimes of nonlinear light amplification in dielectrics. , 2020, , .		0
146	Unveiling nonlinear light amplification in dielectrics. , 2020, , .		0