

# Guillaume Duchateau

## List of Publications by Year in descending order

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102  
papers

1,427  
citations

304743

22  
h-index

377865

34  
g-index

102  
all docs

102  
docs citations

102  
times ranked

896  
citing authors

#	ARTICLE	IF	CITATIONS
1	Improved laser glass cutting by spatio-temporal control of energy deposition using bursts of femtosecond pulses. Optics Express, 2017, 25, 33271.	3.4	77
2	Coulomb-Volkov approach of ionization by extreme-ultraviolet laser pulses in the subfemtosecond regime. Physical Review A, 2002, 66, .	2.5	70
3	Strong nonlinear growth of energy coupling during laser irradiation of transparent dielectrics and its significance for laser induced damage. Journal of Applied Physics, 2012, 111, .	2.5	54
4	Simple models for laser-induced damage and conditioning of potassium dihydrogen phosphate crystals by nanosecond pulses. Optics Express, 2009, 17, 10434.	3.4	53
5	Coulomb-Volkov approach of atom ionization by intense and ultrashort laser pulses. Physical Review A, 2001, 63, .	2.5	52
6	Laser-induced damage of KDP crystals by 11% nanosecond pulses: influence of crystal orientation. Optics Express, 2009, 17, 21652.	3.4	50
7	Coupling statistics and heat transfer to study laser-induced crystal damage by nanosecond pulses. Optics Express, 2007, 15, 4557.	3.4	49
8	Scaling laws in laser-induced potassium dihydrogen phosphate crystal damage by nanosecond pulses at 31%. Journal of the Optical Society of America B: Optical Physics, 2008, 25, 1087.	2.1	41
9	Coupled hydrodynamic model for laser-plasma interaction and hot electron generation. Physical Review E, 2015, 92, 041101.	2.1	41
10	On the femtosecond laser-induced photochemistry in silver-containing oxide glasses: mechanisms, related optical and physico-chemical properties, and technological applications. Advanced Optical Technologies, 2018, 7, 291-309.	1.7	41
11	Experimental Investigation of the Collective Raman Scattering of Multiple Laser Beams in Inhomogeneous Plasmas. Physical Review Letters, 2016, 117, 235002.	7.8	38
12	Ionization dynamics in interactions of atoms with ultra-short and intense laser pulses. Journal of Physics B: Atomic, Molecular and Optical Physics, 2000, 33, L571-L576.	1.5	37
13	Origin of the damage ring pattern in fused silica induced by multiple longitudinal modes laser pulses. Applied Physics Letters, 2014, 104, 021121.	3.3	36
14	A simple non-perturbative approach of atom ionisation by intense and ultra-short laser pulses. European Physical Journal D, 2000, 11, 191-196.	1.3	33
15	$\frac{1}{2} \rho \frac{d^2 x}{dt^2} + \gamma \frac{dx}{dt} + kx = F_0 \cos(\omega t)$	3.2	33
16	Multi-wavelength study of nanosecond laser-induced bulk damage morphology in KDP crystals. Applied Physics A: Materials Science and Processing, 2015, 119, 1317-1326.	2.3	30
17	Towards modeling of nonlinear laser-plasma interactions with hydrocodes: The thick-ray approach. Physical Review E, 2014, 89, 033101.	2.1	28
18	Femtosecond laser pulse train interaction with dielectric materials. Applied Physics Letters, 2015, 107, .	3.3	28

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19	Modeling of the cross-beam energy transfer with realistic inertial-confinement-fusion beams in a large-scale hydrocode. <i>Physical Review E</i> , 2015, 91, 013102.	2.1	27
20	A KDP equation of state for laser-induced damage applications. <i>Journal of Applied Physics</i> , 2011, 109, .	2.5	25
21	Filamentation of ultrashort laser pulses in silica glass and KDP crystals: A comparative study. <i>Physical Review A</i> , 2014, 90, .	2.5	25
22	Time-dependent ionization models designed for intense and short laser pulse propagation in dielectric materials. <i>Physical Review E</i> , 2012, 85, 056403.	2.1	24
23	Transient material properties during defect-assisted laser breakdown in deuterated potassium dihydrogen phosphate crystals. <i>Journal of Applied Physics</i> , 2014, 115, 103506.	2.5	22
24	Crossed beam energy transfer: Assessment of the paraxial complex geometrical optics approach versus a time-dependent paraxial method to describe experimental results. <i>Physics of Plasmas</i> , 2016, 23, .	1.9	20
25	Influence of laser induced hot electrons on the threshold for shock ignition of fusion reactions. <i>Physics of Plasmas</i> , 2016, 23, .	1.9	20
26	Modeling of cluster organization in metal-doped oxide glasses irradiated by a train of femtosecond laser pulses. <i>Physical Review A</i> , 2016, 93, .	2.5	20
27	Structural Slow Waves: Parallels between Photonic Crystals and Plasmonic Waveguides. <i>ACS Photonics</i> , 2019, 6, 4-17.	6.6	20
28	Pump-pump experiment in KH <sub>2</sub> PO <sub>4</sub> crystals: Coupling two different wavelengths to identify the laser-induced damage mechanisms in the nanosecond regime. <i>Applied Physics Letters</i> , 2010, 96, .	3.3	19
29	Investigations on laser damage growth in fused silica with simultaneous wavelength irradiation. <i>Applied Optics</i> , 2015, 54, 1463.	1.8	18
30	Modeling the solid-to-plasma transition for laser imprinting in direct-drive inertial confinement fusion. <i>Physical Review E</i> , 2019, 100, 033201.	2.1	18
31	Competition between ultraviolet and infrared nanosecond laser pulses during the optical breakdown of KH <sub>2</sub> PO <sub>4</sub> crystals. <i>Applied Physics B: Lasers and Optics</i> , 2012, 109, 695-706.	2.2	17
32	The role of hot electrons in the dynamics of a laser-driven strong converging shock. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	17
33	Direct-drive measurements of laser-imprint-induced shock velocity nonuniformities. <i>Physical Review E</i> , 2019, 99, 063208.	2.1	15
34	Thermo-elasto-plastic simulations of femtosecond laser-induced structural modifications: Application to cavity formation in fused silica. <i>Journal of Applied Physics</i> , 2017, 122, .	2.5	15
35	Interaction of intense femtosecond laser pulses with KDP and DKDP crystals in the short wavelength regime. <i>Journal of Physics Condensed Matter</i> , 2013, 25, 435501.	1.8	14
36	Influence of the time-dependent pulse spectrum on ionization and laser propagation in nonlinear optical materials. <i>Physical Review A</i> , 2014, 89, .	2.5	14

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37	Model for nanosecond laser induced damage in potassium titanyl phosphate crystals. Applied Physics Letters, 2011, 99, 231111.	3.3	12
38	A model for multiphoton absorption in dielectric materials induced by short laser pulses at moderate intensities. Journal of Physics Condensed Matter, 2013, 25, 235501.	1.8	12
39	Catastrophic nanosecond laser induced damage in the bulk of potassium titanyl phosphate crystals. Journal of Applied Physics, 2014, 115, 243102.	2.5	12
40	Ionization of alkali-metal atoms by ultrashort laser pulses. Physical Review A, 2001, 65, .	2.5	11
41	Transmission measurements in rapid growth KDP and DKDP crystals. Journal of Modern Optics, 2009, 56, 27-31.	1.3	11
42	Numerical studies of dielectric material modifications by a femtosecond Bessel-Gauss laser beam. Applied Physics A: Materials Science and Processing, 2021, 127, 1.	2.3	11
43	Effects of burst mode on transparent materials processing. , 2015, , .		10
44	Experimental investigation of the collective stimulated Brillouin and Raman scattering of multiple laser beams in inertial confinement fusion experiments. Plasma Physics and Controlled Fusion, 2020, 62, 014024.	2.1	10
45	Influence of non-collisional laser heating on the electron dynamics in dielectric materials. Journal Physics D: Applied Physics, 2016, 49, 485103.	2.8	9
46	Laser writing of nonlinear optical properties in silver-doped phosphate glass. Optics Letters, 2017, 42, 1688.	3.3	9
47	Thermo-elasto-plastic simulations of femtosecond laser-induced multiple-cavity in fused silica. Applied Physics A: Materials Science and Processing, 2018, 124, 1.	2.3	9
48	Optical Bloch modeling of femtosecond-laser-induced electron dynamics in dielectrics. Physical Review E, 2020, 101, 063206.	2.1	9
49	Revisited thermal approach to model laser-induced damage and conditioning process in KH <sub>2</sub> PO <sub>4</sub> and D <sub>2</sub> x KH <sub>2</sub> (1-x)PO <sub>4</sub> crystals. , 2006, , .		8
50	Enhanced photoemission from laser-excited plasmonic nano-objects in periodic arrays. Journal of Physics Condensed Matter, 2016, 28, 315301.	1.8	8
51	Fused silica ablation by double femtosecond laser pulses: influence of polarization state. Optics Express, 2020, 28, 15189.	3.4	8
52	Toward a better understanding of multi-wavelength effects on KDP crystals. , 2009, , .		7
53	Influence of electron Coulomb explosion on photoelectron spectra of dielectrics irradiated by femtosecond laser pulses. Laser Physics, 2014, 24, 086101.	1.2	7
54	Quantum-classical model for the surface plasmon enhanced photoemission process at metal surfaces. Physical Review B, 2014, 89, .	3.2	7

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55	Physics of laser-plasma interaction for shock ignition of fusion reactions. Plasma Physics and Controlled Fusion, 2016, 58, 014018.	2.1	7
56	Evidence of noncollisional femtosecond laser energy deposition in dielectric materials. Physical Review B, 2020, 102, .	3.2	7
57	Strong nonlinear electron multiplication without impact ionization in dielectric nanoparticles embedded in optical materials. Physics of Plasmas, 2013, 20, 022306.	1.9	6
58	Ultrafast changes in optical properties of SiO <sub>2</sub> excited by femtosecond laser at the damage threshold and above. Physical Review B, 2018, 98, .	3.2	6
59	Modeling the time-dependent electron dynamics in dielectric materials induced by two-color femtosecond laser pulses: Applications to material modifications. Physical Review A, 2021, 103, .	2.5	6
60	Modeling laser conditioning of KDP crystals. , 2009, , .		5
61	Modeling of laser-induced damage in KDP crystals by nanosecond pulses : a preliminary hydrodynamic study. Proceedings of SPIE, 2010, , .	0.8	5
62	Maxwell-consistent, symmetry- and energy-preserving solutions for ultrashort-laser-pulse propagation beyond the paraxial approximation. Physical Review A, 2018, 98, .	2.5	5
63	Modeling the electron collision frequency during solid-to-plasma transition of polystyrene ablator for direct-drive inertial confinement fusion applications. Physics of Plasmas, 2020, 27, .	1.9	5
64	Coulomb-Volkov approaches to atom ionization by short electromagnetic pulses. Journal of Modern Optics, 2003, 50, 331-341.	1.3	5
65	Ultrashort laser induced spatial redistribution of silver species and nano-patterning of etching selectivity in silver-containing glasses. Optics Express, 2019, 27, 13675.	3.4	5
66	Electron dynamics in $\hat{\Gamma}_{\pm}$ -quartz induced by two-color 10-femtosecond laser pulses. Physical Review B, 2022, 105, .	3.2	5
67	Modeling of laser ponderomotive self-focusing in plasma within the paraxial complex geometrical optics approach. Plasma Physics and Controlled Fusion, 2019, 61, 115009.	2.1	4
68	Implementing a microphysics model in hydrodynamic simulations to study the initial plasma formation in dielectric ablator materials for direct-drive implosions. Physical Review E, 2020, 101, 063202.	2.1	4
69	Comparison of ns and sub-ns laser conditioning of KDP and DKDP crystals for high power lasers. , 2007, 6720, 532.		3
70	Dynamics of laser-induced defects by multiple femtosecond pulses in potassium dihydrogen phosphate crystals. Journal of the Optical Society of America B: Optical Physics, 2018, 35, 1119.	2.1	3
71	Theoretical derivation of laser-dressed atomic states by using a fractal space. European Physical Journal Plus, 2018, 133, 1.	2.6	3
72	Improved modeling of the solid-to-plasma transition of polystyrene ablator for laser direct-drive inertial confinement fusion hydrocodes. Physical Review E, 2021, 104, 015210.	2.1	3

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73	Fused silica ablation by double femtosecond laser pulses with variable delays. , 2019, , .		3
74	Coulombâ€™Volkov approaches to atom ionization by short electromagnetic pulses. Journal of Modern Optics, 2003, 50, 331-341.	1.3	2
75	Identification of the laser-induced damage mechanisms in KDP by coupling 355nm and 1064nm nanosecond pulses. Proceedings of SPIE, 2010, , .	0.8	2
76	Effect of strain on laser damage and its relation with precursor defects in KDP/DKDP. , 2011, , .		2
77	Laser-matter structuration of optical and biological materials. Applied Surface Science, 2012, 258, 9263-9269.	6.1	2
78	Laser-induced damage morphology in fused silica at 1064 nm in the nanosecond regime. Proceedings of SPIE, 2014, , .	0.8	2
79	Modeling the material properties at the onset of damage initiation in bulk potassium dihydrogen phosphate crystals. Proceedings of SPIE, 2014, , .	0.8	2
80	Modeling of energy transfer between two crossing smoothed laser beams in a plasma with flow profile. Journal of Physics: Conference Series, 2016, 717, 012096.	0.4	2
81	Spectral broadening effects on metal photoemission by femtosecond laser pulses. Physical Review A, 2019, 99, .	2.5	2
82	Self-focusing of a spatially modulated beam within the paraxial complex geometrical optics framework in low-density plasmas. Plasma Physics and Controlled Fusion, 2021, 63, 125019.	2.1	2
83	KDP crystal orientation influence on the nanosecond laser-induced damage at 1064nm. , 2010, , .		1
84	355 nm and 1064 nm-pulse mixing to identify the laser-induced damage mechanisms in KDP. Proceedings of SPIE, 2011, , .	0.8	1
85	On the cooperativeness of nanosecond-laser induced damage during frequency doubling of 1064 nm light in KTiOPO 4. , 2011, , .		1
86	Self-laser conditioning of KDP and DKDP crystals. , 2011, , .		1
87	General model for nanosecond-laser induced damage in KTiOPO4crystals. , 2013, , .		1
88	Femtosecond laser cutting of glass by controlled fracture propagation. , 2015, , .		1
89	Laser glass cutting by spatio-temporal control of energy deposition using bursts of femtosecond pulses. , 2017, , .		1
90	Theoretical study of spatiotemporal focusing for in-bulk laser structuring of dielectric. Journal of the Optical Society of America B: Optical Physics, 0, , .	2.1	1

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91	Control of hourglass modes in prisms with pentagons or hexagons as bases. Finite Elements in Analysis and Design, 2006, 42, 1199-1210.	3.2	0
92	A model of laser-induced damage of KDP based on the coupling of statistics and heat transfer. Proceedings of SPIE, 2007, 6720, 71.	0.8	0
93	A simple approach for modeling multiphoton absorption in dielectric materials. , 2011, , .		0
94	Thermal Approaches to Interpret Laser Damage Experiments. , 2011, , .		0
95	Carrier dynamics in KDP and DKDP crystals illuminated by intense femtosecond laser pulses. Proceedings of SPIE, 2011, , .	0.8	0
96	Cesar, a pulsed power generator, used to study the dynamic behavior of KDP crystal. , 2012, , .		0
97	Interaction of short and intense laser pulses with dielectric materials: from absorption to ablation. MATEC Web of Conferences, 2013, 8, 02005.	0.2	0
98	Surface Plasmon stimulated photoemission process at metal gratings : Theory and Experiments. Journal of Physics: Conference Series, 2015, 635, 102001.	0.4	0
99	Modeling Femtosecond Laser-Induced Electron Dynamics in Dielectrics by Means of Optical Bloch Equations. , 2019, , .		0
100	Simple Models for Laser-Induced Damage of KH <sub>2</sub> PO <sub>4</sub> Crystals by Nanosecond Pulses. , 2008, , .		0
101	Potassium titanil phosphate at its limits: A study on nanosecond laser induced damage. , 2013, , .		0
102	Control of nonlinear processes using versatile random photonic sources: Application to the energy deposition in a dielectric material. Physical Review A, 2022, 105, .	2.5	0