Martin E Garcia

List of Publications by Year
in descending order

88 papers	2,363 citations	236612 25 h-index	223531 46 g-index
89 all docs	89 docs citations	89 times ranked	2258 citing authors

#	Article	IF	Citations
1	Modelling ultrafast laser ablation. Journal Physics D: Applied Physics, 2017, 50, 193001.	1.3	331
2	Theory for the Ultrafast Ablation of Graphite Films. Physical Review Letters, 2001, 87, 015003.	2.9	170
3	Nanoscale Depth-Resolved Coherent Femtosecond Motion in Laser-Excited Bismuth. Physical Review Letters, 2008, 100, 155501.	2.9	136
4	Microscopic analysis of the laser-induced femtosecond graphitization of diamond. Physical Review B, 1999, 60, R3701-R3704.	1.1	93
5	Properties of Liquid Silicon Observed by Time-Resolved X-Ray Absorption Spectroscopy. Physical Review Letters, 2003, 91, 157403.	2.9	83
6	Short laser pulse nanostructuring of metals: direct comparison of molecular dynamics modeling and experiment. Applied Physics A: Materials Science and Processing, 2013, 111, 675-687.	1.1	71
7	Anharmonic Noninertial Lattice Dynamics during Ultrafast Nonthermal Melting of InSb. Physical Review Letters, 2008, 101, 135701.	2.9	66
8	Experimental and Theoretical Investigation of Periodic Nanostructuring of Au with Ultrashort UV Laser Pulses near the Damage Threshold. Physical Review Applied, 2015, 4, .	1.5	63
9	Electric Field-Driven Disruption of a Native Î²-Sheet Protein Conformation and Generation of a Helix-Structure. Biophysical Journal, 2010, 99, 595-599.	0.2	62
10	Theory for the change of the bond character in divalent-metal clusters. Physical Review Letters, 1991, 67, 1142-1145.	2.9	60
11	Selective Cap Opening in Carbon Nanotubes Driven by Laser-Induced Coherent Phonons. Physical Review Letters, 2004, 92, 117401.	2.9	54
12	Fractional Diffusion in Silicon. Advanced Materials, 2013, 25, 5605-5608.	11.1	50
13	Squeezed Thermal Phonons Precurse Nonthermal Melting of Silicon as a Function of Fluence. Physical Review X, 2013, 3, .	2.8	46
14	Atomistic-continuum modeling of short laser pulse melting of Si targets. Physical Review B, 2014, 90, .	1.1	44
15	Molecular dynamics study of the short laser pulse ablation: quality and efficiency in production. Applied Physics A: Materials Science and Processing, 2014, 117, 2133-2141.	1.1	40
16	Molecular dynamics modeling of periodic nanostructuring of metals with a short UV laser pulse under spatial confinement by a water layer. Applied Physics A: Materials Science and Processing, 2017, 123, 1.	1.1	36
17	Theory for the Photoacoustic Response to X-Ray Absorption. Physical Review Letters, 1988, 61, 121-124.	2.9	35
18	Coherent and incoherent structural dynamics in laser-excited antimony. Physical Review B, 2017, 95, .	1.1	35

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19	Molecular Dynamics Simulation of the Effect of Crystal Orientation on Lithiumâ€ Ion Diffusion at the â€‰Vâ€‰2â€‰Oâ€‰5â€‰/â€‰Li2SiO3 Interface. Journal of the Electrochemical Society, 1999, 146, 840-849.	1.3	34
20	Generalized Markov State Modeling Method for Nonequilibrium Biomolecular Dynamics: Exemplified on Amyloid Î² Conformational Dynamics Driven by an Oscillating Electric Field. Journal of Chemical Theory and Computation, 2018, 14, 3579-3594.	2.3	34
21	Femtosecond-laser-induced bond breaking and structural modifications in silicon, TiO $$_2$$ 2 , and defective graphene: an ab initio molecular dynamics study. Applied Physics A: Materials Science and Processing, 2014, 114, 1-9.	1.1	32
22	Femtosecond Laser Nanosurgery of Defects in Carbon Nanotubes. Nano Letters, 2005, 5, 1361-1365.	4.5	31
23	Signatures of nonthermal melting. Structural Dynamics, 2015, 2, 054101.	0.9	28
24	Delocalization of a hole in van der Waals clusters: Ionization potential of rare-gas and smallHgnclusters. Physical Review B, 1993, 48, 8388-8397.	1.1	27
25	Monte Carlo Simulations of Proteins in Cages: Influence of Confinement on the Stability of Intermediate States. Biophysical Journal, 2009, 96, 1076-1082.	0.2	26
26	The SARS-CoV-2 spike protein is vulnerable to moderate electric fields. Nature Communications, 2021, 12, 5407.	5.8	26
27	Optimized Gaussian basis sets for Goedeckerâ€“Teterâ€“Hutter pseudopotentials. Modelling and Simulation in Materials Science and Engineering, 2009, 17, 015009.	0.8	25
28	Molecular dynamics simulations ofÂlaser-induced damage ofÂnanostructures andÂsolids. Applied Physics A: Materials Science and Processing, 2009, 96, 33-42.	1.1	24
29	Theoretical study of the structural dependence of nuclear quadrupole frequencies in high-Tcsuperconductors. Physical Review B, 1989, 40, 8809-8813.	1.1	23
30	Nonthermal fragmentation of C60. Chemical Physics Letters, 2002, 352, 154-162.	1.2	22
31	Silicon before the bonds break. Applied Physics A: Materials Science and Processing, 2014, 117, 1-5.	1.1	21
32	Pulse Duration and Wavelength Effects of Laser Ablation on the Oxidation, Hydrolysis, and Aging of Aluminum Nanoparticles in Water. Nanomaterials, 2019, 9, 767.	1.9	21
33	Theoretical study of the laser-induced femtosecond dynamics of smallSinclusters. Physical Review B, 1999, 59, 13422-13430.	1.1	20
34	Quasimomentum-Space Image for Ultrafast Melting of Silicon. Physical Review Letters, 2016, 116, 153901.	2.9	20
35	Theory for the Optimal Control of Time-Averaged Quantities in Quantum Systems. Physical Review Letters, 2002, 89, 233003.	2.9	19
36	Ground-state wave functions of two-particle systems determined using quantum genetic algorithms. Physica A: Statistical Mechanics and Its Applications, 2001, 291, 439-448.	1.2	18

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37	Modeling of material properties after ultrashort laser and XUV excitation. Applied Physics A: Materials Science and Processing, 2013, 110, 519-528.	1.1	18
38	Ultrafast structural phenomena: theory of phonon frequency changes and simulations with code for highly excited valence electron systems. Journal of the Optical Society of America B: Optical Physics, 2014, 31, C22.	0.9	18
39	Theory for the ultrafast structural response of optically excited small clusters: Time dependence of the ionization potential. Physical Review A, 1996, 54, R4601-R4604.	1.0	17
40	Femtosecond Neutralization Dynamics in Cluster-Solid Surface Collisions. Physical Review Letters, 1997, 79, 2562-2565.	2.9	17
41	Self-Learning Method for Construction of Analytical Interatomic Potentials to Describe Laser-Excited Materials. Physical Review Letters, 2020, 124, 085501.	2.9	16
42	Transient optics of gold during laser irradiation: From first principles to experiment. Physical Review B, 2020, 101, .	1.1	16
43	Ultrafast nonthermal NV center formation in diamond. Carbon, 2021, 174, 524-530.	5.4	16
44	Theory for optical absorption in small clusters: Dependence on atomic surface structure and cluster size. Physical Review Letters, 1994, 72, 3969-3972.	2.9	15
45	Theoretical approach to the laser-induced melting of graphite under different pressure conditions. Applied Surface Science, 2003, 208-209, 61-70.	3.1	15
46	Key role of surface plasmon polaritons in generation of periodic surface structures following single-pulse laser irradiation of a gold step edge. Nanophotonics, 2022, 11, 359-367.	2.9	14
47	Photon-assisted StÃ¼ckelberg-like oscillations in a double quantum dot. Physical Review B, 2000, 62, 2630-2634.	1.1	13
48	Analytical solution of the optimal laser control problem in two-level systems. Journal of Physics B: Atomic, Molecular and Optical Physics, 2004, 37, 2569-2575.	0.6	13
49	Numerical Investigation of Ultrashort Laser-Ablative Synthesis of Metal Nanoparticles in Liquids Using the Atomistic-Continuum Model. Molecules, 2020, 25, 67.	1.7	13
50	Ab initio description of the first stages of laser-induced ultra-fast nonthermal melting of InSb. Applied Physics B: Lasers and Optics, 2008, 93, 743-747.	1.1	12
51	Quantum dynamical study of the amplitude collapse and revival of coherent A 1g phonons in bismuth: a classical phenomenon?. Applied Physics A: Materials Science and Processing, 2009, 96, 5-10.	1.1	12
52	Analysis of the ultrafast dynamics of the silver trimer upon photodetachment. Journal of Physics B: Atomic, Molecular and Optical Physics, 1996, 29, L545-L549.	0.6	11
53	Dynamic all-optical control in ultrashort double-pulse laser ablation. Applied Surface Science, 2021, 537, 147940.	3.1	11
54	Molecular-dynamics study of the mechanism of short-pulse laser ablation of single-crystal and polycrystalline metallic targets. Journal of Optical Technology (A Translation of Opticheskii) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 57 Td (	0.2	10

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55	Atomic and Electronic Structure of Solid-Density Liquid Carbon. Physical Review Letters, 2020, 125, 155703.	2.9	10
56	Formation of Periodic Nanoridge Patterns by Ultrashort Single Pulse UV Laser Irradiation of Gold. Nanomaterials, 2020, 10, 1998.	1.9	10
57	Ultrafast structural relaxation dynamics of laser-excited graphene: Ab initio molecular dynamics simulations including electron-phonon interactions. Physical Review B, 2020, 101, .	1.1	10
58	High-Order Harmonic Generation in Au Nanoparticle-Contained Plasmas. Nanomaterials, 2020, 10, 234.	1.9	10
59	Probing the Energy Conversion Pathways between Light, Carriers, and Lattice in Real Time with Attosecond Core-Level Spectroscopy. Physical Review X, 2021, 11, .	2.8	10
60	On the interatomic interaction potential that describes bond weakening in classical molecular-dynamic modelling. Journal of Optical Technology (A Translation of Opticheskii Zhurnal), 2014, 81, 254.	0.2	9
61	High efficiencies for laser cleaning of glassware irradiated from the back: application to glassware historical objects. Applied Physics A: Materials Science and Processing, 2018, 124, 1.	1.1	9
62	Theory for the ultrafast melting and fragmentation dynamics of small clusters after femtosecond ionization. Journal of Chemical Physics, 1998, 109, 1101-1110.	1.2	8
63	Simulations of laser-induced dynamics in free-standing thin silicon films. Applied Physics A: Materials Science and Processing, 2017, 123, 1.	1.1	8
64	Rigorous conditions for the existence of bound states at the threshold in the two-particle case. Journal of Physics A: Mathematical and Theoretical, 2007, 40, 9003-9016.	0.7	7
65	Influence of chaos on the ionization induced fragmentation dynamics of van der Waals clusters. Journal of Chemical Physics, 1997, 107, 9857-9863.	1.2	6
66	Theory for the explosion of clusters due to strong femtosecond electric fields: Size and charge effects. Europhysics Letters, 2002, 57, 39-45.	0.7	6
67	Laser manipulation of nanodiamonds. Computational Materials Science, 2006, 35, 179-182.	1.4	6
68	Fluence dependence of the ultrafast transition from the A7 toÂtheÂsimple cubic structure in arsenic. Applied Physics A: Materials Science and Processing, 2009, 96, 19-22.	1.1	6
69	Beyond spikes: Multiscale computational analysis ofin vivolong-term recordings in the cockroach circadian clock. Network Neuroscience, 2019, 3, 944-968.	1.4	6
70	Performance of state-of-the-art force fields for atomistic simulations of silicon at high electronic temperatures. European Physical Journal: Special Topics, 2019, 227, 1615-1629.	1.2	6
71	Nonequilibrium dynamics of the phonon gas in ultrafast-excited antimony. Physical Review Materials, 2017, 1, .	0.9	6
72	Unrestricted Hartree-Fock Calculation of the Ionization Potential of Small Hg _n Clusters. Europhysics Letters, 1993, 21, 177-182.	0.7	5

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73	Mechanical properties of boron-nitride nanotubes after intense femtosecond-laser excitation. Nanotechnology, 2014, 25, 145701.	1.3	5
74	Molecular dynamics simulations of a femtosecond-laser-induced solid-to-solid transition in antimony. Applied Physics A: Materials Science and Processing, 2017, 123, 1.	1.1	5
75	Vesicle Motion during Sustained Exocytosis in Chromaffin Cells: Numerical Model Based on Amperometric Measurements. PLoS ONE, 2015, 10, e0144045.	1.1	4
76	Melting of Al Induced by Laser Excitation of 2p Holes. Materials Research Letters, 2015, 3, 149-155.	4.1	4
77	Controlling Three Laser-Excited Coherent Phonon Modes in Boron Nitride Nanotubes To Produce Ultrashort Shaped Terahertz Pulses: Implications for Memory Devices. ACS Applied Nano Materials, 2018, 1, 6932-6937.	2.4	4
78	Nonradiative electronic deexcitation time scales in metal clusters. Physical Review B, 1998, 57, 4895-4899.	1.1	3
79	Recovering hidden electronic states using energy-resolved imaging of metal clusters at surfaces. New Journal of Physics, 2007, 9, 340-340.	1.2	3
80	Exact and approximate symmetries for light propagation equations with higher order nonlinearity. Lobachevskii Journal of Mathematics, 2010, 31, 123-140.	0.1	3
81	Light propagation in media with a highly nonlinear response: An analytical study. Physica D: Nonlinear Phenomena, 2011, 240, 894-901.	1.3	3
82	Biomolecular structure manipulation using tailored electromagnetic radiation: a proof of concept on a simplified model of the active site of bacterial DNA topoisomerase. Physical Chemistry Chemical Physics, 2014, 16, 21768-21777.	1.3	3
83	Universal behavior of the band gap as a function of the atomic mean-square displacement in laser-excited silicon. Advanced Optical Technologies, 2020, 9, 145-153.	0.9	3
84	Transport properties of one-dimensional, disordered two-band systems. Journal of Physics C: Solid State Physics, 1986, 19, 6053-6061.	1.5	2
85	Designing lattice structures with maximal nearest-neighbor entanglement. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 315302.	0.7	0
86	Influence of the environment on protein bond energies. Chemical Physics Letters, 2014, 615, 75-82.	1.2	0
87	Simulations of Highly-Excited Silicon. Silicon, 2018, 10, 567-568.	1.8	0
88	Aluminum nanoparticle plasma formation for high-order harmonic generation. Journal of Physics B: Atomic, Molecular and Optical Physics, 2019, 52, 245601.	0.6	0