

Raluca A Negres

List of Publications by Year in descending order

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105
papers

2,229
citations

201674

27
h-index

243625

44
g-index

107
all docs

107
docs citations

107
times ranked

1244
citing authors

#	ARTICLE	IF	CITATIONS
1	New Two-Photon Absorbing Fluorene Derivatives: Synthesis and Nonlinear Optical Characterization. <i>Organic Letters</i> , 1999, 1, 1575-1578.	4.6	212
2	Damage Mechanisms Avoided or Managed for NIF Large Optics. <i>Fusion Science and Technology</i> , 2016, 69, 146-249.	1.1	121
3	Two-Photon Photochromism of an Organic Material for Holographic Recording. <i>Chemistry of Materials</i> , 2002, 14, 3663-3667.	6.7	104
4	Growth behavior of laser-induced damage on fused silica optics under UV, ns laser irradiation. <i>Optics Express</i> , 2010, 18, 19966.	3.4	104
5	Investigation of the electronic and physical properties of defect structures responsible for laser-induced damage in DKDP crystals. <i>Optics Express</i> , 2010, 18, 13788.	3.4	84
6	Material response during nanosecond laser induced breakdown inside of the exit surface of fused silica. <i>Laser and Photonics Reviews</i> , 2013, 7, 444-452.	8.7	80
7	Probability of growth of small damage sites on the exit surface of fused silica optics. <i>Optics Express</i> , 2012, 20, 13030.	3.4	65
8	Damage on fused silica optics caused by laser ablation of surface-bound microparticles. <i>Optics Express</i> , 2016, 24, 2634.	3.4	63
9	Growth model for laser-induced damage on the exit surface of fused silica under UV, ns laser irradiation. <i>Optics Express</i> , 2014, 22, 3824.	3.4	53
10	Decomposition of KH ₂ PO ₄ crystals during laser-induced breakdown. <i>Applied Physics Letters</i> , 2005, 86, 171107.	3.3	52
11	Mechanisms governing the interaction of metallic particles with nanosecond laser pulses. <i>Optics Express</i> , 2016, 24, 7792.	3.4	48
12	High-energy (>70 keV) x-ray conversion efficiency measurement on the ARC laser at the National Ignition Facility. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	45
13	Two-photon spectroscopy and analysis with a white-light continuum probe. <i>Optics Letters</i> , 2002, 27, 270.	3.3	44
14	Time-resolved imaging of processes associated with exit-surface damage growth in fused silica following exposure to nanosecond laser pulses. <i>Optics Express</i> , 2013, 21, 4875.	3.4	44
15	Relaxation dynamics of nanosecond laser superheated material in dielectrics. <i>Optica</i> , 2015, 2, 765.	9.3	44
16	Origin of efficient light emission from a phosphorescent polymer/organometallic guest-host system. <i>Physical Review B</i> , 2003, 68, .	3.2	42
17	Picosecond laser damage performance assessment of multilayer dielectric gratings in vacuum. <i>Optics Express</i> , 2015, 23, 15532.	3.4	39
18	Measurement of the Raman scattering cross section of the breathing mode in KDP and DKDP crystals. <i>Optics Express</i> , 2011, 19, 21050.	3.4	36

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19	The effect of laser pulse shape and duration on the size at which damage sites initiate and the implications to subsequent repair. Optics Express, 2011, 19, A859.	3.4	35
20	Multiwavelength investigation of laser-damage performance in potassium dihydrogen phosphate after laser annealing. Optics Letters, 2005, 30, 221.	3.3	34
21	Investigation of laser annealing parameters for optimal laser-damage performance in deuterated potassium dihydrogen phosphate. Optics Letters, 2005, 30, 2766.	3.3	33
22	Kinetics of ejected particles during breakdown in fused silica by nanosecond laser pulses. Applied Physics Letters, 2011, 98, .	3.3	31
23	Characterization of ejected fused silica particles following surface breakdown with nanosecond pulses. Optics Express, 2012, 20, 27708.	3.4	31
24	Laser-induced defect reactions governing damage initiation in DKDP crystals. Optics Express, 2006, 14, 5313.	3.4	30
25	Dynamics of material modifications following laser-breakdown in bulk fused silica. Optics Express, 2010, 18, 10642.	3.4	30
26	Role of phase instabilities in the early response of bulk fused silica during laser-induced breakdown. Physical Review B, 2011, 84, .	3.2	28
27	Predictive modeling techniques for nanosecond-laser damage growth in fused silica optics. Optics Express, 2012, 20, 15569.	3.4	28
28	Understanding and predicting the damage performance of $KDxH_2\hat{x}PO_4$ crystals under simultaneous exposure to 532- and 355-nm pulses. Applied Physics Letters, 2006, 89, 181922.	3.3	26
29	The energy coupling efficiency of multiwavelength laser pulses to damage initiating defects in deuterated KH_2PO_4 nonlinear crystals. Journal of Applied Physics, 2008, 103, .	2.5	26
30	Exploration of the multiparameter space of nanosecond-laser damage growth in fused silica optics. Applied Optics, 2011, 50, D12.	2.1	25
31	Laser-induced damage of intrinsic and extrinsic defects by picosecond pulses on multilayer dielectric coatings for petawatt-class lasers. Optical Engineering, 2016, 56, 011008.	1.0	25
32	Expedited laser damage profiling of $KD_xH_2\hat{x}PO_4$ with respect to crystal growth parameters. Optics Letters, 2006, 31, 3110.	3.3	24
33	Physics of picosecond pulse laser ablation. Journal of Applied Physics, 2019, 125, 085103.	2.5	23
34	Laser damage growth in fused silica with simultaneous 351nm and 1053nm irradiation. Proceedings of SPIE, 2008, , .	0.8	22
35	Role of defects in laser-induced modifications of silica coatings and fused silica using picosecond pulses at 1053 nm: II Scaling laws and the density of precursors. Optics Express, 2017, 25, 15381.	3.4	21
36	Ten-year summary of the Boulder Damage Symposium annual thin film laser damage competition. Optical Engineering, 2018, 57, 1.	1.0	21

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37	Differentiation of defect populations responsible for bulk laser-induced damage in potassium dihydrogen phosphate crystals. <i>Optical Engineering</i> , 2006, 45, 104205.	1.0	20
38	Laser annealing characteristics of multiple bulk defect populations within DKDP crystals. <i>Journal of Applied Physics</i> , 2008, 104, 103103.	2.5	20
39	The role of defects in laser-induced modifications of silica coatings and fused silica using picosecond pulses at 1053 nm: I Damage morphology. <i>Optics Express</i> , 2017, 25, 15161.	3.4	20
40	Evaluation of UV absorption coefficient in laser-modified fused silica. <i>Applied Physics Letters</i> , 2007, 90, 061115.	3.3	19
41	Effect of thermal anneal on growth behavior of laser-induced damage sites on the exit surface of fused silica. <i>Optical Materials Express</i> , 2013, 3, 765.	3.0	18
42	Morphology of ejected particles and impact sites on intercepting substrates following exit-surface laser damage with nanosecond pulses in silica. <i>Optical Engineering</i> , 2016, 56, 011016.	1.0	18
43	The impact of nano-bubbles on the laser performance of hafnia films deposited by oxygen assisted ion beam sputtering method. <i>Applied Physics Letters</i> , 2019, 115, .	3.3	16
44	Resonance excitation of surface capillary waves to enhance material removal for laser material processing. <i>Scientific Reports</i> , 2019, 9, 8152.	3.3	15
45	Enhancement of laser material drilling using high-impulse multi-laser melt ejection. <i>Optics Express</i> , 2019, 27, 19864.	3.4	15
46	Optical damage performance of conductive widegap semiconductors: spatial, temporal, and lifetime modeling. <i>Optical Materials Express</i> , 2017, 7, 202.	3.0	13
47	Dynamics of secondary contamination from the interaction of high-power laser pulses with metal particles attached on the input surface of optical components. <i>Optics Express</i> , 2019, 27, 23515.	3.4	11
48	Stoichiometric changes to KH ₂ PO ₄ during laser-induced breakdown. , 2005, , .		10
49	The effect of pulse duration on the growth rate of laser-induced damage sites at 351 nm on fused silica surfaces. <i>Proceedings of SPIE</i> , 2009, , .	0.8	10
50	Dynamics of transient absorption in bulk DKDP crystals following laser energy deposition. <i>Optics Express</i> , 2012, 20, 20447.	3.4	10
51	“Metallic burn paper” used for in situ characterization of laser beam properties. <i>Applied Optics</i> , 2016, 55, 3131.	1.8	10
52	40-fs broadband low dispersion mirror thin film damage competition. , 2016, , .		9
53	Mirrors for petawatt lasers: Design principles, limitations, and solutions. <i>Journal of Applied Physics</i> , 2020, 128, .	2.5	9
54	Transport mirror laser damage mitigation technologies on the National Ignition Facility. , 2018, , .		9

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55	Origin and effect of film sub-stoichiometry on ultraviolet, ns-laser damage resistance of hafnia single layers. <i>Optical Materials Express</i> , 2020, 10, 937.	3.0	9
56	Laser damage performance of $KD_{2x}H_xPO_4$ crystals following X-ray irradiation. <i>Optics Express</i> , 2008, 16, 16326.	3.4	8
57	150-ps broadband low dispersion mirror thin film damage competition. <i>Proceedings of SPIE</i> , 2015, , .	0.8	8
58	355-nm, nanosecond laser mirror thin film damage competition. , 2017, , .		8
59	Mechanisms of laser-induced damage in absorbing glasses with nanosecond pulses. <i>Optics Express</i> , 2019, 27, 9975.	3.4	8
60	Alignment Procedure for a Dual Grating Pulse Compressor. <i>Applied Optics</i> , 1998, 37, 8146.	2.1	7
61	Estimation of the transverse stimulated Raman scattering gain coefficient in KDP and DKDP at 2%, 3%, and 4%. , 2011, , .		6
62	Comparison of material response in fused silica and KDP following exit surface laser- induced breakdown. <i>Proceedings of SPIE</i> , 2013, , .	0.8	6
63	Dynamics of the plume containing nanometric-sized particles ejected into the atmospheric air following laser-induced breakdown on the exit surface of a CaF_2 optical window. <i>Applied Physics Letters</i> , 2014, 104, 031603.	3.3	6
64	Thermal imaging investigation of modified fused silica at surface damage sites for understanding the underlying mechanisms of damage growth. , 2006, , .		5
65	An expedited approach to evaluate the importance of different crystal growth parameters on laser damage performance in KDP and DKDP. , 2006, , .		5
66	Pump and probe damage testing for investigation of transient material modifications associated with laser damage in optical materials. , 2007, , .		5
67	Characterization of laser-induced damage by picosecond pulses on multi-layer dielectric coatings for petawatt-class lasers. <i>Proceedings of SPIE</i> , 2015, , .	0.8	5
68	Determination of the Raman polarizability tensor in the optically anisotropic crystal potassium dihydrogen phosphate and its deuterated analog. <i>Scientific Reports</i> , 2020, 10, 16283.	3.3	5
69	Round-robin measurements of the laser-induced damage threshold with sub-picosecond pulses on optical single layers. <i>Optical Engineering</i> , 2020, 60, .	1.0	5
70	Time-resolved imaging of material response during laser-induced bulk damage in SiO_2 . , 2008, , .		4
71	1064-nm, nanosecond laser mirror thin film damage competition. , 2018, , .		4
72	Nonlinear spectrometry of chromophores for optical limiting. , 1998, , .		3

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73	A new damage testing system for detailed evaluation of damage behavior of bulk KDP and DKDP. , 2005, , .		3
74	Laser-induced defect reactions governing damage performance in KDP and DKDP crystals. , 2006, 6103, 19.		3
75	Does complex absorption behavior leading to conditioning and damage in KDP/DKDP reflect the electronic structure of initiators?. , 2007, , .		3
76	Imaging system to measure kinetics of material cluster ejection during exit-surface damage initiation and growth in fused silica. Proceedings of SPIE, 2009, , .	0.8	3
77	Time-resolved imaging of material response following laser-induced breakdown in the bulk and surface of fused silica. Proceedings of SPIE, 2010, , .	0.8	3
78	Determination of laser damage initiation probability and growth on fused silica scratches. , 2010, , .		3
79	Test station development for laser-induced optical damage performance of broadband multilayer dielectric coatings. Proceedings of SPIE, 2015, , .	0.8	3
80	Laser-induced modifications of HfO ₂ coatings using picosecond pulses at 1053nm: Using polarization to isolate surface defects. Journal of Applied Physics, 2018, 124, .	2.5	3
81	532-nm, nanosecond laser mirror thin film damage competition. , 2020, , .		3
82	Optical damage performance measurements of multilayer dielectric gratings for high energy short pulse lasers. , 2015, , .		2
83	Investigation of UV, ns-laser damage resistance of hafnia films produced by electron beam evaporation and ion beam sputtering deposition methods. Journal of Applied Physics, 2021, 130, 043103.	2.5	2
84	Overview of laser damage performance of the third-harmonic frequency conversion crystals on the National Ignition Facility. , 2018, , .		2
85	1064-nm, nanosecond laser mirror thin film damage competition. , 2019, , .		2
86	Imaging the early material response associated with exit surface damage in fused silica. , 2010, , .		1
87	Time-Resolved Microscopic Imaging of Laser-Induced Material Modifications in Optical Materials. , 2010, , .		1
88	Energetic laser cleaning of metallic particles and surface damage on silica optics: investigation of the underlying mechanisms. Proceedings of SPIE, 2015, , .	0.8	1
89	The stochastic nature of growth of laser-induced damage. Proceedings of SPIE, 2015, , .	0.8	1
90	Apparatus and Techniques for Measuring Laser Damage Resistance of Large-Area, Multilayer Dielectric Mirrors for Use with High Energy, Picosecond Lasers. , 2015, , .		1

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91	Morphology of ejected debris from laser super-heated fused silica following exit surface laser-induced damage. , 2015, , .		1
92	Laser-matter coupling mechanisms governing particulate-induced damage on optical surfaces. Proceedings of SPIE, 2016, , .	0.8	1
93	Trends Observed in Ten Years of the BDS Thin Film Laser Damage Competition (Conference) Tj ETQq1 1 0.784314 rgBT /Over ock 10		1
94	Accurate description of the light self-diffraction on high modulated dynamic gratings in semiconductor materials. , 1995, , .		0
95	<title>Two-photon photochromism of a photorefractive organic material for holographic recording</title>. , 2000, 4104, 15.		0
96	White-light-continuum spectroscopy to determine third-order nonlinear optical properties. , 2001, , .		0
97	Nonlinear behavior of laser-induced damage in KDP and DKDP under multiwavelength irradiation. , 2005, 5710, 114.		0
98	Correlation of laser-induced damage performance to crystal growth conditions in KDP and DKDP crystals. , 2006, , .		0
99	Interactions between x-ray induced transient defects and pre-existing damage precursors in DKDP crystals. , 2008, , .		0
100	Morphology and mechanisms of picosecond ablation of metal films on fused silica substrates. Proceedings of SPIE, 2016, , .	0.8	0
101	515-nm, femtosecond laser mirror thin film damage competition. , 2021, , .		0
102	Method for Transient Modulation of Refractive Index Under Exposure to High-Power Laser Pulses. , 2016, , .		0
103	Revisiting of the laser induced filamentation damage conditions in fused silica for energetic laser systems. , 2018, , .		0
104	Trends observed in 10 years of thin film coating laser damage competitions. , 2019, , .		0
105	Monte Carlo analysis of ISO and raster scan laser damage protocols. , 2019, , .		0