Vasan Venugopalan

List of Publications by Year
in descending order

89 papers	4,997 citations	136740 32 h-index	102304 66 g-index
89 all docs	89 docs citations	89 times ranked	4514 citing authors

#	Article	IF	Citations
1	Mechanisms of Pulsed Laser Ablation of Biological Tissues. Chemical Reviews, 2003, 103, 577-644.	23.0	1,669
2	Nonâ€“invasive measurements of breast tissue optical properties using frequencyâ€“domain photon migration. Philosophical Transactions of the Royal Society B: Biological Sciences, 1997, 352, 661-668.	1.8	242
3	Thermal Relaxation of Port-Wine Stain Vessels Probed In Vivo: The Need for 1-10-Millisecond Laser Pulse Treatment.. Journal of Investigative Dermatology, 1995, 105, 709-714.	0.3	233
4	Role of Laser-Induced Plasma Formation in Pulsed Cellular Microsurgery and Micromanipulation. Physical Review Letters, 2002, 88, 078103.	2.9	174
5	Pulsed Laser Microbeam-Induced Cell Lysis: Time-Resolved Imaging and Analysis of Hydrodynamic Effects. Biophysical Journal, 2006, 91, 317-329.	0.2	171
6	Perturbation Monte Carlo methods to solve inverse photon migration problems in heterogeneous tissues. Optics Letters, 2001, 26, 1335.	1.7	151
7	Laser-Induced Mixing in Microfluidic Channels. Analytical Chemistry, 2007, 79, 4484-4492.	3.2	146
8	InÂVivo Multiphoton NADH Fluorescence Reveals Depth-Dependent Keratinocyte Metabolism in Human Skin. Biophysical Journal, 2013, 104, 258-267.	0.2	107
9	Investigation of laser-induced cell lysis using time-resolved imaging. Applied Physics Letters, 2004, 84, 2940-2942.	1.5	99
10	Controlled Ablation of Microtubules Using a Picosecond Laser. Biophysical Journal, 2004, 87, 4203-4212.	0.2	96
11	Examination of laser microbeam cell lysis in a PDMS microfluidic channel using time-resolved imaging. Lab on A Chip, 2008, 8, 408.	3.1	95
12	Radiative transport in the diffusion approximation: An extension for highly absorbing media and small source-detector separations. Physical Review E, 1998, 58, 2395-2407.	0.8	90
13	Radiative transport in the delta-P[sub 1] approximation: accuracy of fluence rate and optical penetration depth predictions in turbid semi-infinite media. Journal of Biomedical Optics, 2004, 9, 632.	1.4	78
14	Physical factors involved in stress-wave-induced cell injury: The effect of stress gradient. Ultrasound in Medicine and Biology, 1995, 21, 961-967.	0.7	77
15	Comparison of cortical bone ablations by using infrared laser wavelengths 2.9 to 9.2 ?m. , 1999, 25, 421-434.		77
16	Optoacoustic tomography using time-resolved interferometric detection of surface displacement. Journal of Biomedical Optics, 2003, 8, 273.	1.4	70
17	Biophysical Response to Pulsed Laser Microbeamâ€Induced Cell Lysis and Molecular Delivery. Journal of Biophotonics, 2008, 1, 24-35.	1.1	69
18	Thermodynamic response of soft biological tissues to pulsed infrared-laser irradiation. Biophysical Journal, 1996, 70, 2981-2993.	0.2	68

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19	Mid-Infrared laser ablation of the cornea: A comparative study. Lasers in Surgery and Medicine, 1992, 12, 274-281.	1.1	61
20	Stress generated in polyimide by excimerâ€laser irradiation. Journal of Applied Physics, 1993, 74, 4181-4189.	1.1	60
21	Nonspherical laser-induced cavitation bubbles. Physical Review E, 2010, 81, 016308.	0.8	58
22	Examination of axonal injury and regeneration in micropatterned neuronal culture using pulsed laser microbeam dissection. Lab on A Chip, 2010, 10, 2083.	3.1	48
23	Optoacoustic imaging using interferometric measurement of surface displacement. Applied Physics Letters, 2004, 85, 5772-5774.	1.5	47
24	Optoacoustic imaging based on the interferometric measurement of surface displacement. Journal of Biomedical Optics, 2007, 12, 064001.	1.4	42
25	Generation of laser-induced cavitation bubbles with a digital hologram. Optics Express, 2008, 16, 18964.	1.7	41
26	Analysis of single Monte Carlo methods for prediction of reflectance from turbid media. Optics Express, 2011, 19, 19627.	1.7	41
27	The Effect of Laser Parameters on the Zone of Thermal Injury Produced by Laser Ablation of Biological Tissue. Journal of Biomechanical Engineering, 1994, 116, 62-70.	0.6	39
28	The thermodynamic response of soft biological tissues to pulsed ultraviolet laser irradiation. Biophysical Journal, 1995, 69, 1259-1271.	0.2	37
29	Characterization and use of laser-based lysis for cell analysis on-chip. Journal of the Royal Society Interface, 2008, 5, S113-21.	1.5	37
30	High-throughput optical screening of cellular mechanotransduction. Nature Photonics, 2014, 8, 710-715.	15.6	36
31	Optical sampling depth in the spatial frequency domain. Journal of Biomedical Optics, 2018, 24, 1.	1.4	35
32	Use of the Î´-P_1 approximation for recovery of optical absorption, scattering, and asymmetry coefficients in turbid media. Applied Optics, 2004, 43, 4677.	2.1	34
33	Radiative transport in the delta-P1 approximation for semi-infinite turbid media. Medical Physics, 2008, 35, 681-693.	1.6	34
34	Perturbation and differential Monte Carlo methods for measurement of optical properties in a layered epithelial tissue model. Journal of Biomedical Optics, 2007, 12, 014030.	1.4	33
35	Gene inactivation by multiphoton-targeted photochemistry. Proceedings of the National Academy of Sciences of the United States of America, 2000, 97, 9504-9507.	3.3	32
36	Mechanisms of Laser Cellular Microsurgery. Methods in Cell Biology, 2007, 82, 111-151.	0.5	30

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37	Comparison of pulsed CO2 laser ablation at 10.6 Î¼m and 9.5 Î¼m. , 1998, 23, 1-6.		28
38	Optoacoustic determination of optical attenuation depth using interferometric detection. Journal of Biomedical Optics, 2003, 8, 264.	1.4	28
39	Mid-IR laser ablation of articular and fibro-cartilage:A wavelength dependence study of thermal injury and crater morphology. Lasers in Surgery and Medicine, 2006, 38, 218-228.	1.1	27
40	Amplitude and Phase of Tightly Focused Laser Beams in Turbid Media. Physical Review Letters, 2009, 103, 043903.	2.9	27
41	Accurate and efficient Monte Carlo solutions to the radiative transport equation in the spatial frequency domain. Optics Letters, 2011, 36, 2269.	1.7	27
42	Kinetics of cortical bone demineralization: Controlled demineralization?a new method for modifying cortical bone allografts. , 1996, 31, 365-372.		26
43	Electric field Monte Carlo simulations of focal field distributions produced by tightly focused laser beams in tissues. Biomedical Optics Express, 2011, 2, 278.	1.5	24
44	Comparative analysis of discrete and continuous absorption weighting estimators used in Monte Carlo simulations of radiative transport in turbid media. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2014, 31, 301.	0.8	23
45	‹title›Cell permeabilization and molecular transport by laser microirradiation‹/title›. , 1998, 3260, 38.		22
46	Hydrodynamic Determinants of Cell Necrosis and Molecular Delivery Produced by Pulsed Laser Microbeam Irradiation of Adherent Cells. Biophysical Journal, 2013, 105, 2221-2231.	0.2	22
47	The effect of CO/sub 2/ laser pulse repetition rate on tissue ablation rate and thermal damage. IEEE Transactions on Biomedical Engineering, 1991, 38, 1049-1052.	2.5	20
48	Estimating optical properties in layered tissues by use of the Born approximation of the radiative transport equation. Optics Letters, 2006, 31, 1088.	1.7	20
49	Sampling tissue volumes using frequency-domain photon migration. Physical Review E, 2004, 69, 051908.	0.8	19
50	Coupled Forward-Adjoint Monte Carlo Simulations of Radiative Transport for the Study of Optical Probe Design in Heterogeneous Tissues. SIAM Journal on Applied Mathematics, 2007, 68, 253-270.	0.8	19
51	Mechanisms of Pulsed Laser Microbeam Release of SU-8 Polymer â€œMicropalletsâ€•for the Collection and Separation of Adherent Cells. Analytical Chemistry, 2008, 80, 4675-4679.	3.2	19
52	Measurement of tissue absorption coefficients by use of interferometric photothermal spectroscopy. Applied Optics, 1999, 38, 1259.	2.1	17
53	Free electron laser ablation of articular and fibro-cartilage at 2.79, 2.9, 6.1, and 6.45 ?m: Mass removal studies. Lasers in Surgery and Medicine, 2005, 36, 202-209.	1.1	14
54	Low-density plasma formation in aqueous biological media using sub-nanosecond laser pulses. Applied Physics Letters, 2014, 105, 063701.	1.5	13

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55	Pulsed Laser Ablation of Soft Biological Tissues. , 2010, , 551-615.		13
56	Chemometric analysis of frequency-domain photon migration data: quantitative measurements of optical properties and chromophore concentrations in multicomponent turbid media. Applied Optics, 2000, 39, 1659.	2.1	12
57	Laser cavitation rheology for measurement of elastic moduli and failure strain within hydrogels. Scientific Reports, 2020, 10, 13144.	1.6	12
58	Coupled forward-adjoint Monte Carlo simulation of spatial-angular light fields to determine optical sensitivity in turbid media. Journal of Biomedical Optics, 2014, 19, 065003.	1.4	11
59	Pulsed laser ablation of tissue: surface vaporization or thermal explosion?. , 1995, , .		9
60	Radiative transport produced by oblique illumination of turbid media with collimated beams. Physical Review E, 2013, 87, 063308.	0.8	9
61	MCCL: an open-source software application for Monte Carlo simulations of radiative transport. Journal of Biomedical Optics, 2022, 27, .	1.4	8
62	Kinetics of phase transitions in pulsed IR laser ablation of biological tissues. , 2003, , .		7
63	Impact of release dynamics of laser-irradiated polymer micropallets on the viability of selected adherent cells. Journal of the Royal Society Interface, 2012, 9, 1156-1167.	1.5	7
64	<title>Superficial tissue optical property determination using spatially resolved measurements close to the source: comparison with frequency-domain photon migration measurements</title>. , 1999, , .		6
65	Recovery of layered tissue optical properties from spatial frequency-domain spectroscopy and a deterministic radiative transport solver. Journal of Biomedical Optics, 2018, 24, 1.	1.4	6
66	Rapid computation of the amplitude and phase of tightly focused optical fields distorted by scattering particles. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2014, 31, 1520.	0.8	5
67	Differential pathlength factor informs evoked stimulus response in a mouse model of Alzheimerâ€™s disease. Neurophotonics, 2015, 2, 045001.	1.7	5
68	Effect of scattering on coherent anti-Stokes Raman scattering (CARS) signals. Optics Express, 2017, 25, 8638.	1.7	5
69	Single-shot interferometric measurement of cavitation bubble dynamics. Optics Letters, 2021, 46, 1409.	1.7	5
70	<title>Physical mechanisms of pulsed infrared laser ablation of biological tissues</title>. , 1998, , .		4
71	Mechanisms of Pulsed Laser Ablation of Biological Tissues. ChemInform, 2003, 34, no.	0.1	4
72	Experimental investigation of optical breakdown using nanosecond 532-nm and 1064-nm laser pulses delivered at high numerical aperture. , 2001, , .		4

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73	Multi-scale silica structures for improved HIV-1 Capsid (p24) antigen detection. Analyst, The, 2016, 141, 4181-4188.	1.7	3
74	Corneal transparency and scleral opacity arises from the nanoarchitecture of the constituent collagen fibrils. Biomedical Optics Express, 2022, 13, 1485.	1.5	3
75	Reply to 'Mechanism for microtsunami-induced intercellular mechanosignalling'. Nature Photonics, 2015, 9, 624-625.	15.6	2
76	Computational Engine for a Virtual Tissue Simulator. , 2008, , 431-443.		2
77	Modeling of thermal injury produced by laser ablation of biological tissue. , 1993, , .		1
78	3D interferometric optoacoustic imaging. , 2005, , .		1
79	Development of perturbation Monte Carlo methods for polarized light transport in a discrete particle scattering model. Biomedical Optics Express, 2016, 7, 2051.	1.5	1
80	Measurement of tissue absorption coefficients by use of interferometric photothermal spectroscopy: erratum. Applied Optics, 1999, 38, 4266.	2.1	0
81	POISe: pulsed optoacoustic interferometric spectroscopy and imaging. , 2004, , .		0
82	Examination of laser-induced cell lysis by time resolved imaging. , 2004, 5322, 168.		0
83	Cartilage ablation studies using mid-IR free electron laser. , 2005, , .		0
84	Making CARS better. Proceedings of SPIE, 2008, , .	0.8	0
85	Time-resolved digital holographic microscopy of laser-induced forward transfer. Applied Physics B: Lasers and Optics, 2014, 114, 361-366.	1.1	0
86	Comparative analysis of discrete and continuous absorption weighting estimators used in Monte Carlo simulations of radiative transport in turbid media: erratum. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2021, 38, 749.	0.8	0
87	Use of perturbation and differential Monte Carlo methods to solve inverse problems in heterogeneous media. , 2004, , .		0
88	Pulsed Laser Microbeam Cell Lysis: Analysis of Biological Response by Hydrodynamic Modeling and Fluorescence Assays. , 2006, , .		0
89	Effects of laser pulse energy, geometric confinement and material stiffness on laser-induced cell lysis in a microfluidic chip. , 2006, , .		0