Markus Pollnau

List of Publications by Year
in descending order

129 papers	3,201 citations	172457 29 h-index	161849 54 g-index
131 all docs	131 docs citations	131 times ranked	2684 citing authors

#	Article	IF	Citations
1	Fundamental Loadingâ€Curve Characteristics of the Persistent Phosphor SrAl₂O₄:Eu²⁺,Dy³⁺,B³⁺: The Effect of Temperature and Excitation Density. Advanced Photonics Research, 2022, 3, .	3.6	9
2	Light Intensity Distributions in Bragg Gratings and Distributed-feedback Resonators. , 2020, , .		0
3	Spectral coherence, Part I: Passive-resonator linewidth, fundamental laser linewidth, and Schawlow-Townes approximation. Progress in Quantum Electronics, 2020, 72, 100255.	7.0	25
4	Probing traps in the persistent phosphor SrAl2O4:Eu2+,Dy3+,B3+ - A wavelength, temperature and sample dependent thermoluminescence investigation. Journal of Luminescence, 2020, 222, 117113.	3.1	26
5	Spectroscopy, Cooperative Upconversion and Optical Gain in Amorphous Al2O3:Yb3+ Waveguides on Silicon. , 2020, , .		0
6	Super-Quadratic Upconversion Luminescence among Lanthanide Ions. , 2019, , .		1
7	Are absorption and spontaneous or stimulated emission inverse processes? The answer is subtle!. Applied Physics B: Lasers and Optics, 2019, 125, 25.	2.2	6
8	Spectral Response of Distributed-Feedback Resonators with a Continuously Distributed Phase Shift. , 2019, , .		0
9	The Laser Linewidth â€" Fairy Tales and Physical Evidence. , 2019, , .		0
10	Accumulation of Distributed Phase Shift in Distributed-Feedback Resonators. IEEE Photonics Journal, 2019, 11, 1-9.	2.0	3
11	Gain dynamics in a highly ytterbium-doped potassium double tungstate thin-film amplifier. , 2019, , .		0
12	Lasing wavelength in dielectric distributed-feedback lasers with a distributed phase shift. , 2019, , .		0
13	Phase aspect in stimulated and spontaneous emission and the laser linewidth. , 2019, , .		0
14	Spectral behavior of integrated distributed-feedback resonators utilizing a distributed phase shift. , 2019, , .		0
15	Energy-transfer upconversion and excited-state absorption in KGd_xLu_yEr_{1-x-y}(WO₄)₂ waveguide amplifiers. Optical Materials Express, 2019, 9, 4782.	3.0	2
16	Super-quadratic upconversion luminescence among lanthanide ions. Optics Express, 2019, 27, 33217.	3.4	4
17	Energy-Transfer Processes Among Non-Homogeneously Distributed Rare-Earth Ions and Impact on Amplification and Lasing. , 2018, , .		0
18	Temperature dependence of the spectral characteristics of distributed-feedback resonators. Optics Express, 2018, 26, 4892.	3.4	10

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19	High optical gain in erbium-doped potassium double tungstate channel waveguide amplifiers. Optics Express, 2018, 26, 6260.	3.4	21
20	Phase aspect in photon emission and absorption. Optica, 2018, 5, 465.	9.3	12
21	Gain dynamics in a highly ytterbium-doped potassium double tungstate epitaxial layer. Journal of the Optical Society of America B: Optical Physics, 2018, 35, 2176.	2.1	5
22	Optically pumped rare-earth-doped Al2O3 distributed-feedback lasers on silicon [Invited]. Optics Express, 2018, 26, 24164.	3.4	32
23	Counter-propagating modes in a Fabryâ€"Perot-type resonator. Optics Letters, 2018, 43, 5033.	3.3	2
24	Chapter 15 Novel Aspects of the Fabry-PÃ©rot Resonator. NATO Science for Peace and Security Series B: Physics and Biophysics, 2018, , 277-295.	0.3	0
25	Temperature dependence of spectral characteristics of distributed feedback resonators. , 2018, , .		0
26	Stochastic model of energy transfer processes among rare earth ions. , 2018, , .		0
27	Temperature-dependent absorption and gain of ytterbium-doped potassium double tungstates for chip-scale amplifiers and lasers. Proceedings of SPIE, 2017, , .	0.8	0
28	Spectroscopy of erbium-doped potassium double tungstate waveguides. , 2017, , .		2
29	Rare-Earth-Doped Waveguide Amplifiers and Lasers. Fundamental Theories of Physics, 2017, 51, 111-168.	0.3	4
30	The linewidth of distributed feedback resonators: the combined effect of thermally induced chirp and gain narrowing. Proceedings of SPIE, 2017, , .	0.8	0
31	Mode profiles and Airy distributions of Fabry-PÃ©rot resonators with frequency-dependent mirror reflectivity. , 2017, , .		0
32	Refractive-index variation with rare-earth incorporation in amorphous Al2O3 thin films. Journal of Non-Crystalline Solids, 2017, 476, 95-99.	3.1	9
33	Roadmap for optofluidics. Journal of Optics (United Kingdom), 2017, 19, 093003.	2.2	78
34	Vacuum fluctuations and the laser linewidth. , 2017, , .		0
35	Direct confocal lifetime measurements on rare-earth-doped media exhibiting radiation trapping. Optical Materials Express, 2017, 7, 527.	3.0	10
36	High gain in erbium-doped channel waveguides. , 2017, , .		0

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37	Temperature dependence of transition cross sections in rare-earth-doped laser materials. , 2017, , .		0
38	Frequency and linewidth dependence of distributed-feedback resonators on thermal chirp. , 2017, , .		0
39	Emission Cross Section, FÃ¼chtbauer-Ladenburg Equation, and Purcell Factor. NATO Science for Peace and Security Series B: Physics and Biophysics, 2017, , 387-404.	0.3	2
40	Combined microfluidic-optical DNA analysis with single-base-pair sizing capability. Biomedical Optics Express, 2016, 7, 5201.	2.9	1
41	Temperature-dependent absorption and emission of potassium double tungstates with high ytterbium content. Optics Express, 2016, 24, 26825.	3.4	21
42	Fabry-PÃ©rot resonator: spectral line shapes, generic and related Airy distributions, linewidths, finesses, and performance at low or frequency-dependent reflectivity. Optics Express, 2016, 24, 16366.	3.4	177
43	Comment on â€œHigh Gain Submicrometer Optical Amplifier at Near-Infrared Communication Bandâ€" Physical Review Letters, 2016, 117, 219701.	7.8	2
44	Stochastic Model of Energy-Transfer Processes Among Rare-Earth Ions. Example of Al₂O₃:Tm³⁺. Journal of Physical Chemistry C, 2016, 120, 26480-26489.	3.1	44
45	Efficient dielectric waveguide lasers. , 2016, , .		0
46	Chip based common-path optical coherence tomography system with an on-chip microlens and multi-reference suppression algorithm. Optics Express, 2016, 24, 12635.	3.4	10
47	Laser Eigenvalue, Coherence Time, Q-factor, and Linewidth. , 2015, , .		1
48	DNA separation and fluorescent detection in an optofluidic chip with sub-base-pair resolution. , 2015, , .		1
49	Graphene <i>Q</i>-switched Yb:KYW planar waveguide laser. AIP Advances, 2015, 5, .	1.3	20
50	Rare-earth-ion-doped waveguide lasers on a silicon chip. , 2015, , .		5
51	Waveguide-coupled micro-ball lens array suitable for mass fabrication. Optics Express, 2015, 23, 22414.	3.4	14
52	Optical gain around 1.5 µm in erbium-doped waveguide amplifiers. , 2015, , .		1
53	Spectroscopic Foundations of Lasers: Spontaneous Emission Into a Resonator Mode. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 486-501.	2.9	21
54	Rare-Earth-Ion-Doped Channel Waveguide Lasers on Silicon. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 414-425.	2.9	23

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55	Narrow-Linewidth Lasers on a Silicon Chip. NATO Science for Peace and Security Series B: Physics and Biophysics, 2015, , 237-248.	0.3	0
56	Erbium-doped spiral amplifiers with 20 dB of net gain on silicon. Optics Express, 2014, 22, 25993.	3.4	77
57	Ultranarrow-linewidth lasers on a silicon chip and their applications. , 2014, , .		0
58	Intra-laser-cavity microparticle sensing with a dual-wavelength distributed-feedback laser. Laser and Photonics Reviews, 2013, 7, 589-598.	8.7	26
59	Engineering lattice matching, doping level, and optical properties of KY(WO4)2:Gd, Lu, Yb layers for a cladding-side-pumped channel waveguide laser. Applied Physics B: Lasers and Optics, 2013, 111, 433-446.	2.2	105
60	Dual-wavelength Narrow-linewidth Lasers and Their Applications. , 2013, , .		1
61	Yb:KYW planar waveguide laser Q-switched by evanescent-field interaction with carbon nanotubes. Optics Letters, 2013, 38, 5090.	3.3	36
62	Spectroscopy of upper energy levels in an Er^3+-doped amorphous oxide. Journal of the Optical Society of America B: Optical Physics, 2013, 30, 663.	2.1	28
63	Low-loss sharp bends in polymer waveguides enabled by the introduction of a thin metal layer. Optics Express, 2013, 21, 29808.	3.4	9
64	Study of sharp bends in anisotropic potassium double tungstate waveguides. , 2013, , .		0
65	Raman Spectroscopy and Optical Coherence Tomography on a Micro-Chip: Arrayed-Waveguide-Grating-Based Optical Spectroscopy. NATO Science for Peace and Security Series B: Physics and Biophysics, 2013, , 73-89.	0.3	0
66	Focused-ion-beam nanostructuring of Al2O3dielectric layers for photonic applications. Journal of Micromechanics and Microengineering, 2012, 22, 105008.	2.6	13
67	Flat-focal-field integrated spectrometer using a field-flattening lens. Optics Letters, 2012, 37, 4281.	3.3	6
68	Biophotonic sensors on a silicon chip for Raman spectroscopy and optical coherence tomography. Proceedings of SPIE, 2012, , .	0.8	1
69	Toward Spectral-Domain Optical Coherence Tomography on a Chip. IEEE Journal of Selected Topics in Quantum Electronics, 2012, 18, 1223-1233.	2.9	45
70	Dual-Frequency Distributed Feedback Laser With Optical Frequency Locked Loop for Stable Microwave Signal Generation. IEEE Photonics Technology Letters, 2012, 24, 1431-1433.	2.5	14
71	Polarization-independent Enhanced-resolution Arrayed-waveguide Grating used in Spectral-domain Optical Low-coherence Reflectometry. IEEE Photonics Technology Letters, 2012, , .	2.5	3
72	Impact of luminescence quenching on relaxation-oscillation frequency in solid-state lasers. Applied Physics Letters, 2012, 100, 011109.	3.3	23

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73	Lasers and Coherent Light Sources. , 2012, , 641-1046.		7
74	Giant Optical Gain in a Rareâ€Earthâ€Ionâ€Doped Microstructure. Advanced Materials, 2012, 24, OP19-22.	21.0	74
75	All-numerical noise filtering of fluorescence signals for achieving ultra-low limit of detection in biomedical applications. Analyst, The, 2011, 136, 1248.	3.5	5
76	Rare-earth-ion doped amplifiers and lasers integrated on silicon. , 2011, , .		0
77	Silicon oxynitride technology for integrated optical solutions in biomedical applications. , 2011, , .		1
78	Modulation-frequency encoded multi-color fluorescent DNA analysis in an optofluidic chip. Lab on A Chip, 2011, 11, 679-683.	6.0	29
79	Efficiency of integrated waveguide probes for the detection of light backscattered from weakly scattering media. Applied Optics, 2011, 50, 935.	2.1	2
80	Improved arrayed-waveguide-grating layout avoiding systematic phase errors. Optics Express, 2011, 19, 8781.	3.4	27
81	Loss compensation in long-range dielectric-loaded surface plasmon-polariton waveguides. Optics Express, 2011, 19, 25298.	3.4	43
82	Micromechanically tuned ring resonator in silicon on insulator. Optics Letters, 2011, 36, 1047.	3.3	18
83	Spectral domain optical coherence tomography imaging with an integrated optics spectrometer. Optics Letters, 2011, 36, 1293.	3.3	56
84	Integrated mechano-optical hydrogen gas sensor using cantilever bending readout with a Si_3N_4 grated waveguide. Optics Letters, 2011, 36, 3003.	3.3	7
85	Nd-doped waveguide amplifiers for heterogeneous integration in optical backplanes. , 2011, , .		1
86	Diode Pumped Erbium Cascade Fiber Lasers. IEEE Journal of Quantum Electronics, 2011, 47, 471-478.	1.9	59
87	Integrated Optical Backplane Amplifier. IEEE Journal of Selected Topics in Quantum Electronics, 2011, 17, 609-616.	2.9	21
88	Monoclinic double tungstate waveguide amplifiers and microlasers. , 2011, , .		0
89	Nd-Doped Polymer Waveguide Amplifiers. IEEE Journal of Quantum Electronics, 2010, 46, 1043-1050.	1.9	42
90	Highâ€resolution electrophoretic separation and integratedâ€waveguide excitation of fluorescent DNA molecules in a lab on a chip. Electrophoresis, 2010, 31, 2584-2588.	2.4	17

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91	Three-dimensional Mach-Zehnder interferometer in a microfluidic chip for spatially-resolved label-free detection. Lab on A Chip, 2010, 10, 1167.	6.0	184
92	Integrated Al$_2$O$_3$:Er^{3+} Zero-Loss Optical Amplifier and Power Splitter With 40-nm Bandwidth. IEEE Photonics Technology Letters, 2010, 22, 278-280.	2.5	20
93	Excitation and Light Collection from Highly Scattering Media with Integrated Waveguides. IEEE Photonics Technology Letters, 2010, , .	2.5	3
94	Dual-point dual-wavelength fluorescence monitoring of DNA separation in a lab on a chip. Biomedical Optics Express, 2010, 1, 729.	2.9	13
95	High-power, broadly tunable, and â€˜low-quantum-defect KGd_1-xLu_x(WO_4)_2:Yb^3+ channel waveguide lasers. Optics Express, 2010, 18, 26107.	3.4	58
96	Monolithic integration of erbium-doped amplifiers with silicon-on-insulator waveguides. Optics Express, 2010, 18, 27703.	3.4	84
97	Continuous-wave Nd-doped polymer lasers. Optics Letters, 2010, 35, 1983.	3.3	19
98	Integrated approach to laser delivery and confocal signal detection. Optics Letters, 2010, 35, 2741.	3.3	19
99	Optical waveguide amplifiers for heterogeneous integration in optical backplanes. , 2010, , .		0
100	Characterization of Nd-doped polymer waveguide amplifiers near 1060 and 870 nm. , 2010, , .		1
101	Optical sensing in microfluidic lab-on-a-chip by femtosecond-laser-written waveguides. Analytical and Bioanalytical Chemistry, 2009, 393, 1209-1216.	3.7	26
102	Neodymium-complex-doped photodefined polymer channel waveguide amplifiers. Optics Letters, 2009, 34, 473.	3.3	43
103	Monocrystalline Yb^3+:(Gd,Lu)_2O_3 channel waveguide laser at 9768 nm. Optics Letters, 2009, 34, 2718.	3.3	24
104	Low threshold monocrystalline Nd:(Gd, Lu)_2O_3 channel waveguide laser. Optics Express, 2009, 17, 4412.	3.4	22
105	170 Gbit/s transmission in an erbium-doped waveguide amplifier on silicon. Optics Express, 2009, 17, 22201.	3.4	67
106	Integration of femtosecond laser written optical waveguides in a lab-on-chip. Lab on A Chip, 2009, 9, 91-96.	6.0	119
107	Reliable Low-Cost Fabrication of Low-Loss $hbox{Al}_{2}hbox{O} _{3}{:}hbox{Er}^{3+}$ Waveguides With 5.4-dB Optical Gain. IEEE Journal of Quantum Electronics, 2009, 45, 454-461.	1.9	133
108	Fluorescence monitoring of microchip capillary electrophoresis separation with monolithically integrated waveguides. Optics Letters, 2008, 33, 2503.	3.3	29

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109	Amplification in epitaxially grown Er:(Gd,Lu)_2O_3 waveguides for active integrated optical devices. Journal of the Optical Society of America B: Optical Physics, 2008, 25, 1850.	2.1	35
110	Sapphire and other dielectric waveguide devices. , 2008, , .		1
111	Dielectric waveguide lasers. Proceedings of SPIE, 2007, , .	0.8	0
112	KY(WO4)2:Tm3+ planar waveguide laser. , 2007, , .		1
113	Lu, Gd codoped KY(WO_4)_2:Yb epitaxial layers: towards integrated optics based on KY(WO_4)_2. Optics Letters, 2007, 32, 488.	3.3	57
114	Lasers and Coherent Light Sources. , 2007, , 583-936.		6
115	Focused ion beam scan routine, dwell time and dose optimizations for submicrometre period planar photonic crystal components and stamps in silicon. Nanotechnology, 2007, 18, 195305.	2.6	75
116	Optical waveguides in laser crystals. Comptes Rendus Physique, 2007, 8, 123-137.	0.9	23
117	Double Tungstate Lasers: From Bulk Toward On-Chip Integrated Waveguide Devices. IEEE Journal of Selected Topics in Quantum Electronics, 2007, 13, 661-671.	2.9	107
118	Yb-doped KY(WO4)2 planar waveguide laser. Optics Letters, 2006, 31, 53.	3.3	117
119	Optical Rib Waveguide Structures Based on (Lu, Gd) Co-doped KY(WO<inf>4</inf>)<inf>2</inf>: Yb Epitaxial Layers. , 2006, , .		0
120	Parallel broadband fluorescent light source for optical coherence tomography. , 2005, , .		4
121	Broadband luminescent materials in waveguide geometry. Journal of Luminescence, 2003, 102-103, 797-801.	3.1	8
122	Mid-Infrared Fiber Lasers. , 2003, , 225-261.		12
123	Ultrahigh resolution optical coherence tomography using a superluminescent light source. Optics Express, 2002, 10, 349.	3.4	84
124	Decorrelation of luminescent decay in energy-transfer upconversion. Journal of Alloys and Compounds, 2002, 341, 51-55.	5.5	5
125	Near-infrared to visible photon upconversion processes in lanthanide doped chloride, bromide and iodide lattices. Journal of Alloys and Compounds, 2000, 303-304, 307-315.	5.5	74
126	Determination of energy transfer parameters in Er3+-doped and Er3+, Pr3+-codoped ZBLAN glasses. , 2000, , .		0

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127	Diode-pumped 17-W erbium 3-Âµm fiber laser. Optics Letters, 1999, 24, 1133.	3.3	128
128	Near-infrared to visible upconversion inEr3+-dopedCs3Lu2Cl9,Cs3Lu2Br9,andCs3Y2I9excited at 1.54 Î¼m. Physical Review B, 1999, 60, 162-178.	3.2	99
129	Generation of high-power blue light in periodically poled LiNbO_3. Optics Letters, 1998, 23, 171.	3.3	100