Markus Pollnau

List of Publications by Year
in descending order

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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	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
2	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
3	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
4	Diode-pumped 17-W erbium 3-Âµm fiber laser. Optics Letters, 1999, 24, 1133.	3.3	128
5	Integration of femtosecond laser written optical waveguides in a lab-on-chip. Lab on A Chip, 2009, 9, 91-96.	6.0	119
6	Yb-doped KY(WO4)2 planar waveguide laser. Optics Letters, 2006, 31, 53.	3.3	117
7	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
8	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
9	Generation of high-power blue light in periodically poled LiNbO_3. Optics Letters, 1998, 23, 171.	3.3	100
10	Near-infrared to visible upconversion inEr3+-dopedCs3Lu2Cl9,Cs3Lu2Br9,andCs3Y2I9excited at 1.54 Î¼m. Physical Review B, 1999, 60, 162-178.	3.2	99
11	Ultrahigh resolution optical coherence tomography using a superluminescent light source. Optics Express, 2002, 10, 349.	3.4	84
12	Monolithic integration of erbium-doped amplifiers with silicon-on-insulator waveguides. Optics Express, 2010, 18, 27703.	3.4	84
13	Roadmap for optofluidics. Journal of Optics (United Kingdom), 2017, 19, 093003.	2.2	78
14	Erbium-doped spiral amplifiers with 20 dB of net gain on silicon. Optics Express, 2014, 22, 25993.	3.4	77
15	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
16	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
17	Giant Optical Gain in a Rareâ€Earthâ€Ionâ€Doped Microstructure. Advanced Materials, 2012, 24, OP19-22.	21.0	74
18	170 Gbit/s transmission in an erbium-doped waveguide amplifier on silicon. Optics Express, 2009, 17, 22201.	3.4	67

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19	Diode Pumped Erbium Cascade Fiber Lasers. IEEE Journal of Quantum Electronics, 2011, 47, 471-478.	1.9	59
20	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
21	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
22	Spectral domain optical coherence tomography imaging with an integrated optics spectrometer. Optics Letters, 2011, 36, 1293.	3.3	56
23	Toward Spectral-Domain Optical Coherence Tomography on a Chip. IEEE Journal of Selected Topics in Quantum Electronics, 2012, 18, 1223-1233.	2.9	45
24	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
25	Neodymium-complex-doped photodefined polymer channel waveguide amplifiers. Optics Letters, 2009, 34, 473.	3.3	43
26	Loss compensation in long-range dielectric-loaded surface plasmon-polariton waveguides. Optics Express, 2011, 19, 25298.	3.4	43
27	Nd-Doped Polymer Waveguide Amplifiers. IEEE Journal of Quantum Electronics, 2010, 46, 1043-1050.	1.9	42
28	Yb:KYW planar waveguide laser Q-switched by evanescent-field interaction with carbon nanotubes. Optics Letters, 2013, 38, 5090.	3.3	36
29	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
30	Optically pumped rare-earth-doped Al2O3 distributed-feedback lasers on silicon [Invited]. Optics Express, 2018, 26, 24164.	3.4	32
31	Fluorescence monitoring of microchip capillary electrophoresis separation with monolithically integrated waveguides. Optics Letters, 2008, 33, 2503.	3.3	29
32	Modulation-frequency encoded multi-color fluorescent DNA analysis in an optofluidic chip. Lab on A Chip, 2011, 11, 679-683.	6.0	29
33	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
34	Improved arrayed-waveguide-grating layout avoiding systematic phase errors. Optics Express, 2011, 19, 8781.	3.4	27
35	Optical sensing in microfluidic lab-on-a-chip by femtosecond-laser-written waveguides. Analytical and Bioanalytical Chemistry, 2009, 393, 1209-1216.	3.7	26
36	Intra-laser-cavity microparticle sensing with a dual-wavelength distributed-feedback laser. Laser and Photonics Reviews, 2013, 7, 589-598.	8.7	26

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37	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
38	Spectral coherence, Part I: Passive-resonator linewidth, fundamental laser linewidth, and Schawlow-Townes approximation. Progress in Quantum Electronics, 2020, 72, 100255.	7.0	25
39	Monocrystalline Yb^3+:(Gd,Lu)_2O_3 channel waveguide laser at 9768 nm. Optics Letters, 2009, 34, 2718.	3.3	24
40	Optical waveguides in laser crystals. Comptes Rendus Physique, 2007, 8, 123-137.	0.9	23
41	Impact of luminescence quenching on relaxation-oscillation frequency in solid-state lasers. Applied Physics Letters, 2012, 100, 011109.	3.3	23
42	Rare-Earth-Ion-Doped Channel Waveguide Lasers on Silicon. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 414-425.	2.9	23
43	Low threshold monocrystalline Nd:(Gd, Lu)_2O_3 channel waveguide laser. Optics Express, 2009, 17, 4412.	3.4	22
44	Integrated Optical Backplane Amplifier. IEEE Journal of Selected Topics in Quantum Electronics, 2011, 17, 609-616.	2.9	21
45	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
46	Temperature-dependent absorption and emission of potassium double tungstates with high ytterbium content. Optics Express, 2016, 24, 26825.	3.4	21
47	High optical gain in erbium-doped potassium double tungstate channel waveguide amplifiers. Optics Express, 2018, 26, 6260.	3.4	21
48	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
49	Graphene <i>Q</i>-switched Yb:KYW planar waveguide laser. AIP Advances, 2015, 5, .	1.3	20
50	Continuous-wave Nd-doped polymer lasers. Optics Letters, 2010, 35, 1983.	3.3	19
51	Integrated approach to laser delivery and confocal signal detection. Optics Letters, 2010, 35, 2741.	3.3	19
52	Micromechanically tuned ring resonator in silicon on insulator. Optics Letters, 2011, 36, 1047.	3.3	18
53	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
54	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

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55	Waveguide-coupled micro-ball lens array suitable for mass fabrication. Optics Express, 2015, 23, 22414.	3.4	14
56	Dual-point dual-wavelength fluorescence monitoring of DNA separation in a lab on a chip. Biomedical Optics Express, 2010, 1, 729.	2.9	13
57	Focused-ion-beam nanostructuring of Al2O3dielectric layers for photonic applications. Journal of Micromechanics and Microengineering, 2012, 22, 105008.	2.6	13
58	Mid-Infrared Fiber Lasers. , 2003, , 225-261.		12
59	Phase aspect in photon emission and absorption. Optica, 2018, 5, 465.	9.3	12
60	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
61	Direct confocal lifetime measurements on rare-earth-doped media exhibiting radiation trapping. Optical Materials Express, 2017, 7, 527.	3.0	10
62	Temperature dependence of the spectral characteristics of distributed-feedback resonators. Optics Express, 2018, 26, 4892.	3.4	10
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	Refractive-index variation with rare-earth incorporation in amorphous Al2O3 thin films. Journal of Non-Crystalline Solids, 2017, 476, 95-99.	3.1	9
65	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
66	Broadband luminescent materials in waveguide geometry. Journal of Luminescence, 2003, 102-103, 797-801.	3.1	8
67	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
68	Lasers and Coherent Light Sources. , 2012, , 641-1046.		7
69	Lasers and Coherent Light Sources. , 2007, , 583-936.		6
70	Flat-focal-field integrated spectrometer using a field-flattening lens. Optics Letters, 2012, 37, 4281.	3.3	6
71	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
72	Decorrelation of luminescent decay in energy-transfer upconversion. Journal of Alloys and Compounds, 2002, 341, 51-55.	5.5	5

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73	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
74	Rare-earth-ion-doped waveguide lasers on a silicon chip. , 2015, , .		5
75	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
76	Parallel broadband fluorescent light source for optical coherence tomography. , 2005, , .		4
77	Rare-Earth-Doped Waveguide Amplifiers and Lasers. Fundamental Theories of Physics, 2017, 51, 111-168.	0.3	4
78	Super-quadratic upconversion luminescence among lanthanide ions. Optics Express, 2019, 27, 33217.	3.4	4
79	Excitation and Light Collection from Highly Scattering Media with Integrated Waveguides. IEEE Photonics Technology Letters, 2010, , .	2.5	3
80	Polarization-independent Enhanced-resolution Arrayed-waveguide Grating used in Spectral-domain Optical Low-coherence Reflectometry. IEEE Photonics Technology Letters, 2012, , .	2.5	3
81	Accumulation of Distributed Phase Shift in Distributed-Feedback Resonators. IEEE Photonics Journal, 2019, 11, 1-9.	2.0	3
82	Efficiency of integrated waveguide probes for the detection of light backscattered from weakly scattering media. Applied Optics, 2011, 50, 935.	2.1	2
83	Comment on â€œHigh Gain Submicrometer Optical Amplifier at Near-Infrared Communication Bandâ€: Physical Review Letters, 2016, 117, 219701.	7.8	2
84	Spectroscopy of erbium-doped potassium double tungstate waveguides. , 2017, , .		2
85	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
86	Counter-propagating modes in a Fabryâ€“Perot-type resonator. Optics Letters, 2018, 43, 5033.	3.3	2
87	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
88	KY(WO4)2:Tm3+ planar waveguide laser. , 2007, , .		1
89	Sapphire and other dielectric waveguide devices. , 2008, , .		1
90	Silicon oxynitride technology for integrated optical solutions in biomedical applications. , 2011, , .		1

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91	Nd-doped waveguide amplifiers for heterogeneous integration in optical backplanes. , 2011, , .		1
92	Biophotonic sensors on a silicon chip for Raman spectroscopy and optical coherence tomography. Proceedings of SPIE, 2012, , .	0.8	1
93	Dual-wavelength Narrow-linewidth Lasers and Their Applications. , 2013, , .		1
94	Laser Eigenvalue, Coherence Time, Q-factor, and Linewidth. , 2015, , .		1
95	DNA separation and fluorescent detection in an optofluidic chip with sub-base-pair resolution. , 2015, , .		1
96	Optical gain around 1.5 µm in erbium-doped waveguide amplifiers. , 2015, , .		1
97	Combined microfluidic-optical DNA analysis with single-base-pair sizing capability. Biomedical Optics Express, 2016, 7, 5201.	2.9	1
98	Super-Quadratic Upconversion Luminescence among Lanthanide Ions. , 2019, , .		1
99	Characterization of Nd-doped polymer waveguide amplifiers near 1060 and 870 nm. , 2010, , .		1
100	Optical Rib Waveguide Structures Based on (Lu, Gd) Co-doped KY(WO<inf>4</inf>)<inf>2</inf>: Yb Epitaxial Layers. , 2006, , .		0
101	Dielectric waveguide lasers. Proceedings of SPIE, 2007, , .	0.8	0
102	Optical waveguide amplifiers for heterogeneous integration in optical backplanes. , 2010, , .		0
103	Rare-earth-ion doped amplifiers and lasers integrated on silicon. , 2011, , .		0
104	Monoclinic double tungstate waveguide amplifiers and microlasers. , 2011, , .		0
105	Study of sharp bends in anisotropic potassium double tungstate waveguides. , 2013, , .		0
106	Ultranarrow-linewidth lasers on a silicon chip and their applications. , 2014, , .		0
107	Efficient dielectric waveguide lasers. , 2016, , .		0
108	Temperature-dependent absorption and gain of ytterbium-doped potassium double tungstates for chip-scale amplifiers and lasers. Proceedings of SPIE, 2017, , .	0.8	0

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109	The linewidth of distributed feedback resonators: the combined effect of thermally induced chirp and gain narrowing. Proceedings of SPIE, 2017, , .	0.8	0
110	Mode profiles and Airy distributions of Fabry-PÃ©rot resonators with frequency-dependent mirror reflectivity. , 2017, , .		0
111	Vacuum fluctuations and the laser linewidth. , 2017, , .		0
112	High gain in erbium-doped channel waveguides. , 2017, , .		0
113	Temperature dependence of transition cross sections in rare-earth-doped laser materials. , 2017, , .		0
114	Frequency and linewidth dependence of distributed-feedback resonators on thermal chirp. , 2017, , .		0
115	Energy-Transfer Processes Among Non-Homogeneously Distributed Rare-Earth Ions and Impact on Amplification and Lasing. , 2018, , .		0
116	Spectral Response of Distributed-Feedback Resonators with a Continuously Distributed Phase Shift. , 2019, , .		0
117	The Laser Linewidth â€“ Fairy Tales and Physical Evidence. , 2019, , .		0
118	Light Intensity Distributions in Bragg Gratings and Distributed-feedback Resonators. , 2020, , .		0
119	Determination of energy transfer parameters in Er3+-doped and Er3+, Pr3+-codoped ZBLAN glasses. , 2000, , .		0
120	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
121	Narrow-Linewidth Lasers on a Silicon Chip. NATO Science for Peace and Security Series B: Physics and Biophysics, 2015, , 237-248.	0.3	0
122	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
123	Temperature dependence of spectral characteristics of distributed feedback resonators. , 2018, , .		0
124	Stochastic model of energy transfer processes among rare earth ions. , 2018, , .		0
125	Gain dynamics in a highly ytterbium-doped potassium double tungstate thin-film amplifier. , 2019, , .		0
126	Lasing wavelength in dielectric distributed-feedback lasers with a distributed phase shift. , 2019, , .		0

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127	Phase aspect in stimulated and spontaneous emission and the laser linewidth. , 2019, , .		0
128	Spectral behavior of integrated distributed-feedback resonators utilizing a distributed phase shift. , 2019, , .		0
129	Spectroscopy, Cooperative Upconversion and Optical Gain in Amorphous Al2O3:Yb3+ Waveguides on Silicon. , 2020, , .		0