

Language Skills

German (native)
English (excellent)
French (excellent)

Reviewer for Journals

Journal of Materials Science

List of Publications

Journal Publications

1. "Improved organic semiconductor lasers based on a mixed-order distributed feedback resonator design"
C. Karnutsch, C. Pflumm, G. Heliotis, J.C. deMello, D.D.C. Bradley, J. Wang, T. Weimann, V. Haug, C. Gärtner, U. Lemmer
Applied Physics Letters **90**, 131104, 2007
2. "Laser diode pumped organic semiconductor lasers utilizing two-dimensional photonic crystal resonators"
C. Karnutsch, M. Stroisch, M. Punke, U. Lemmer, J. Wang, T. Weimann
IEEE Photonics Technology Letters, **19** (10), p. 741-743, 2007
3. "Numerical Device Simulation of Double-Heterostructure Organic Laser Diodes Including Current Induced Absorption Processes"
C. Gärtner, C. Karnutsch, C. Pflumm, U. Lemmer
IEEE Journal of Quantum Electronics, submitted for publication, 2007
4. "The Influence of Annihilation Processes on the Threshold Current Density of Organic Laser Diodes"
C. Gärtner, C. Karnutsch, C. Pflumm, U. Lemmer
Journal of Applied Physics **101**, 023107, 2007
5. "Low threshold blue conjugated polymer lasers with first- and second-order distributed feedback"
C. Karnutsch, C. Gaertner, V. Haug, U. Lemmer, T. Farrell, B.S. Nehls, U. Scherf, J. Wang, T. Weimann, G. Heliotis, C. Pflumm, J.C. deMello, D.D.C. Bradley
Applied Physics Letters, **89**, 201108, 2006
6. "High-repetition-rate white-light pump-probe spectroscopy with a tapered fiber"
M. Punke, F. Hoos, C. Karnutsch, U. Lemmer, N. Linder, K. Streubel
Optics Letters, **31** (8), p. 1157-1159, 2006
7. "Amplified spontaneous emission in an organic semiconductor multilayer waveguide structure including a highly conductive transparent electrode"
M. Reufer, J. Feldmann, C. Karnutsch, M. Gerken, U. Lemmer, P. Rudati, A. Ruhl, D. Müller, K. Meerholz
Applied Physics Letters, **86**, 221102, 2005

8. "Parametric study of modal gain and threshold power density in electrically pumped single-layer organic optical amplifier and laser diode structures"
C. Pflumm, C. Karnutsch, M. Gerken, U. Lemmer
IEEE Journal of Quantum Electronics, **41** (3), p. 316-336, 2005
9. "Absorption and Light Scattering in InGaN-on-Sapphire- and AlGaInP-Based Light-Emitting Diodes"
S.-S. Schad, B. Neubert, C. Eichler, M. Scherer, F. Habel, M. Seyboth, F. Scholz, D. Hofstetter, P. Unger, W. Schmid, C. Karnutsch, K. Streubel
IEEE Journal of Lightwave Technology, **22** (10), p. 2323-2332, 2004
10. "Omni-directionally reflective contacts for light-emitting diodes"
T. Gessmann, E.F. Schubert, J.W. Graff, C. Karnutsch, K. Streubel
IEEE Electron Device Letters, **24** (10), p. 683-685, 2003
11. "High Efficiency, red and infrared light-emitting diodes using radial outcoupling taper"
W. Schmid, M. Scherer, C. Karnutsch, B. Neubert, S.-S. Schad, W. Wegleiter, A. Plöchl, K. Streubel
IEEE Journal on Selected Topics in Quantum Electronics, **8** (2), p. 256-263, 2002
12. "High Efficiency Resonant Cavity LEDs emitting at 650 nm"
R. Wirth, C. Karnutsch, S. Kugler, K. Streubel
IEEE Photonics Technology Letters, **13** (5), p. 421-423, 2001

Conference Proceedings and Abstracts

1. "Numerical study of annihilation processes, excited state absorption and field quenching for various organic laser diode design concepts"
C. Gärtner, C. Karnutsch, U. Lemmer
submitted to the 2007 European Conference on Molecular Electronics (ECME), Metz, France, September 2007
2. "All-organic waveguide coupled solid-state distributed feedback laser"
M. Punke, T. Woggon, M. Stroisch, M. P. Heinrich, C. Karnutsch, S. Mozer, U. Lemmer, M. Bruendel, D. G. Rabus, T. Weimann
accepted for presentation at the European Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference (CLEO Europe), Munich, Germany, June 2007
3. "Organic semiconductor lasers as integrated light sources for optical sensor systems"
M. Punke, T. Woggon, M. Stroisch, B. Ebenhoch, U. Geyer, C. Karnutsch, M. Gerken, U. Lemmer, M. Bruendel, J. Wang, T. Weimann
accepted for presentation at SPIE Optics&Photonics, San Diego, CA, USA, August 2007
4. "Loss Processes in Organic Double-Heterostructure Laser Diodes"
C. Gärtner, C. Karnutsch, U. Lemmer
accepted for presentation at SPIE Optics&Photonics, San Diego, CA, USA, August 2007

5. "Rate coefficients of bimolecular singlet exciton annihilation in organic semiconductor materials"
C. Gärtner, C. Karnutsch, U. Lemmer
accepted for presentation at the 7th International Conference on Optical Probes of π -Conjugated Polymers and Functional Self Assemblies (OP), Turku, Finland, June 2007
6. "Reducing the impact of charge carrier induced absorption in organic double - heterostructure laser diodes"
C. Gärtner, C. Karnutsch, U. Lemmer
accepted for presentation at the European Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference (CLEO Europe), Munich, Germany, June 2007
7. "Influence of electronic properties on the threshold behavior of organic laser diode structures"
C. Pflumm, C. Gärtner, C. Karnutsch, U. Lemmer
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices X, Vol. 6333, 63330W, 2006
8. "Numerical study of annihilation processes in electrically pumped organic semiconductor laser diodes"
C. Gärtner, C. Pflumm, C. Karnutsch, V. Haug, U. Lemmer
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices X, Vol. 6333, 63331J, 2006
9. "Low threshold blue conjugated polymer DFB lasers"
C. Karnutsch, V. Haug, C. Gärtner, U. Lemmer, T. Farrell, B.S. Nehls, U. Scherf, J. Wang, T. Weimann, G. Heliotis, C. Pflumm, J.C. deMello, D.D.C. Bradley
Conference on Lasers and Electro-Optics (CLEO), CFJ3, Long Beach, CA, USA, 2006
10. "Organic semiconductor distributed feedback lasers" (Invited Paper)
W. Kowalsky, T. Rabe, D. Schneider, H.-H. Johannes, C. Karnutsch, M. Gerken, U. Lemmer, J. Wang, T. Weimann, P. Hinze, T. Riedl
Proceedings of the SPIE: Nanosensing: Materials and Devices II, Vol. 6608, p. 194-208, 2005
11. "Modelling of the laser dynamics of electrically pumped organic semiconductor laser diodes"
C. Pflumm, C. Karnutsch, R. Boschert, M. Gerken, U. Lemmer, J.C. de Mello, D.D.C. Bradley
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices IX, Vol. 5937, p. 79-91, 2005
12. "Numerical simulation of modal gain in electrically pumped organic semiconductor lasers"
C. Pflumm, C. Karnutsch, M. Gerken, U. Lemmer
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices VIII, Vol. 5519, p. 279-286, 2004

13. "Gain and Polaron Absorption in Electrically Pumped Single-Layer Organic Laser Diodes"
C. Pflumm, C. Karnutsch, M. Gerken, U. Lemmer
34th European Solid-State Device Research Conference (ESSDERC), Leuven, Belgium, 2004
14. "900 mW continuous wave operation of AlInGaP tapered lasers and superluminescent diodes at 640 nm"
N. Linder, R. Butendeich, W. Schmid, S. Tautz, K. Streubel, C. Karnutsch, S. Rurländer, H. Schweizer, F. Scholz
Conference on Lasers and Electro-Optics (CLEO), CMJ1, San Francisco, CA, USA, 2004
15. "High power AlInGaP broad area lasers and laser bars in the visible range from 635 nm to 670 nm"
S. Tautz, W. Schmid, J. Maric, R. Butendeich, K. Streubel, N. Linder, C. Karnutsch
Conference on Lasers and Electro-Optics (CLEO), CTuP20, San Francisco, CA, USA, 2004
16. "Recent progress of AlGaInP thin-film light-emitting diodes"
R. Wirth, C. Karnutsch, S. Illek, I. Pietzonka, A. Plößl, P. Stauss, W. Stein, W. Wegleiter, H. Zull, R. Windisch, K. Streubel
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices VII, Vol. 4996, p. 1-9, 2003
17. "Absorption of guided modes in light-emitting diodes"
S.-S. Schad, B. Neubert, C. Karnutsch, W. Schmid, M. Seyboth, P. Unger
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices VII, Vol. 4996, p. 10-17, 2003
18. "Wafer-bonded thin-film surface-roughened light emitting diodes"
C. Rooman, S. De Jonge, C. Karnutsch, K. Streubel, M. Kuijk, B. Dutta, G. Borghs, P. Heremans
Proceedings of the SPIE: Organic Light-Emitting Materials and Devices VII, Vol. 4996, p. 40-45, 2003
19. "High Extraction Efficiency AlGaInP Microcavity Light Emitting Diodes at 650 nm with AlGaAs-AIO_x DBR"
R. Joray, J. Dorsaz, R.P. Stanley, M. Ilegems, M. Rattier, C. Karnutsch, K. Streubel
ISCS 2002 (29th International Symposium on Compound Semiconductors), Lausanne, Switzerland, 2002
20. "Optically Pumped Vertical External Cavity Semiconductor Thin-Disk Laser with CW Operation at 660 nm"
M. Müller, N. Linder, C. Karnutsch, J. Luft, W. Schmid, K. Streubel, S. Beyertt, U. Brauch, A. Giesen, G. Döhler
ISCS 2002 (29th International Symposium on Compound Semiconductors), Lausanne, Switzerland, 2002

21. "High Power 660 nm Optically Pumped Semiconductor Thin-Disk Lasers"
N. Linder, C. Karnutsch, J. Luft, M. Müller, W. Schmid, K. Streubel, S.-S. Beyertt,
A. Giesen, G. Döhler
IEEE LEOS Summer Topicals, MF2 5-6, Quebec, Canada, 2002
22. "Efficient InAlGaP Light-Emitting Diodes using Radial Outcoupling Taper"
M. Scherer, B. Neubert, S.-S. Schad, W. Schmid, C. Karnutsch, W. Wegleiter,
A. Plößl, K. Streubel
Proceedings of the SPIE: Light-Emitting Diodes: Research, Manufacturing, and
Applications VI, Vol. 4641, p. 31-41, 2002
23. "Thin-film surface textured LEDs with current injection through a rear reflector"
R. Windisch, C. Rooman, S. De Jonge, C. Karnutsch, M. Kuijk, B. Dutta, G. Borghs,
K. Streubel, P. Heremans
Proceedings of the SPIE: Light-Emitting Diodes: Research, Manufacturing, and
Applications VI, Vol. 4641, p. 13-18, 2002
24. "Optically Pumped Semiconductor Thin-Disk-Laser with External-Cavity Operating at
650 nm"
M. Müller, N. Linder, C. Karnutsch, W. Schmid, K. Streubel, J. Luft, S.-S. Beyertt,
A. Giesen, G. Döhler
Proceedings of the SPIE: Vertical-Cavity Surface-Emitting Lasers VI, Vol. 4649, p.
265-271, 2002
25. "Resonant-Cavity LEDs for plastic optical fiber communication"
R. Wirth, C. Karnutsch, S. Kugler, W. Plass, W. Huber, E. Baur, K. Streubel
10th International Plastic Optical Fibres Conference, Amsterdam, Netherlands, 2001
26. "IEEE1394b POF transmission system 500Mbit/s versus 50m 0.3NA POF"
N. Schunk, K. Panzer, E. Baur, W. Kuhlmann, K. Streubel, R. Wirth, C. Karnutsch
10th International Plastic Optical Fibres Conference, Amsterdam, Netherlands, 2001
27. "Red and Orange RCLEDs"
R. Wirth, C. Karnutsch, S. Kugler, S. Thaler, K. Streubel
Proceedings of the SPIE: Light-Emitting Diodes: Research, Manufacturing, and
Applications V, Vol. 4278, p. 41-49, 2001

Recent Talks and Presentations (1 year)

1. "Low-threshold blue vertically emitting polyfluorene DFB lasers employing first-order
feedback"
contributed talk presented at SPIE Optics&Photonics, San Diego, CA, USA, August
2006
2. "Low-threshold organic semiconductor lasers"
invited talk presented at the Optical Society of America (OSA) meeting, Rochester
Section, Rochester, NY, USA, August 2006
3. "Low-threshold organic semiconductor lasers"
invited talk presented at the National Institute of Standards and Technology (NIST),
Boulder, CO, USA, August 2006

4. "Low threshold blue conjugated polymer DFB lasers"
contributed talk presented at the Conference on Lasers and Electro-Optics (CLEO), Long Beach, CA, USA; May 2006
5. "Low-threshold organic semiconductor lasers"
invited talk presented at SPIE Photonics Europe, Strasbourg, France, April 2006

Patents

1. "Optically Pumped Semiconductor Device"
Publication info: EP1741170 - 2007-01-10
2. "Optically pumped radiation-emitting semiconductor-device and its production method"
Publication info: TW250708B - 2006-03-01
3. "Electromagnetic radiation-emitting semiconductor-chip and its production method"
Publication info: TW244219B - 2005-11-21
4. "Method for producing an electromagnetic radiation-emitting semiconductor chip and a corresponding electromagnetic radiation-emitting semiconductor chip"
Publication info: US2006003467 - 2006-01-05
5. "Semiconductor edge emitting laser has active layer on resonator axis and epitaxially grown resonating mirrors on the side surfaces of the semiconductor body"
Publication info: DE10323860 - 2004-11-11
6. "Radiation emitting semiconducting component has radiation generating active layer between 2 distributed Bragg reflectors forming optical resonator; active layer thickness exceeds resonator wavelength"
Publication info: DE10253908 - 2004-04-08
7. "Electromagnetic radiation-emitting semiconductor component used as an illuminating diode has an electrically conducting covering layer which is p-doped using carbon to produce good electrical conductivity"
Publication info: DE10253160 - 2004-03-11

Published Patent Applications

1. "Semiconductor optical pumping device for radiation emission and the production method thereof"
Publication Info: 20060104327
2. "Method for producing an electromagnetic radiation-emitting semiconductor chip and a corresponding electromagnetic radiation-emitting semiconductor chip"
Publication Info: 20060003467