

Daniel Palanker

Department of Ophthalmology and
Hansen Experimental Physics Laboratory,
Stanford University, CA 94305-4085

Tel: (650) 725-0059,

Fax: (650) 725-8311,

e-mail: palanker@stanford.edu

<http://www.stanford.edu/~palanker/>



Professional Interests

Interactions of electric field and light with biological cells and tissues and their applications to ophthalmology:

- Laser-tissue interactions: Retinal laser therapy; Ultrashort-pulse laser surgery; Retinal plasticity; Optical imaging and spectroscopy.
- Electric field-tissue interactions: Electro-Neural interfaces; Photovoltaic Retinal Prosthesis; Electronic Control of Vasculature; Electroporation.

Education

1996 - 1998: **Postdoctoral fellowship** at Picosecond Free Electron Laser Center, Stanford University, CA, USA. "Photo-induced transient optical elements for near-field IR microscopy"

1989 - 1995: **Ph.D.** in Physics (with highest honors), the Hebrew University of Jerusalem, Israel. Dissertation Title: "Photoablation of Soft Tissues Using Lensless Optics and its Applications to Medicine and Biology".

1979 - 1984: **M.Sc.** in Physics, Yerevan State University, USSR.
Thesis: "Scattering of X-rays on Crystals with Deformations"

Academic career

2007 - Department of Ophthalmology, School of Medicine, and Hansen Experimental Physics Laboratory, Stanford University.

Associate Professor

2001 - 2007 Department of Ophthalmology, School of Medicine, and Hansen Experimental Physics Laboratory, Stanford University.

Assistant Professor

1998 - 2000 Department of Ophthalmology and Hansen Experimental Physics Laboratory, Stanford University.

Senior Research Scientist

1998 Picosecond Free Electron Laser Center,
Hansen Experimental Physics Laboratory, Stanford University.

Research Associate

- 1996 - 1997 Hansen Experimental Physics Laboratory, Stanford University.
Post Doctoral Research Fellow
- 1994 - 1996 Laser Center of The Hadassah Hebrew University Hospital, Jerusalem.
Research Scientist
- 1988 - 1994 Applied Physics Division, The Hebrew University of Jerusalem.
Research Assistant
- 1984 - 1987 Institute of Applied Physics, Academy of Sciences, Yerevan, USSR.
Research Assistant

Affiliations

APS - American Physical Society, **SPIE** - The International Society for Optical Engineering, **OSA** – Optical Society of America, **ARVO** - Association for Research in Vision and Ophthalmology, **AAAS** - American Association for the Advancement of Science.

Honors and Awards

- 2012 R&D 100 award for invention and development of the OCT-Guided Femtosecond Laser System for Cataract Surgery, with OptiMedica Inc.
- 2009 Medical Design Excellence Award for invention and development of the Pulsed Electron Avalanche Knife (PEAK), with PEAK Surgical Inc.
- 2007 R&D 100 award for invention and development of the Pattern Scanning Laser Photocoagulator (PASCAL), with M. Blumenkranz and OptiMedica Inc.
- 2004 Pascal Rol award for the best paper on *Ophthalmic Technologies Conference*, SPIE meeting BIOS 2004 (Photonics West 2004).
- 2001 Winner of the *Collegiate Inventors Competition* of the *US National Inventors Hall of Fame* (advisor of D. Fletcher).
- 2000 First Place Award in *Instrumentation, Pharmaceuticals and Devices*, US Vitreous Society. Awarded for "New Plasma-based Cutting Instrument for Vitreoretinal Surgery" (with M.S. Blumenkranz and S. Sanislo).
- 1995 Dr. Shlomiuk award from the board of The Hebrew University of Jerusalem for outstanding Ph.D. Research.
- 1992 Wolf Foundation scholarship for outstanding doctoral students.
- 1991 Prof. Rabau award of the Israel Society for Fertility Research for the application of the ArF excimer laser to In Vitro Fertilization.

Teaching

Lasers in Medicine – 3 units course for undergraduate students.
Basic Science Course in Ophthalmology (lectures on Ophthalmic Lasers)
Making Sense of the Human Senses (lectures related to restoration of sight through biotechnology)

Technology Transfer

More 20 issued patents and patent applications have been successfully transferred to industrial development and manufacturing. [Pattern Scanning Laser Photocoagulator \(PASCAL\)](#), [Pulsed Electron Avalanche Knife \(PEAK PlasmaBlade\)](#) and [OCT-guided Femtosecond Laser for Cataract Surgery](#) are currently in clinical use world-wide.

Other Experience

- 2012 – present Member of the Editorial Board, *Translational Vision Science & Technology*.
- 2010 – present Member of the Editorial Board, *Clinical & Experimental Ophthalmology*.
- 2004 – present Member of the Editorial Board, *Expert Review of Medical Devices*.
- 2004 – present Organizing Committee Member, Ophthalmic Technologies Conference, SPIE.

2004 - 2011 NIH Scientific Review Panel.
2004 – 2011 Department of Veterans Affairs, Scientific Merit Review Advisory Board.

List of publications (in reversed chronological order)

Book Chapters:

Retinal Laser Therapy: Biophysical Basis and Applications. D. Palanker, M.S. Blumenkranz; Chapter 39 in RETINA, 5th edition, Ryan, Schachat, Wilkinson, Hinton, Sadda, Wiedemann (Eds), vol. 3, Mosby Inc., St. Louis, 2012.

Imaging Systems and Image-guided Surgery. S.D. Klyce, D. Palanker, K.H. Edwards, R.R. Krueger. Chapter 5 in Textbook of Refractive Laser Assisted Cataract Surgery (ReLACS); by Krueger RR, Talamo JH, Lindstrom RL (Eds). Springer, New York, NY, 2012.

Delivery of Information and Power to the Implant, Integration of the Electrode Array with the Retina, and Safety of Chronic Stimulation. J. Loudin, A. Butterwick, P. Huie, and D. Palanker. , Chapter 7 in VISUAL PROSTHETICS: Physiology, Bioengineering, Rehabilitation. G. Dagnelie (Editor), Springer 2010.

High-Resolution Electronic Retinal Prosthesis: Physical Limitations and Design. D. Palanker, A. Vankov, P. Huie, A. Butterwick, I. Chan, M.F. Marmor and M.S. Blumenkranz; Chapter 14 in ARTIFICIAL SIGHT: BASIC RESEARCH, BIOMEDICAL ENGINEERING, AND CLINICAL ADVANCES; M.S. Humayun, J.D. Weiland, G. Chader, E. Greenbaum (Eds.), Springer Series: Biological and Medical Physics, Biomedical Engineering, New York, 2007.

Retinal Laser Therapy: Biophysical Basis and Applications, D. Palanker, M.S. Blumenkranz, J.J. Weiter; Chapter 22 in RETINA, 4th edition, Ed. S.J. Ryan, vol. 3, Mosby, Inc., St. Louis, MI, 2005.

Refereed:

1. [Cortical Responses Elicited by Photovoltaic Subretinal Prostheses Exhibit Similarities to Visually Evoked Potentials](#). Y. Mandel, G. Goetz, D. Lavinsky, P. Huie, K. Mathieson, L. Wang, T. Kamins, L. Galambos, R. Manivanh, J. Harris, D. Palanker. *Nature Communications* **4**: published online June 18 (2013).
2. [Restoration of Retinal Structure and Function after Selective Photocoagulation](#). A. Sher, B.W. Jones, P. Huie, Y.M. Paulus, D. Lavinsky, L.S. Leung, H. Nomoto, C. Beier, R.E. Marc, and D. Palanker. *The Journal of Neuroscience* **33(16)**: 6800 – 6808 (2013).
3. [Restoration of retinal morphology and residual scarring after photocoagulation](#). Lavinsky D, Cardillo JA, Mandel Y, Huie P, Melo LA, Farah ME, Belfort R, Palanker D. *Acta Ophthalmol.* Apr 5. doi: 10.1111/aos.12045. [Epub ahead of print] (2013).
4. [Optical Patient Interface in Femtosecond Laser-Assisted Cataract Surgery: Contact Corneal Ablation versus Liquid Immersion](#). J.H.Talamo, P. Gooding, D. Angeley, W.W. Culbertson, G. Schuele, D. Andersen, G. Marcellino, E. Essock-Burns, J. Battle, R. Feliz, N.J. Friedman, D. Palanker. *Journal of Cataract and Refractive Surgery*, **39 (4)**: 501-510 (2013).
5. [Modulation of Transgene Expression in Retinal Gene Therapy by Selective Laser Treatment](#). D. Lavinsky , T.W. Chalberg , Y. Mandel, P. Huie, R. Dalal , M. Marmor, D. Palanker. *Investigative Ophthalmology and Visual Science*, **54**:1873-1880 (2013).
6. [Upper Threshold of Extracellular Neural Stimulation](#). D. Boinagrov, S. Pangratz-Fuehrer, B. Suh, K. Mathieson, N. Naik, D. Palanker. *Journal of Neurophysiology*, **108**: 3233-3238 (2012).

7. [Effect of Intravitreal Triamcinolone Acetonide on Healing of Retinal Photocoagulation Lesions.](#) H. Nomoto, D. Lavinsky, Y.M. Paulus, L.S. Leung, R. Dalal, M.S. Blumenkranz, D. Palanker, *Retina*, **33(1)**:63-70 (2013).
8. [Femtosecond plasma mediated laser ablation has advantages over mechanical osteotomy of cranial bone.](#) Lo DD, Mackanos MA, Chung MT, Hyun JS, Montoro DT, Grova M, Liu C, Wang J, Palanker D, Connolly AJ, Longaker MT, Contag CH, Wan DC. *Lasers Surg Med*, **44(10)**:805-14 (2012).
9. [Retinal Safety of Near-Infrared Lasers in Cataract Surgery.](#) J. Wang, C. Sramek, Y.M. Paulus, D. Lavinsky, G. Schuele, D. Anderson, D. Dewey, D. Palanker. *Journal of Biomedical Optics*, **17(9)**, 095001 (2012).
10. [Photovoltaic retinal prosthesis: implant fabrication and performance.](#) L Wang, K Mathieson, T I Kamins, J D Loudin, L Galambos, G Goetz, A Sher, Y Mandel, P Huie, D Lavinsky, J S Harris and D V Palanker. *Journal of Neural Engineering* **9**: 046014 (11pp) (2012)
11. [Photovoltaic Retinal Prosthesis with High Pixel Density.](#) K. Mathieson, J. Loudin, G. Goetz, P. Huie, L. Wang, T.I. Kamins, L. Galambos, R. Smith, J.S. Harris, A. Sher, D. Palanker. *Nature Photonics*, **6(6)**: 391–397 (2012).
12. [Therapeutic Window of Retinal Photocoagulation With Green \(532-nm\) and Yellow \(577-nm\) Lasers.](#) Sramek CK, Leung LS, Paulus YM, Palanker DV. *Ophthalmic Surg Lasers Imaging*, **43(4)**: 341-347 (2012).
13. [Long-Term Safety, High-Resolution Imaging, and Tissue Temperature Modeling of Subvisible Diode Micropulse Photocoagulation for Retinovascular Macular Edema.](#) Luttrull, J.K; Sramek, C.; Palanker, D.; Spink, C.J; Musch, D.C. *Retina*, **32(2)**: 375–386 (2012).
14. [Fifty Years of Ophthalmic Laser Therapy.](#) D.V. Palanker, M.S. Blumenkranz, M.F. Marmor. *Archives of Ophthalmology* **129 (12)**: 1613-1619 (2011)
15. [Femtosecond laser capsulotomy.](#) Friedman NJ, Palanker DV, Schuele G, Andersen D, Marcellino G, Seibel BS, Batlle J, Feliz R, Talamo JH, Blumenkranz MS, Culbertson WW . *J Cataract Refract Surg* **37(7)**: 1189-98 (2011).
16. [Photodiode Circuits for Retinal Prostheses.](#) J.D. Loudin, S.F. Cogan, K. Mathieson, A. Sher, and D.V. Palanker. *IEEE Transactions on Biomedical Circuits and Systems*, 1932-4545 (2011)
17. [The Impact of Pulse Duration and Burn Grade on Size of Retinal Photocoagulation Lesion: Implications for Pattern Density.](#) D. Palanker, D. Lavinsky, M.S. Blumenkranz, G. Marcellino. *RETINA* **31(8)**: 1664-1669 (2011)
18. [New Horizons in Retinal Laser Treatment: Sublethal Laser Therapy.](#) Y. M. Paulus, C. Sramek, M.S. Blumenkranz, D. Palanker, *Retinal Physician* **March**, (2011)
19. [Improving the Therapeutic Window of Retinal Photocoagulation by Spatial and Temporal Modulation of the Laser Beam.](#) C. Sramek; D. L.S. Leung; T. Leng; Y.M. Paulus; J. Brown; G. Schuele; D. Palanker. *Journal of Biomedical Optics* **16(02)**: 028004; (2011).
20. [Non-damaging Retinal Phototherapy: Dynamic Range of Heat Shock Protein Expression.](#) C. Sramek, M. Mackanos, R. Spitler, L.S. Leung, H. Nomoto, C. Contag, D. Palanker. *Invest. Ophthalmol. Vis. Sci.* **52(3)**:1780-7 (2011).
21. [Femtosecond Laser-Assisted Cataract Surgery with Integrated Optical Coherence Tomography.](#) D. V. Palanker, M. S. Blumenkranz, D. Andersen, M. Wiltberger, G. Marcellino, P. Gooding, D. Angeley, G. Schuele, B. Woodley, M. Simoneau, N. J. Friedman, B. Seibel, J. Batlle, R. Feliz, J. Talamo, W. Culbertson., *Science Translational Medicine* **2 (58)**: 1-9, 58ra85 (2010).
22. [Optical breakdown in transparent media with adjustable axial length and location.](#) I. Toytman; D. Simanovski; D. Palanker. *Optics Express*. **18(24)**: 24688-24698 (2010).

23. [Multi-Focal Laser Surgery: Cutting Enhancement by Hydrodynamic Interactions Between Cavitation Bubbles](#). I. Toytman, A. Silbergleit, D. Simanovski, D. Palanker. *Physical Review E* (2010)
24. [Selective Retinal Therapy with Microsecond Exposures Using a Continuous Line Scanning Laser](#). Y. M. Paulus, ATul Jain, H. Nomoto, C. Sramek, R. F. Gariano, D. Andersen, G. Schuele, L.S. Leung, T. Leng, D.l Palanker. *RETINA* :1–9, (2010)
25. [Strength-duration relationship for extracellular neural stimulation: numerical and analytical models](#). D. Boinagrov, J. Loudin, D. Palanker. *Journal of Neurophysiology*. **104**: 2236 - 2248. (2010)
26. [Patterned Laser Trabeculoplasty](#) . M. Turati, F. Gil-Carrasco, A. Morales, H. Quiroz-Mercado, D. Andersen, G. Marcellino, G. Schuele, D. Palanker. *Ophthalmic Surgery Lasers and Imaging*, **41**:538-545 (2010).
27. [Short-pulse Laser Treatment: Redefining Retinal Therapy](#). Y. Paulus, D. Palanker, M.S. Blumenkranz. *Retinal Physician*, **7(1)**: 54-59 (2010).
28. [Anterior Capsulotomy with a Pulsed Electron Avalanche Knife \(PEAK\)](#). D. Palanker, H. Nomoto, P. Huie, A. Vankov, D.F. Chang. *Journal of Cataract and Refractive Surgery*, **36(1)**: 127-132 (2010)
29. [Comparative Healing of Surgical Incisions Created by the PEAK PlasmaBlade, Conventional Electrosurgery, and a Scalpel](#). S.A. Loh, G.A. Carlson, E.I. Chang, E. Huang, D. Palanker, G.C. Gurtner. *Plastic and Reconstructive Surgery*, **124 (6)**: 1849-1859 (2009).
30. [Dynamics of Retinal Photocoagulation and Rupture](#). C. Sramek, Y. Paulus, H. Nomoto, P. Huie, J. Brown, D. Palanker. *J. Biomedical Optics*, **14(3)**, 034007 (2009).
31. [On Illumination Schemes for Wide-Field CARS Microscopy](#). I. Toytman, D. Simanovskii, and D. Palanker, *Optics Express*, **17(9)**: 7339-7347 (2009). Reprinted in *The Virtual Journal for Biomedical Optics*. **4 (6) May 26**, 2009
32. [Effect of shape and coating of a subretinal prosthesis on its integration with the retina](#). A. Butterwick, P. Huie, B.W. Jones, R.E. Marc, M. Marmor, D. Palanker. *Experimental Eye Research*; **88 (1)**: 22—29 (2009).
33. [On Mechanisms of Interaction in Electrosurgery](#). D. Palanker, A. Vankov, P. Jayaraman. *New Journal of Physics*. **10**: 123022 (15pp) (2008).
34. [Healing of Retinal Photocoagulation Lesions](#). Y.M. Paulus, A. Jain, R.F. Gariano, B.V. Stanzel, M.F. Marmor, M.S. Blumenkranz, and D.V. Palanker. *Investigative Ophthalmology and Visual Science*; **49(12)**: 5540-5545 (2008).
35. [Electrosurgery with Cellular Precision](#). D. Palanker, A. Vankov, P. Huie. *IEEE Transactions on Biomedical Engineering*, **55(2)**: 838-841 (2008).
36. [Effect of Pulse Duration on Size and Character of the Lesion in Retinal Photocoagulation](#). A. Jain, M.S. Blumenkranz, Y. Paulus, M.W. Wiltberger, D.E. Andersen, P. Huie, D. Palanker. *Archives of Ophthalmology* **126 (1)**: 78-85 (2008).
37. [Pulsed electrical stimulation for control of vasculature: Temporary vasoconstriction and permanent thrombosis](#). D. Palanker, A. Vankov, Y. Freyvert, P.Huie, *Bioelectromagnetics*, **29**:100-107 (2008).
38. [Tissue damage by pulsed electrical stimulation](#). A. Butterwick, A. Vankov, P. Huie, Y. Freyvert, D. Palanker. *IEEE Transactions on Biomedical Engineering*, **54(12)**: 2261-2267 (2007).
39. [Image processing for a high-resolution optoelectronic retinal prosthesis](#). Asher, A; Segal, WA; Baccus, SA; Yaroslavsky, LP; Palanker, DV; *IEEE Transactions on Biomedical Engineering*, **54(6)**: 993-1004 (2007).

40. [Wide-field coherent anti-Stokes Raman scattering microscopy with non-phase-matching illumination](#). I. Toytman, K. Cohn, T. Smith, D. Simanovskii, and D. Palanker, *Optics Letters*, **32** (13): 1941-1943 (2007).
41. [Nanosecond plasma-mediated electrosurgery with elongated electrodes](#). A. Vankov, D. Palanker, *Journal of Applied Physics*, 101: 124701 (2007)
42. [Pulsed Electron Avalanche Knife \(PEAK-fc\): New Technology for Cataract Surgery](#). S.G. Priglinger, D. Palanker, C.S. Alge, T.C. Kreutzer, C. Haritoglou, M. Grueterich and A. Kampik, *British Journal of Ophthalmology*, **91**: 949 — 954 (2007).
43. [Optoelectronic retinal prosthesis: system design and performance](#). J.D. Loudin, D.M. Simanovskii, K. Vijayraghavan, C.K. Sramek, A.F. Butterwick, P. Huie, G.Y. McLean, and D.V. Palanker. *Journal of Neural Engineering*, **4**: S72—S84 (2007).
44. [Gene Transfer to Rabbit Retina with Electron Avalanche Transfection](#). T.W. Chalberg, A. Vankov, F.E. Molnar, A.F. Butterwick, P. Huie, M.P. Calos, and D.V. Palanker, *Investigative Ophthalmology and Visual Science* **47**: 4083-4090 (2006).
45. [Pulsed electron avalanche knife for capsulotomy in congenital and mature cataract](#). Priglinger, SG; Haritoglou, C; Palanker, D; Kook, D; Grueterich, M; Mueller, A; Alge, CS; Kampik, A. *Journal of Cataract and Refractive Surgery*; **32**(7): 1085-1088 (2006).
46. [Cellular Tolerance to Pulsed Hyperthermia](#). D.M. Simanovskii, M.A. Mackanos, A.R. Irani, C.E. O'Connell-Rodwell, C.H. Contag, H.A. Schwettman, and D.V. Palanker. *PHYSICAL REVIEW E*, **74**(1), 011915: 1539-3755 (2006)
47. [Semi-Automated Pattern Scanning Laser for Retinal Photocoagulation](#). M.S. Blumenkranz, D. Yellachich, D.E. Andersen, M.W. Wiltberger, D. Mordaunt, G.R. Marcellino, D. Palanker, *Retina*, **26**(3): 370-376 (2006).
48. [Optical Spectroscopy Non-Invasively Monitors Response of Organelles to Cellular Stress](#). G. Schuele, E. Vitkin, P. Huie, C. O'Connell-Rodwell, D. Palanker, L.T. Perelman. *J. Biomedical Optics*, **10**(5): 051404-1 - 051404-8 (2005).
49. [Pulsed Electron Avalanche Knife \(PEAK-fc\) for Dissection of Retinal Tissue](#). S.G. Priglinger, C. Haritoglou,, D. Palanker, C. Alge, A. Gandorfer, A. Kampik, *Archives of Ophthalmology*, **123** (10): 1412-1418 (2005).
50. [Pulsed Electron Avalanche Knife in Vitreoretinal Surgery](#). S.G. Priglinger, C. Haritoglou, A. Mueller, M. Grueterich, R. Strauss, C.S. Alge, A. Gandorfer, D. Palanker, A. Kampik, *Retina*, **25**(7): 889-896 (2005).
51. [Design of a High Resolution Optoelectronic Retinal Prosthesis](#). D. Palanker, A. Vankov, P. Huie, S. Baccus, *J Neural Engineering*, **2**: S105—S120 (2005).
52. [Migration of Retinal Cells through a Perforated Membrane: Implications for a High-Resolution Prosthesis](#). D. Palanker, P. Huie, A. Vankov, R. Aramant, M. Seiler, H. Fishman, M. Marmor, M.S. Blumenkranz; *Investigative Ophthalmology and Visual Science*, **45**(9): 3266-3270 (2004).
53. A Genetic Reporter of Thermal Stress Defines Physiologic Zones Over a Defined Temperature Range. C.E. O'Connell-Rodwell, D.Shriver, D.M. Simanovskii, C. McClure, Y. Cao, W. Zhang, M.H. Bachmann, J.T. Beckham, E.D. Jansen, D. Palanker, H.A. Schwettman, C.H. Contag; *FASEB J.*, **18**: 264-271 (2004).
54. [The Chick Chorioallantoic Membrane \(CAM\) as a Model Tissue for Surgical Retinal Research and Simulation](#). T. Leng, J.M. Miller, K.V. Bilbao, D.V. Palanker, P.H., and M.S. Blumenkranz; *Retina*, **24** (3): 427-434 (2004).
55. [Prevention of tissue damage by water jet during cavitation](#). D. Palanker, A.Vankov, J. Miller, M. Friedman, and M. Strauss; *Journal of Applied Physics*, **94**(4): 2654-2661 (2003).
56. [Transient Optical Elements: Application to Near-Field Imaging](#). D. Simanovskii, D. Palanker, K. Cohn, T. Smith, *J. Microscopy* **210**(3): 307-310 (2003).

57. [Precision and Safety of the Pulsed Electron Avalanche Knife in Vitreoretinal Surgery](#). J. Miller, D. Palanker, A. Vankov, M. Marmor, M. Blumenkranz, *Archives of Ophthalmology*, **121**: 871-877, 2003.
58. [Transient photoinduced diffractive solid immersion lens for infrared microscopy](#). K. Cohn, D. Simanovskii, T. Smith, and D. Palanker, *Applied Physics Letters*, **81(19)**: 3678-3680, 2002.
59. [Intra-vascular drug delivery with a pulsed liquid microjet](#). D. A. Fletcher, D. V. Palanker, P. Huie, J. Miller, M.F. Marmor, M. S. Blumenkranz, *Archives of Ophthalmology*, **120(9)**: 1206-1208, 2002.
60. [Effects of the Pulsed Electron Avalanche Knife \(PEAK\) on Retinal Tissue](#). D.V. Palanker, M.F. Marmor, A. Branco, P. Huie, J.M. Miller, S.R. Sanislo, A. Vankov, M.S. Blumenkranz, *Archives of Ophthalmology*, **120**:636-640, 2002.
61. [Near-Field Infrared Microscopy With A Transient Photo-Induced Aperture](#). D. Simanovski, D. Palanker, K. Cohn and T. Smith, *Applied Physics Letters*, **79(8)**: 1214-1216, 2001.
62. [Refraction Contrast Imaging With A Scanning Microlens](#), D.A. Fletcher, K.B. Crozier, C.F. Quate, G.S. Kino, and K.E. Goodson, D. Simanovskii, D.V. Palanker, *Applied Physics Letters*, **78(#23)**: 3589-3591, 2001.
63. [Pulsed Liquid Microjet For Microsurgery](#), D. A. Fletcher, D. V. Palanker, *Applied Physics Letters*, **78(13)**: 1933-35, 2001.
64. [Pulsed Electron Avalanche Knife for Intraocular Surgery](#), D.V. Palanker, J.M. Miller, S.R. Sanislo, M.F. Marmor, M.S. Blumenkranz, *Investigative Ophthalmology and Visual Science*, **42(11)**: 2673-2678, 2001.
65. [On Contrast Parameters and Topographic Artifacts in Near-Field Infrared Microscopy](#), D.V. Palanker, D.M. Simanovskii, P. Huie, T.I. Smith, H.A. Schwettman, *Journal of Applied Physics*, **88(11)**: 6808-6814 2000.
66. [Near-field infrared imaging with a microfabricated solid immersion lens](#), D.A. Fletcher, K.B. Crozier, C.F. Quate, G.S. Kino, and K.E. Goodson, D. Simanovskii, D.V. Palanker, *Applied Physics Letters*, **77(14)**: 2109-2111, 2000.
67. Near-Field Scanning Optical Microscopy in Cell Biology, A. Lewis, A. Radko, N. Ben Ami, D. Palanker, K. Lieberman, *Trends in Cell Biology* **9**: 70-73 (1999).
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69. [Etched Chalcogenide Fibers for Near-Field IR Scanning Microscopy](#), M.A. Unger, D.A. Kossakovski, R. Kongovi, J.L. Beauchamp, D.V. Palanker, *Review of Scientific Instruments*, **69(8)**: 2988-93, (1998).
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72. [IR Microscopy with a Transient Photo-induced Near-field Probe \(Tipless Near-field Microscopy\)](#), D. V. Palanker, G.M.H. Knippels, T.I. Smith, H.A. Schwettman, *Optics Communications*, **148/4-6** : 215 - 220 (1998).
73. [Electrical Alternative to Pulsed Fiber-Delivered Lasers in Microsurgery](#), Palanker D., Turovets I., Lewis A., *J. Appl. Phys.* **81(11)**: 7673-7680, (1997).

74. [Vitreoretinal Surgery Assisted by the 193nm Excimer Laser](#), Hemo I., Palanker D., Turovets I., Lewis A., and Zauberman H., *Investigative Ophthalmology and Visual Science*, **38(9)**: 1825-1829 (1997).
75. [Nanometer-Sized Electrochemical Sensors](#), Y. Shao, M. V. Mirkin, G. Fish, S. Kokotov, D. Palanker and A. Lewis, *Anal. Chem.* **69**: 1627-1634 (1997).
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[Method and apparatus for patterned plasma-mediated laser trephination of the lens capsule and three dimensional phaco-segmentation](#)

US [8,414,572](#) [Electrosurgery apparatus with partially insulated electrode and exposed edge](#)

US [8,409,180](#) [Patterned laser treatment](#)

US [8,403,921](#) [Method and apparatus for patterned plasma-mediated laser trephination of the lens capsule and three dimensional phaco-segmentation](#)

US [8,394,084](#) [Apparatus for patterned plasma-mediated laser trephination of the lens capsule and three dimensional phaco-segmentation](#)

US [8,336,555](#) [System and method for determining dosimetry in ophthalmic photomedicine](#)

US [8,323,276](#) [Method for plasma-mediated thermo-electrical ablation with low temperature electrode](#)

US [8,283,171](#) [Method and apparatus for avalanche-mediated transfer of agents into cells](#)

US [8,177,783](#) [Electric plasma-mediated cutting and coagulation of tissue and surgical apparatus](#)

US [8,105,324](#) [Methods and devices for the non-thermal, electrically-induced closure of blood vessels](#)

US [8,101,169](#) [Ocular gene therapy using avalanche-mediated transfection](#)

US [8,043,286](#) [Method and apparatus for plasma-mediated thermo-electrical ablation](#)

US [7,923,251](#) [Method and apparatus for avalanche-mediated transfer of agents into cells](#)

US [7,789,879](#) [System for plasma-mediated thermo-electrical surgery](#)

US [7,766,903](#) [Patterned Laser Treatment of the Retina](#)

US [7,736,361](#) [Electrosurgical system with uniformly enhanced electric field and minimal collateral damage](#)

US [7,556,621](#) [Optically controlled microfluidic chip](#)

US [7,447,547](#) [Neural prosthesis based on photomechanical deflectors and tactile sensory cells](#)

US [7,357,802](#) [Electrosurgical system with uniformly enhanced electric field and minimal collateral damage](#)

US [7,238,185](#) [Method and apparatus for plasma-mediated thermo-electrical ablation](#)

EU 1079754 [Method and apparatus for pulsed plasma-mediated electrosurgery in liquid media](#)

US [7,058,455](#) [Interface for making spatially resolved electrical contact to neural cells in a biological neural network](#)

US [7,047,080](#) [Self-sufficient retinal prosthesis powered by intraocular photovoltaic cells](#)

US [6,939,378](#) [Microfabricated tissue as a substrate for pigment epithelium transplantation](#)

US [6,913,605](#) [Microfluidic devices and methods for producing pulsed microfluidic jets in a liquid environment](#)

US [6,780,178](#) [Method and apparatus for plasma-mediated thermo-electrical ablation](#)

US [6,730,075](#) [Surgical probe for use in liquid media](#)

US [6,352,535](#) [Method and a device for electro microsurgery in a physiological liquid environment](#)

US [6,135,998](#) [Method and apparatus for pulsed plasma-mediated electrosurgery in liquid media](#)

US [6,039,726](#) [Method and apparatus for concentrating laser beams](#)

US [5,288,288](#) [Method and a device for cold laser microsurgery with highly localized tissue removal](#)