



## Daniel Palanker, PhD

Director of HEPL, Professor of Ophthalmology and, by courtesy, of Electrical Engineering

 NIH Biosketch available Online

 Curriculum Vitae available Online

### CONTACT INFORMATION

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### Bio

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#### BIO

Daniel Palanker is a Professor in the Department of Ophthalmology and Director of the Hansen Experimental Physics Laboratory at Stanford University. He received MSc in Physics in 1984 from the Yerevan State University in Armenia, and PhD in Applied Physics in 1994 from the Hebrew University of Jerusalem, Israel.

Dr. Palanker is working on optical and electronic technologies for diagnostic, therapeutic, surgical and prosthetic applications, primarily in ophthalmology. These studies include laser-tissue interactions with applications to non-damaging retinal laser therapy and to ocular surgery with ultrafast lasers. In the field of electro-neural interfaces, Dr. Palanker is developing retinal prosthesis for restoration of sight to the blind and implants for electronic control of organs, including secretory glands and blood vessels. He is also working on interferometric imaging of neural signals.

Several of his developments are in clinical practice world-wide: Pulsed Electron Avalanche Knife (PEAK PlasmaBlade, Medtronic Inc.), Patterned Scanning Laser Photocoagulator (PASCAL, Topcon Inc.), OCT-guided Laser System for Cataract Surgery (Catalys, Johnson&Johnson), Neural stimulator for enhanced tear secretion (TrueTear, Allergan Inc.). Photovoltaic Retinal Prosthesis (PRIMA, Pixium Vision) is in a clinical trial.

#### ACADEMIC APPOINTMENTS

- Professor, Ophthalmology
- Professor (By courtesy), Electrical Engineering
- Member, Bio-X
- Member, Wu Tsai Neurosciences Institute

#### ADMINISTRATIVE APPOINTMENTS

- Director, Hansen Experimental Physics Laboratory, (2016- present)
- Director of Research, Department of Ophthalmology, (2003- present)

#### HONORS AND AWARDS

- Bressler Prize in Vision Science, Lighthouse Guild (2016)
- Scientific Achievement Award, Alcon Research Institute (2016)
- Translational Research Award for development of the Non-damaging Retinal Laser Therapy, SPIE - International Society for Optics and Photonics (2014)

- R&D 100 award for the OCT-Guided Femtosecond Laser for Cataract Surgery, with OptiMedica Corp., R&D 100 (2012)
- Medical Design Excellence Award for development of the Pulsed Electron Avalanche Knife (PEAK), Medical Design Excellence Awards; Canon Communications (2009)
- R&D 100 Award for the Pattern Scanning Laser Photocoagulator (PASCAL). with OptiMedica Inc., R&D Journal (2007)
- Pascal Rol award for the best paper on Ophthalmic Technologies Conference (SPIE, Photonics West), SPIE (2004)
- Winner of the Collegiate Inventors Competition, US National Inventors Hall of Fame (2001)
- First Place in Instrumentation and Devices: Plasma-based Cutting Instrument for Vitreoret. Surgery, US Vitreous Society (2000)
- Dr. Shlomiuk award for outstanding Ph.D. Research., The Hebrew University of Jerusalem, Israel (1995)
- Wolf Foundation scholarship for outstanding doctoral students., The Wolf Foundation (1992)
- Prof. Rabau award for application of the ArF excimer laser to In Vitro Fertilization., Israel Society for Fertility Research (1991)

## PROFESSIONAL EDUCATION

- Postdoctoral, Stanford University , Free Electron Laser Center (Multiphoton Imaging with Ultrafast Lasers) (1997)
- PhD, Hebrew University of Jerusalem, Israel , Applied Physics (1995)
- MSc, Yerevan State University, USSR , Physics (1984)

## LINKS

- Palanker Lab Home Page: <http://www.stanford.edu/~palanker/lab/index.html>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Interactions of electric field and light with biological cells and tissues: mechanisms and applications to diagnostics, therapeutics and prosthetics.

Specific fields of interest include:

Electro-neural interfaces;

Laser therapy and microsurgery;

Electronic control organs;

Optical detection of neural signaling.

Current research projects include:

1) Laser-Tissue Interactions: Retinal rejuvenation by pulsed hyperthermia; Multiphoton interactions and their surgical applications.

2) Photovoltaic Retinal Prosthesis:

Photovoltaic restoration of sight to patients blinded by retinal degeneration.

3) Electronic Control of Organs:

Secretion of tears and reversible vasoconstriction by pulsed electrical stimulation: mechanisms and applications.

4) Retinal Plasticity:

Migration and rewiring of retinal neurons in response to injury and cell transplantation: applications to models of retinal degeneration and therapy.

5) Interferometric detection of neural signaling.

## Teaching

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### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Sasi Madugula

#### Postdoctoral Faculty Sponsor

Mohajeet Balveer Bhuckory, Tong Ling

#### Doctoral Dissertation Advisor (AC)

Kevin Boyle, Charles Chen, Elton Ho, Tiffany Huang

#### Doctoral Dissertation Advisor (NonAC)

Bingyi Wang

## Publications

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### PUBLICATIONS

- **Chronic Electrical Stimulation for Tear Secretion: Lacrimal vs. anterior ethmoid nerve.** *The ocular surface*  
Kossler, A. L., Brinton, M., Patel, Z. M., Dalal, R., Ta, C. N., Palanker, D.  
2019
- **Characteristics of prosthetic vision in rats with subretinal flat and pillar electrode arrays.** *Journal of neural engineering*  
Ho, E., Lei, X., Flores, T. A., Lorach, H., Huang, T. W., Galambos, L., Kamins, T., Harris, J. S., Mathieson, K., Palanker, D.  
2019
- **Retinal Laser Therapy Preserves Photoreceptors in a Rodent Model of MERTK-Related Retinitis Pigmentosa.** *Translational vision science & technology*  
Kang, S., Lorach, H., Bhuckory, M. B., Quan, Y., Dalal, R., Palanker, D.  
2019; 8 (4): 19
- **Restoration of Sight in Geographic Atrophy using a Photovoltaic Subretinal Prosthesis**  
Palanker, D. V., Le Mer, Y., Hornig, R., Buc, G., Deterre, M., Bismuth, V., Sahel, J.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Effect of Proliferative Diabetic Retinopathy on Development of Neovascular AMD: a Big Data Analysis**  
Brodie, F., Stell, L., Bhuckory, M., Zuckerman, V., Vounotrypidis, E., Sanislo, S., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Optoretinogram: stimulus-induced optical changes in photoreceptors observed with phase-resolved line-scan OCT**  
Pandiyani, V., Bertelli, A., Kuchenbecker, J. A., Park, B., Palanker, D. V., Roorda, A., Sabesan, R.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Photovoltaic restoration of sight in age-related macular degeneration**  
Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Pillar electrodes reduce in-vivo stimulation thresholds for subretinal prosthesis**  
Ho, E., Huang, T., Lei, X., Flores, T., Lorach, H., Kamins, T., Galambos, L., Mathieson, K., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Honeycomb-shaped subretinal prosthesis enables cellular-scale pixels**  
Flores, T., Huang, T., Bhuckory, M., Lorach, H., Chen, Z., Dalal, R., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Palanker, D. V.

ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019

- **Cortical response to combined prosthetic and visible stimuli exhibits similarities to natural visual processing**  
Mandel, Y., Arens-Arad, T., Farah, N., Moshkovitz, A., Lender, R., Flores, T., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Titration for selective RPE therapy using a continuous line scanning laser**  
Bhuckory, M., Flores, T., Shao, X., Dalal, R., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **Non-Damaging Laser Therapy (NRT) for Macular Telangiectasia Type 2: Randomized Clinical Trial**  
Lavinsky, D., Chaves, A., Schneider, W., Oliveira, M., Lavinsky, F., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **STEM CELL THERAPIES, GENE-BASED THERAPIES, OPTOGENETICS, AND RETINAL PROSTHETICS: CURRENT STATE AND IMPLICATIONS FOR THE FUTURE** *RETINA-THE JOURNAL OF RETINAL AND VITREOUS DISEASES*  
Wood, E. H., Tang, P. H., De la Huerta, I., Korot, E., Muscat, S., Palanker, D. A., Williams, G. A.  
2019; 39 (5): 820–35
- **Feasibility of Intraocular Projection for Treatment of Intractable Corneal Opacity** *CORNEA*  
Shim, S. Y., Gong, S., Rosenblatt, M. I., Palanker, D., Al-Qahtani, A., Sun, M. G., Zhou, Q., Kanu, L., Chau, F., Yu, C. Q.  
2019; 38 (4): 523–27
- **Feasibility of Intraocular Projection for Treatment of Intractable Corneal Opacity.** *Cornea*  
Shim, S. Y., Gong, S., Rosenblatt, M. I., Palanker, D., Al-Qahtani, A., Sun, M. G., Zhou, Q., Kanu, L., Chau, F., Yu, C. Q.  
2019
- **STEM CELL THERAPIES, GENE-BASED THERAPIES, OPTOGENETICS, AND RETINAL PROSTHETICS: CURRENT STATE AND IMPLICATIONS FOR THE FUTURE.** *Retina (Philadelphia, Pa.)*  
Wood, E. H., Tang, P. H., De la Huerta, I., Korot, E., Muscat, S., Palanker, D. A., Williams, G. A.  
2019
- **Honeycomb-shaped electro-neural interface enables cellular-scale pixels in subretinal prosthesis.** *Scientific reports*  
Flores, T., Huang, T., Bhuckory, M., Ho, E., Chen, Z., Dalal, R., Galambos, L., Kamins, T., Mathieson, K., Palanker, D.  
2019; 9 (1): 10657
- **Transplantation of Mature Photoreceptors in Rodents With Retinal Degeneration.** *Translational vision science & technology*  
Lorach, H., Kang, S., Bhuckory, M. B., Trouillet, A., Dalal, R., Marmor, M., Palanker, D.  
2019; 8 (3): 30
- **Full-field interferometric imaging of propagating action potentials** *LIGHT-SCIENCE & APPLICATIONS*  
Ling, T., Boyle, K. C., Goetz, G., Zhou, P., Quan, Y., Alfonso, F. S., Huang, T. W., Palanker, D.  
2018; 7
- **Femtosecond Lasers for Ophthalmic Surgery Enabled by Chirped-Pulse Amplification** *NEW ENGLAND JOURNAL OF MEDICINE*  
Palanker, D.  
2018; 379 (23): 2267–69
- **Restoring sight with RETINAL PROSTHESES** *PHYSICS TODAY*  
Palanker, D., Goetz, G.  
2018; 71 (7): 26–32
- **Vertical walls surrounding pixels in subretinal space reduce stimulation threshold and improve contrast**  
Flores, T., Huang, T., Lorach, H., Dalal, R., Lei, X., Kamins, T., Mathieson, K., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2018
- **Long-term survival and integration of the retina/RPE allograft in rat models of retinal degeneration**  
Lorach, H., Kang, S., Trouillet, A., Dalal, R., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2018
- **Grating Acuity of Prosthetic Vision in Blind Rats Matches the Pixel Pitch of Photovoltaic Subretinal Arrays Below 50  $\mu\text{m}$**

Ho, E., Lorach, H., Huang, T., Lei, X., Flores, T., Kamins, T., Galambos, L., Mathieson, K., Palanker, D. V.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2018

- **Long-term Rescue of Photoreceptors in a Rodent Model of Retinitis Pigmentosa Associated with MERTK Gene Mutation**  
Palanker, D. V., Kang, S., Dalal, R., Quan, Y., Lorach, H.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2018
- **Stereotyped synaptic connectivity is restored during circuit repair in the adult mammalian retina**  
Beier, C., Palanker, D. V., Sher, A.  
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2018
- **Stereotyped Synaptic Connectivity Is Restored during Circuit Repair in the Adult Mammalian Retina** *CURRENT BIOLOGY*  
Beier, C., Palanker, D., Sher, A.  
2018; 28 (11): 1818-+
- **Optimization of pillar electrodes in subretinal prosthesis for enhanced proximity to target neurons** *JOURNAL OF NEURAL ENGINEERING*  
Flores, T., Lei, X., Huang, T., Lorach, H., Dalal, R., Galambos, L., Kamins, T., Mathieson, K., Palanker, D.  
2018; 15 (3)
- **Mechanisms of electrical vasoconstriction** *JOURNAL OF NEUROENGINEERING AND REHABILITATION*  
Brinton, M., Mandel, Y., Schachar, I., Palanker, D.  
2018; 15: 43
- **Interferometric mapping of material properties using thermal perturbation** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Goetz, G., Ling, T., Gupta, T., Kang, S., Wang, J., Gregory, P. D., Park, B., Palanker, D.  
2018; 115 (11): E2499–E2508
- **Temporal structure in spiking patterns of ganglion cells defines perceptual thresholds in rodents with subretinal prosthesis** *SCIENTIFIC REPORTS*  
Ho, E., Lorach, H., Goetz, G., Laszlo, F., Lei, X., Kamins, T., Mariani, J., Sher, A., Palanker, D.  
2018; 8: 3145
- **Spatiotemporal characteristics of retinal response to network-mediated photovoltaic stimulation** *JOURNAL OF NEUROPHYSIOLOGY*  
Ho, E., Smith, R., Goetz, G., Lei, X., Galambos, L., Kamins, T. I., Harris, J., Mathieson, K., Palanker, D., Sher, A.  
2018; 119 (2): 389–400
- **Femtosecond Lasers for Ophthalmic Surgery Enabled by Chirped-Pulse Amplification.** *The New England journal of medicine*  
Palanker, D.  
2018; 379 (23): 2267–69
- **Optimization of pillar electrodes in subretinal prosthesis for enhanced proximity to target neurons.** *Journal of neural engineering*  
Flores, T., Lei, X., Huang, T., Lorach, H., Dalal, R., Galambos, L., Kamins, T., Mathieson, K., Palanker, D.  
2018; 15 (3): 036011
- **Full-field interferometric imaging of propagating action potentials.** *Light, science & applications*  
Ling, T., Boyle, K. C., Goetz, G., Zhou, P., Quan, Y., Alfonso, F. S., Huang, T. W., Palanker, D.  
2018; 7: 107
- **Comparison of Continuous-Wave and Micropulse Modulation in Retinal Laser Therapy** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*  
Wang, J., Quan, Y., Dalal, R., Palanker, D.  
2017; 58 (11): 4722–32
- **Deafferented Adult Rod Bipolar Cells Create New Synapses with Photoreceptors to Restore Vision** *JOURNAL OF NEUROSCIENCE*  
Beier, C., Hovhannisyan, A., Weiser, S., Kung, J., Lee, S., Lee, D. Y., Huie, P., Dalal, R., Palanker, D., Sher, A.  
2017; 37 (17): 4635-4644
- **Enhanced Tearing by Electrical Stimulation of the Anterior Ethmoid Nerve** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*  
Brinton, M., Kossler, A. L., Patel, Z. M., Loudin, J., Franke, M., Ta, C. N., Palanker, D.  
2017; 58 (4): 2341-2348

- **Optophysiology of cardiomyocytes: characterizing cellular motion with quantitative phase imaging.** *Biomedical optics express*  
Cordeiro, C., Abilez, O. J., Goetz, G., Gupta, T., Zhuge, Y., Solgaard, O., Palanker, D.  
2017; 8 (10): 4652–62
- **Characterizing Cardiomyocytes Motion with Quantitative Phase Imaging**  
Cordeiro, C., Abilez, O., Gupta, T., Goetz, G., Solgaard, O., Palanker, D., IEEE  
IEEE.2017
- **NONDAMAGING RETINAL LASER THERAPY FOR TREATMENT OF CENTRAL SEROUS CHORIORETINOPATHY: What is the Evidence?** *Retina (Philadelphia, Pa.)*  
Wood, E. H., Karth, P. A., Sanislo, S. R., Moshfeghi, D. M., Palanker, D. V.  
2016: -?
- **Electronic approaches to restoration of sight.** *Reports on progress in physics. Physical Society (Great Britain)*  
Goetz, G. A., Palanker, D. V.  
2016; 79 (9): 096701-?
- **SiC protective coating for photovoltaic retinal prosthesis.** *Journal of neural engineering*  
Lei, X., Kane, S., Cogan, S., Lorach, H., Galambos, L., Huie, P., Mathieson, K., Kamins, T., Harris, J., Palanker, D.  
2016; 13 (4): 046016-?
- **Optimization of return electrodes in neurostimulating arrays** *JOURNAL OF NEURAL ENGINEERING*  
Flores, T., Goetz, G., Lei, X., Palanker, D.  
2016; 13 (3)
- **Nondamaging Retinal Laser Therapy: Rationale and Applications to the Macula** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*  
Lavinsky, D., Wang, J., Huie, P., Dalal, R., Lee, S. J., Lee, D. Y., Palanker, D.  
2016; 57 (6): 2488-2500
- **Implantation of Modular Photovoltaic Subretinal Prosthesis.** *Ophthalmic surgery, lasers & imaging retina*  
Lee, D. Y., Lorach, H., Huie, P., Palanker, D.  
2016; 47 (2): 171-174
- **Photovoltaic Pixels for Neural Stimulation: Circuit Models and Performance.** *IEEE transactions on biomedical circuits and systems*  
Boinagrov, D., Lei, X., Goetz, G., Kamins, T. I., Mathieson, K., Galambos, L., Harris, J. S., Palanker, D.  
2016; 10 (1): 85-97
- **Electronic enhancement of tear secretion.** *Journal of neural engineering*  
Brinton, M., Chung, J. L., Kossler, A., KooK, K. H., Loudin, J., Franke, M., Palanker, D.  
2016; 13 (1): 016006-?
- **Evolution of Concepts and Technologies in Ophthalmic Laser Therapy.** *Annual review of vision science*  
Palanker, D.  
2016; 2: 295–319
- **Evolution of Concepts and Technologies in Ophthalmic Laser Therapy** *ANNUAL REVIEW OF VISION SCIENCE, VOL 2*  
Palanker, D.  
2016; 2: 295-319
- **Retinal safety of near infrared radiation in photovoltaic restoration of sight.** *Biomedical optics express*  
Lorach, H., Wang, J., Lee, D. Y., Dalal, R., Huie, P., Palanker, D.  
2016; 7 (1): 13-21
- **Finesse of transparent tissue cutting by ultrafast lasers at various wavelengths** *JOURNAL OF BIOMEDICAL OPTICS*  
Wang, J., Schuele, G., Palanker, D.  
2015; 20 (12)
- **Interactions of Prosthetic and Natural Vision in Animals With Local Retinal Degeneration** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*  
Lorach, H., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Dalal, R., Huie, P., Harris, J., Palanker, D.  
2015; 56 (12): 7444-7450

- **Contrast Sensitivity With a Subretinal Prosthesis and Implications for Efficient Delivery of Visual Information** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*  
Goetz, G., Smith, R., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Sher, A., Palanker, D.  
2015; 56 (12): 7186-7194
- **Safety of cornea and iris in ocular surgery with 355-nm lasers.** *Journal of biomedical optics*  
Wang, J., Chung, J. L., Schuele, G., Vankov, A., Dalal, R., Wiltberger, M., Palanker, D.  
2015; 20 (9): 095005-?
- **Safety of cornea and iris in ocular surgery with 355-nm lasers.** *Journal of biomedical optics*  
Wang, J., Chung, J. L., Schuele, G., Vankov, A., Dalal, R., Wiltberger, M., Palanker, D.  
2015; 20 (9): 95005-?
- **Integration of Perforated Subretinal Prostheses With Retinal Tissue.** *Translational vision science & technology*  
Adekunle, A. N., Adkins, A., Wang, W., Kaplan, H. J., de Castro, J. F., Lee, S. J., Huie, P., Palanker, D., McCall, M., Pardue, M. T.  
2015; 4 (4): 5-?
- **Development of Animal Models of Local Retinal Degeneration.** *Investigative ophthalmology & visual science*  
Lorach, H., Kung, J., Beier, C., Mandel, Y., Dalal, R., Huie, P., Wang, J., Lee, S., Sher, A., Jones, B. W., Palanker, D.  
2015; 56 (8): 4644-4652
- **Integration of Perforated Subretinal Prostheses With Retinal Tissue** *TRANSLATIONAL VISION SCIENCE & TECHNOLOGY*  
Adekunle, A. N., Adkins, A., Wang, W., Kaplan, H. J., de Castro, J. F., Lee, S. J., Huie, P., Palanker, D., McCall, M., Pardue, M. T.  
2015; 4 (4)
- **Performance of photovoltaic arrays in-vivo and characteristics of prosthetic vision in animals with retinal degeneration** *VISION RESEARCH*  
Lorach, H., Goetz, G., Mandel, Y., Lei, X., Kamins, T. I., Mathieson, K., Huie, P., Dalal, R., Harris, J. S., Palanker, D.  
2015; 111: 142-148
- **Photovoltaic restoration of sight with high visual acuity.** *Nature medicine*  
Lorach, H., Goetz, G., Smith, R., Lei, X., Mandel, Y., Kamins, T., Mathieson, K., Huie, P., Harris, J., Sher, A., Palanker, D.  
2015; 21 (5): 476-482
- **Photovoltaic restoration of sight with high visual acuity** *NATURE MEDICINE*  
Lorach, H., Goetz, G., Smith, R., Lei, X., Mandel, Y., Kamins, T., Mathieson, K., Huie, P., Harris, J., Sher, A., Palanker, D.  
2015; 21 (5): 476-U254
- **Serum Inflammatory Markers After Rupture Retinal Laser Injury in Mice** *OPHTHALMIC SURGERY LASERS & IMAGING RETINA*  
Paulus, Y. M., Kuo, C., Morohoshi, K., Nugent, A., Zheng, L. L., Nomoto, H., Blumenkranz, M. S., Palanker, D., Ono, S. J.  
2015; 46 (3): 362-368
- **NONDAMAGING PHOTOTHERMAL THERAPY FOR THE RETINA Initial Clinical Experience With Chronic Central Serous Retinopathy** *RETINA- THE JOURNAL OF RETINAL AND VITREOUS DISEASES*  
Lavinsky, D., Palanker, D.  
2015; 35 (2): 213-222
- **Role of molecular photodissociation in ultrafast laser surgery** *Conference on Optical Interactions with Tissue and Cells XXVI*  
Wang, J., Schuele, G., Huie, P., Palanker, D. V.  
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Interactions of Prosthetic and Natural Vision in Animals With Local Retinal Degeneration.** *Investigative ophthalmology & visual science*  
Lorach, H., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Dalal, R., Huie, P., Harris, J., Palanker, D.  
2015; 56 (12): 7444-50
- **Finesse of transparent tissue cutting by ultrafast lasers at various wavelengths.** *Journal of biomedical optics*  
Wang, J., Schuele, G., Palanker, D.  
2015; 20 (12): 125004
- **Contrast Sensitivity With a Subretinal Prosthesis and Implications for Efficient Delivery of Visual Information.** *Investigative ophthalmology & visual science*

- Goetz, G., Smith, R., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Sher, A., Palanker, D.  
2015; 56 (12): 7186-94
- **Photovoltaic Restoration of Sight with High Visual Acuity in Rats with Retinal Degeneration** *25th Conference on Ophthalmic Technologies held as a part of the SPIE Photonics West BiOS Meeting*  
Palanker, D., Goetz, G., Lorach, H., Mandel, Y., Smith, R., Boinagrov, D., Lei, X., KAMINS, T., Harris, J., Mathieson, K., Sher, A.  
SPIE-INT SOC OPTICAL ENGINEERING.2015
  - **Reply to Rattay.** *Journal of neurophysiology*  
Boinagrov, D., Palanker, D.  
2014; 112 (10): 2666-?
  - **Inner retinal preservation in rat models of retinal degeneration implanted with subretinal photovoltaic arrays** *EXPERIMENTAL EYE RESEARCH*  
Light, J. G., Fransen, J. W., Adekunle, A. N., Adkins, A., Pangeni, G., Loudin, J., Mathieson, K., Palanker, D. V., Mccall, M. A., Pardue, M. T.  
2014; 128: 34-42
  - **Inner retinal preservation in rat models of retinal degeneration implanted with subretinal photovoltaic arrays.** *Experimental eye research*  
Light, J. G., Fransen, J. W., Adekunle, A. N., Adkins, A., Pangeni, G., Loudin, J., Mathieson, K., Palanker, D. V., Mccall, M. A., Pardue, M. T.  
2014; 128: 34-42
  - **Miniature Electrical Stimulator for Hemorrhage Control** *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*  
Brinton, M. R., Mandel, Y., Dalal, R., Palanker, D.  
2014; 61 (6): 1765-1771
  - **Miniature electrical stimulator for hemorrhage control.** *IEEE transactions on bio-medical engineering*  
Brinton, M. R., Mandel, Y., Dalal, R., Palanker, D.  
2014; 61 (6): 1765-1771
  - **Selectivity of direct and network-mediated stimulation of the retinal ganglion cells with epi-, sub- and intraretinal electrodes.** *Journal of neural engineering*  
Boinagrov, D., Pangratz-Fuehrer, S., Goetz, G., Palanker, D.  
2014; 11 (2): 026008-?
  - **Selectivity of direct and network-mediated stimulation of the retinal ganglion cells with epi-, sub- and intraretinal electrodes.** *Journal of neural engineering*  
Boinagrov, D., Pangratz-Fuehrer, S., Goetz, G., Palanker, D.  
2014; 11 (2): 026008-?
  - **Subvisible retinal laser therapy: titration algorithm and tissue response.** *Retina (Philadelphia, Pa.)*  
Lavinsky, D., Sramek, C., Wang, J., Huie, P., Dalal, R., Mandel, Y., Palanker, D.  
2014; 34 (1): 87-97
  - **Non-damaging Laser Therapy of the Macula: Titration Algorithm and Tissue Response** *24th Conference on Ophthalmic Technologies as a part of the SPIE Photonics West BiOS Meeting*  
Palanker, D., Lavinsky, D., Dalal, R., Huie, P.  
SPIE-INT SOC OPTICAL ENGINEERING.2014
  - **Holographic display system for restoration of sight to the blind.** *Journal of neural engineering*  
Goetz, G. A., Mandel, Y., Manivanh, R., Palanker, D. V., Cižmár, T.  
2013; 10 (5): 056021-?
  - **Vasoconstriction by Electrical Stimulation: New Approach to Control of Non-Compressible Hemorrhage** *SCIENTIFIC REPORTS*  
Mandel, Y., Manivanh, R., Dalal, R., Huie, P., Wang, J., Brinton, M., Palanker, D.  
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