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Journal Publications

Compressive light-field microscopy for 3D neural activity recording⋆, 2016
N. Pégard, *H-Y. Liu, N. Antipa, M. Gerlock, H. Adesnik, and L. Waller*, Optica (**3**), 517-524
⋆Featured research in Optics & Photonics News special issue : "Optics in 2016".

Flow-scanning optical tomography⋆, 2014
N. Pégard, *M.Toth, M.Driscoll, and J. W. Fleischer*, Lab-on-a-Chip (**14**), 4447-4450
⋆Classified as "Hot article" due to receiving particularly high scores at peer review.

Flow-based Structured Illumination, 2013
C-H. Lu, **N. Pégard**, *and J. W. Fleischer*, Applied Physics Letters (**102**), 161115

3D Deconvolution Microfluidic Microscopy using a Tilted Channel, 2013
N. Pégard, *and J. W. Fleischer*, Journal of Biomedical Optics (**18**), 040503

Wrinkles and deep folds as photonic structures in photovoltaics, 2012
J-B. Kim†, *P. Kim*†, **N. Pégard**†, *S. Oh, C. Kagan, J. W. Fleischer, H. Stone, and Y-L. Loo*
†*Equal contributors*, Nature Photonics (**6**), 327-332

Optimizing holographic data storage using a Fractional Fourier Transform, 2011
N. Pégard, *and J. W. Fleischer*, Optics Letters (**36**), 2551-2553

Diffusion thermopower of (Ga,Mn)As/GaAs tunnel junctions, 2011
Ts. Naydenova, P. Durrenfeld, K. Tavakoli, **N. Pégard**, *L. Ebel, K. Pappert, K. Brunner, C. Gould, and L. Molenkamp*, Physical Review Letters (**107**), 197-201

Patents

3D Sparse Holographic Temporal focusing, 2016
L. Waller, **N. Pégard**, *and H. Adesnik*, Provisional Patent Application #62-429,017.

Compressive plenoptic microscopy, 2015
L. Waller, **N. Pégard**, *and H. Adesnik*, Application #62-188,626, US. Patent #2017,0003491.

Photoelectric cells incorporating wrinkles and folds to enhance efficiency and bendability, 2014
J-B. Kim, P. Kim, H. Stone, **N. Pégard**, *J. W. Fleischer*, Y-L. Loo.
Provisional Patent Application #61-635,540, Patent Application #14-214,564.

Tilted Channels for Computational Imaging in Optofluidic Microscopes, 2013
J. W. Fleischer and **N. Pégard**, Application #14-023,455, US. Patent #2014,0071452 A1.

Flow Scanning Tomography, 2013
J. W. Fleischer and **N. Pégard**, Provisional Patent Application #61-776,970.

Rotating flow for 3D optofluidic tomography & Structured illumination optofluidic microscope, 2011
J. W. Fleischer and **N. Pégard**, Provisional Patent Application #61-699,003 &#61-609,991.

Book chapter

Flow-scanning microfluidic imaging, in Applications of Microfluidics, InTech. 2016
N. Pégard, *C-H. Lu, M. Toth, M. Driscoll and J. W. Fleischer* - ISBN 978-953-51-4623-0

Selected Conference Proceedings

Holographic Temporal Focusing for 3D Photo-activation With Single Neuron Resolution, 2017
N. Pégard, *A. Mardinly, J. Zhang, S. Sridharan, L. Waller, and H. Adesnik*, Optics in the brain, BrM3B4, San Diego, CA.

3D all-optical control of functionally defined neurons with cellular resolution and sub-ms precision, 2017
A. Mardinly, **N. Pégard**, *I. Oldenburg, S. Sridharan, R. Hakim, L. Waller, and H. Adesnik*, Submitted to OSA, Optics in the brain, BrM3B4, San Diego, CA.

New Approaches and Insights into Cortical Microcircuits, 2016
H. Adesnik, A. Mardinly, **N. Pégard**, *I. Oldenburg, and L. Waller*, The FASEB Journal, 30.

Functional brain imaging at cellular resolution with Compressive Light-Field Microscopy, 2015
N. Pégard, *H-Y. Liu, N. Antipa, L. Waller, and H. Adesnik*, OSA Computational Optical Sensing and Imaging conference, JTh4A.3, Arlington, VA.

High-speed 3D brain activity quantification with Compressive Light-Field Microscopy, 2015
N. Pégard, *E. Lyall, A. Mardinly, N. Antipa, L. Waller, and H. Adesnik*, OSA Bio-Optics: Design and Application conference, paper NW2C.3, Vancouver, Canada.

Microfluidic Flow-Scanning Optical Tomography, 2013
N. Pégard, *and J. W. Fleischer*, Frontiers in Optics (FIO), Orlando, Florida.

Tomographic Microfluidic Microscopy, 2013
J. W. Fleischer and **N. Pégard**, 2^{nd} EOS Conference on Optofluidics, (EOSOF), Munich, Germany.

3D Microfluidic Microscopy, 2013
J. W. Fleischer, and **N. Pégard**, Optics in the Life Sciences, BW5A.1., Waikoloa Beach, Hawaii.

3D deconvolution microscopy using a microfluidic tilted channel, 2012
N. Pégard, *and J. W. Fleischer*, Computational Optical Sensing and Imaging (COSI), Imaging and Applied Optics, CM3B.6., Monterey, California.

Microfluidic Structured Illumination Microscope, 2012
C. Lu, **N. Pégard**, *and J. W. Fleischer*, Computational Optical Sensing and Imaging (COSI), Imaging and Applied Optics, CM3B.7., Monterey, California.

3D microscopy using a tilted microfluidic channel, 2012
N. Pégard, *and J. W. Fleischer*, Frontiers in Optics 2012, XXVIII, Rochester, New York.

Microfluidic Structured Illumination Microscopy, 2012
C-H. Lu, **N. Pégard**, *and J. W. Fleischer*, Frontiers in Optics 2012, XXVIII, Rochester, New York.

Wrinkles and Folds as Photonic Structures in Polymer Photovoltaics, 2012
Y-L. Loo, J-B.Kim, P. Kim, H. Stone, **N. Pégard**, *J. W. Fleischer, S-J. Oh, and C. Kagan*, American Physical Society, APS March Meeting, abstract L46.002.

3D microfluidic microscopy using a tilted channel, 2012
N. Pégard, *and J. W. Fleischer*, Biomedical Optics and 3-D Imaging congress, BM4B.4., Miami, Florida.

Optimizing holographic storage by redistribution of the space-frequency domain using a Fractional Fourier Transform, 2012
N. Pégard, *and J. W. Fleischer*, International OSA Network of Students, IONS-11, Paris.

Fractional Optics for Image Processing and Measurement, 2011
G. Situ, L. Waller, **N. Pégard**, *and J. W. Fleischer*, OSA Digital Holography and Three-Dimensional Imaging conference, DWE2, Tokyo, Japan.

Contrast Enhancement by Double Pass Phase Conjugation Microscopy, 2010
N. Pégard, *and J. W. Fleischer*, Frontiers in Optics, (FIO), post-deadline paper, PDPA10.

Invited Talks and Seminars

3D Scanless Holographic Optogenetics with Temporal focusing. Feb. 6^{th} 2017
Brain Lunch, Hellen Wills Neuroscience Institute. *University of California, Berkeley.*

Photoactivation of individual neurons with sparse holographic temporal focusing. Jan. 26^{th} 2017
14th Annual Advanced Imaging Methods (AIM) Workshop. *University of California, Berkeley.*

3D functional imaging of the living brain. May 19^{th} 2016
Invited speaker. *Inscopix, Palo Alto, CA.*

Compressive light field microscopy for 3D functional imaging of the living brain. Apr. 6^{th} 2016
Stanford Center for Image Systems Engineering (SCIEN) colloquia. *Stanford University.*

Compressive light field microscopy for 3D functional brain imaging. Feb. 12^{th} 2016
QB3 - California Institute for Quantitative Biosciences. *University of California, Berkeley.*

Compressive light field microscopy for 3D functional brain imaging. Feb. 5^{th} 2016
Redwood center seminar, Helen Wills Neuroscience Institute. *University of California, Berkeley.*

System optics optimization and application for in-vivo 3D microscopy. Jan. 20^{th} 2014
Mechanical Engineering Department Seminars. Technion, Israel Institute of Technology, Haifa, Israel.

Tomographic Microfluidic Microscopy. Mar. 12^{th} 2013
8^{th} Princeton Innovation Forum. *Princeton University.*

Microfluidic devices for 3D microscopy, superresolution, and applications in biology. Oct. 20^{th} 2013
Princeton Research Symposium. (Best Research Talk, 1st place). *Princeton University.*

3D microfluidic microscopy. Oct. 10^{th} 2012
Research seminar, Department of Molecular Biology and Biochemistry. *Rutgers University.*