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Single Molecule Localization Microscopy with MICA0 3DSR

“A simple probe for super-resolution imaging of the endoplasmic reticulum in living cells”

E. A. Halabi, S. Puntener, P. Rivera-Fuentes

Helvetica Chimica Acta (2018)

<http://dx.doi.org/10.1002/hlca.201800165>

“The actin cytoskeleton of the mouse sperm flagellum is organized in a helical structure”

M. G. Gervasi, X. Xu, B Carbajal-Gonzalez, M. G. Buffone, P. E Visconti and D. Krapf

Journal of Cell Science 293, 9435 (2018)

<http://dx.doi.org/10.1242/jcs.215897>

“Optimized protocol for combined PALM-dSTORM imaging”

O. Glushonkov, E. Réal, E. Boutant, Y. Mély and P. Didier

Scientific Reports 8, 8749 (2018)

<http://dx.doi.org/10.1038/s41598-018-27059-z>

“Structural organization of the actin-spectrin-based membrane skeleton in dendrites and soma of neurons”

B. Han, R. Zhou, C. Xia and X. Zhuang

PNAS 114, E6678 (2017)

<http://dx.doi.org/10.1073/pnas.1705043114>

“Complementarity of PALM and SOFI for super-resolution live-cell imaging of focal adhesions”

H. Deschout, T. Lukes, A. Sharipov, D. Szlag, L. Feletti, W. Vandenberg, P. Dedecker, J. Hofkens, M. Leutenegger, T. Lasser and A. Radenovic

Nature Communications 7, 13693 (2016)

<http://dx.doi.org/10.1038/ncomms13693>

“The mechanism of force transmission at bacterial focal adhesion complexes”

L. M. Faure, J. -B. Fiche, L. Espinosa, A. Ducret, V. Anantharaman, J. Luciano, S. Lhospice, S. T. Islam, J. Tréguier, M. Sotes, E. Kuru, M. S. Van Nieuwenhze, Y. V. Brun, O. Théodoly, L. Aravind, M. Nollmann and T. Mignot

Nature 539, 530 (2016)

<http://dx.doi.org/10.1038/nature20121>

“Super resolution imaging of genetically labeled synapses in drosophila brain tissue”

Spuhler, G. M. Conley, F. Scheffold and S. G. Sprenger

Frontiers in Cellular Neuroscience 10, article 142 (2016)

<http://dx.doi.org/10.3389/fncel.2016.00142>

“Super resolution microscopy of the volume phase transition of pNIPAM microgels”

G. M. Conley, S. Nöjd, M. Braibanti, P. Schurtenberger, F. Scheffold.

Colloids and Surfaces A: Physicochemical and Engineering Aspects 499, 18 (2016)

<http://dx.doi.org/10.1016/j.colsurfa.2016.03.010>

“Mapping the dynamics and nanoscale organization of synaptic adhesion proteins using monomeric streptavidin”

I. Chamma, M. Letellier, C. Butler, B. Tessier, K.-H. Lim, I. Gauthereau, D. Choquet, J.-B. Sibarita, S. Park, M. Sainlos and O. Thoumine

Nature Communications 7, 10773 (2015)

<http://dx.doi.org/10.1038/ncomms10773>

“Condensin- and Replication-Mediated Bacterial Chromosome Folding and Origin Condensation Revealed by Hi-C and Super-Resolution Imaging”

M. Marbouty, A. Le Gall, D. I. Cattoni, A. Cournac, A. Koh, J.-B. Fiche, J. Mozziconacci, H. Murray, R. Koszul and M. Nollmann

Molecular Cell 59, 588 (2015)

<http://dx.doi.org/10.1016/j.molcel.2015.07.020>

“Adaptive optics in spinning disk microscopy: improved contrast and brightness by a simple and fast method”

V. Fraasier, G. Clouvel, A. Jasaitis, A. Dimitrov, T. Piolot and J. Salamero

Journal of Microscopy 259, 219 (2015)

<http://dx.doi.org/10.1111/jmi.12256>

“The SNARE Sec22b has a non-fusogenic function in plasma membrane expansion”

M. Petkovic, A. Jemaiel, F. Daste, C. G. Specht, I. Izeddin, D. Vorkel, J-M. Verbavatz, X. Darzacq, A. Triller, K. H. Pfenninger, D. Taresté, C. L. Jackson and T. Galli

Nature Cell Biology 16, 434 (2014)

<http://dx.doi.org/10.1038/ncb2937>

“Accessing the third dimension in localization-based super-resolution microscopy”

B. Hajj, M. El Beheiry, I. Izeddin, X. Darzacq and M. Dahan

Physical Chemistry Chemical Physics 16, 16340 (2014)

<http://dx.doi.org/10.1039/c4cp01380h>

“Single cell correlation fractal dimension of chromatin: A framework to interpret 3D single molecule super-resolution”

V. Récamier, I. Izeddin, L. Bosanac, M. Dahan, F. Proux and X. Darzacq

Nucleus 5 (2014)

<http://dx.doi.org/10.4161/nucl.28227>

“Quantitative nanoscopy of inhibitory synapses: Counting gephyrin molecules and receptor binding sites.”

C. G. Specht, I. Izeddin, P. C. Rodriguez, M. El Beheiry, P. Rostaing, X. Darzacq, M. Dahan and A. Triller

Neuron 79, 308 (2013)

<http://dx.doi.org/10.1016/j.neuron.2013.05.013>

“Dual-color 3D PALM/dSTORM imaging of centrosomal proteins using MicAO 3DSR”

G. Clouvel, A. Jasaitis, J. Sillibourne, I. Izeddin, M. El Beheiry, X. Levecq, M. Dahan, M. Bornens and X. Darzacq

Proceedings of SPIE 8590, 85 900Z+ (2013)

<http://dx.doi.org/10.1117/12.2001986>

“PSF shaping using adaptive optics for three-dimensional single-molecule super-resolution imaging and tracking”

I. Izeddin, M. El Beheiry, J. Andilla, D. Ciepielewski, X. Darzacq and M. Dahan

Optics Express 20, 4957 (2012)

<http://dx.doi.org/10.1364/OE.20.004957>

Single Molecule Localization Microscopy with AOKit Bio

“Real-time 3D single-molecule localization using experimental point spread function”

Y. Li, M. Mund, P. Hoess, J. Deschamps, U. Matti, B. Nijmeijer, V. Jimenez Sabinina, J. Ellenberg, I. Schoen and J. Ries

Nature Methods 15, 365 (2018)

<http://dx.doi.org/10.1038/nmeth.4661>

“Adaptive optics stochastic optical reconstruction microscopy (AO-STORM) using a genetic algorithm”

K. F. Tehrani, J. Xu, Y. Zhang, P. Shen and P. Kner

Optics Express 23, 13677 (2015)

<http://dx.doi.org/10.1364/OE.23.013677>

“Multicolor 3D Super-Resolution Imaging by Quantum Dot Stochastic Optical Reconstruction Microscopy”

J. Xu, K. F. Tehrani and P. Kner

ACS Nano 9, 2917 (2015)

<http://dx.doi.org/10.1021/nn506952g>

Light Sheet Microscopy (SPIM) with AOKit Bio

“Adaptive optics light-sheet microscopy based on direct wavefront sensing without any guide star”

A. Hubert, F. Harms, R. Juvénal, P. Treimany, X. Levecq, V. Lorientte, G. Farkouh, F. Rouyer, and A. Fragola

Optics Letters Vol. 44, Issue 10, pp. 2514-2517 (2019)

<https://doi.org/10.1364/OL.44.002514>

“Imaging subcellular dynamics with fast and light-efficient volumetrically parallelized microscopy”

K. M. Dean, P. Roudot, E. S. Welf, T. Pohlkamp, G. Garrelts, J. Herz and R. Fiolka

Optica 4, 263 (2017)

<https://doi.org/10.1364/OPTICA.4.000263>

“Decoupled illumination detection in light sheet microscopy for fast volumetric imaging”

O. E. Olarte, J. Andilla, D. Artigas and P. Loza-Alvarez

Optica 2, 702 (2015)

<http://dx.doi.org/10.1364/OPTICA.2.000702>

“High-resolution in-depth imaging of optically cleared thick samples using an adaptive SPIM”

A. Masson, P. Escande, C. Frongia, G. Clouvel, B. Ducommun and C. Lorenzo

Scientific Reports 5, 16898 (2015)

<http://dx.doi.org/10.1038/srep16898>

“Aberrations and their correction in light-sheet microscopy: a low-dimensional parametrization”

D. Turaga and T. E. Holy

Biomedical Optics Express 4, 1654+ (2013)

<http://dx.doi.org/10.1364/boe.4.001654>

“3D adaptive optics in a light sheet microscope”

C. Bourgenot, C. D Saunter, J. M. Taylor, J. M. Girkin and G. D. Love.

Optics Express 20, 13252+ (2012)

<http://dx.doi.org/10.1364/oe.20.013252>

“Deep and clear optical imaging of thick inhomogeneous samples”

R. Jorand, G. Le Corre, J. Andilla, A. Maandhui, C. Frongia, V. Lobjois, B. Ducommun and C. Lorenzo

PLoS ONE 7, e35795+ (2012)

<http://dx.doi.org/10.1371/journal.pone.0035795>

Structured Illumination Microscopy (SIM) with AOKit Bio

“Enhanced resolution through thick tissue with structured illumination and adaptive optics”

B. Thomas, A. Wolstenholme, S. N. Chaudhari, E. T. Kipreos and P. Kner

Journal of Biomedical Optics 20, 026006 (2015)

<http://dx.doi.org/10.1117/1.JBO.20.2.026006>

“Optical sectioning structured illumination microscopy with enhanced sensitivity”

B. Thomas, M. Momany and P. Kner

Journal of Optics 15, 094004+ (2013)

<http://dx.doi.org/10.1088/2040-8978/15/9/094004>

STED with AOKit Bio

“Three-dimensional STED microscopy of aberrating tissues using dual adaptive optics”

B. R. Patton, D. Burke, D. Oswald, T. J. Gould, J. Bewersdorf and M. J. Booth

Optics Express 24, 8862 (2016)

<http://dx.doi.org/10.1364/OE.24.008862>

Multiphoton microscopy Publications with AOKit Bio

"Adaptive optics improves multiphoton super-resolution imaging"

W. Zheng, Y. Wu, P. Winter, R. Fischer, D. D. Nogare, A. Hong, C. McCormick, R. Christensen, W. P. Dempsey, D. B. Arnold, J. Zimmerberg, A. Chitnis, J. Sellers, C. Waterman and H. Shroff

Nature Methods 14, 869 (2017)

<http://dx.doi.org/10.1038/NMETH.4337>

"Pulse front adaptive optics in two-photon microscopy"

B. Sun, P. S. Salter and M. J. Booth

Optics Letters 40, 4999 (2015)

<http://dx.doi.org/10.1364/OL.40.004999>

"Accuracy of correction in modal sensorless adaptive optics"

A. Facomprez, E. Beaufepaire and D. Débarre.

Optics Express 20, 2837 (2012)

<http://dx.doi.org/10.1364/OE.20.002598>

"3D resolved mapping of optical aberrations in thick samples"

J. Zeng, P. Mahou, M. C. Schanne-Klein, E. Beaufepaire and D. Débarre.

Biomedical Optics Express 3, 1898 (2012)

<http://dx.doi.org/10.1364/BOE.3.001898>

"Depth aberrations characterization in linear and nonlinear microscopy schemes using a shack-Hartmann wavefront sensor"

R. Aviles-Espinosa, J. Andilla, R. Porcar-Guezenec, X. Levecq, D. Artigas and P. Loza-Alvarez

Proceedings of SPIE 8227, 82271D+ (2012)

<http://dx.doi.org/10.1117/12.907476>

"Correction accuracy in image-based adaptive optics for nonlinear microscopy"

Facomprez, E. Beaufepaire and D. Debarre

Proceedings of SPIE 8227, 822709-1 (2012)

<http://dx.doi.org/10.1117/12.908647>

"Calibration of an adaptive microscope using phase diversity"

D. Débarre, T. Vieille, A. Facomprez, P. Mahou and E. Beaufepaire

Proceedings of SPIE 8227, 822708+ (2012)

<http://dx.doi.org/10.1117/12.908632>

"Measurement and correction of in vivo sample aberrations employing a nonlinear guide-star in two-photon excited fluorescence microscopy"

R. Aviles-Espinosa, J. Andilla, R. Porcar-Guezenec, O. E. Olarte, M. Nieto, X. Levecq, D. Artigas and P. Loza-Alvarez

Biomedical Optics Express 2, 3135+ (2011)

<http://dx.doi.org/10.1364/BOE.2.003135>

“Self calibration of sensorless adaptive optical microscopes”

A. Thayil and M. J. Booth

Journal of the European Optical Society: Rapid Publications 6 (2011)

<http://dx.doi.org/10.2971/jeos.2011.11045>

“Long-term imaging of mouse embryos using adaptive harmonic generation microscopy”

A. Thayil, T. Watanabe, A. Jesacher, T. Wilson, S. Srinivas and M. Booth

Journal of Biomedical Optics 16, 046018+ (2011)

<http://dx.doi.org/10.1117/1.3569614>

“Direct aberrations correction in two photon microscopy by a single on-axis measurement”

R. Aviles-Espinosa, J. Andilla, R. Porcar-Guezenec, D. Artigas and P. Loza-Alvarez

Proceedings of OSA, 1029754+ (2011)

<http://dx.doi.org/10.1364/NTM.2011.NWB6>

“Practical optical quality assessment and correction of a nonlinear microscope”

R. Aviles-Espinosa, J. Andilla, R. Porcar-Guezenec, O. Olarte, X. Levecq, D. Artigas and P. Loza-Alvarez

Proceedings of SPIE 7570, 75700W+ (2010)

<http://dx.doi.org/10.1117/12.840978>

“Characterization of the dynamic behavior of lipid droplets in the early mouse embryo using adaptive harmonic generation microscopy”

T. Watanabe, A. Thayil, A. Jesacher, K. Grieve, D. Debarre, T. Wilson, M. Booth and S. Srinivas

BMC Cell Biology 11, 38+ (2010)

<http://dx.doi.org/10.1186/1471-2121-11-38>

“Dynamic aberration correction for multiharmonic microscopy”

N. Olivier, D. Débarre and E. Beaurepaire

Optics Letters, 34, 3145 (2009)

<http://dx.doi.org/10.1364/OL.34.003145>

“Adaptive harmonic generation microscopy of mammalian embryos”

A. Jesacher, A. Thayil, K. Grieve, D. Débarre, T. Watanabe, T. Wilson, S. Srinivas and M. Booth

Optics Letters 34, 3154 (2009)

<http://dx.doi.org/10.1364/OL.34.003154>

Misc modalities with AOKit Bio

“Sensorless adaptive optics implementation in wide field optical sectioning microscopy inside *in vivo* Drosophila brain”

M. Pedrazzani, V. Loriette, P. Tchenio, S. Benrezzak, D. Nutarelli and A. Fragola

Journal of Biomedical Optics 21, 036006 (2016)

<http://dx.doi.org/10.1117/1.JBO.21.3.036006>

“Adaptive optics for fluorescence wide-field microscopy using spectrally independent guide star and markers”

P. Vermeulen, E. Muro, T. Pons, V. Loriette and A. Fragola

Journal of Biomedical Optics 16, 076019+ (2011)

<http://dx.doi.org/10.1117/1.3603847>

“Adaptive aberration correction of GRIN lenses for confocal endomicroscopy”

W. M. Lee and S. H. Yun

Optics Letters 36, 4608 (2011)

<http://dx.doi.org/10.1364/OL.36.004608>

“Simple characterization of a deformable mirror inside a high numerical aperture microscope using phase diversity”

D. Débarre, T. Vieille and E. Beaurepaire

Journal of Microscopy 244, 136 (2011)

<http://dx.doi.org/10.1111/j.1365-2818.2011.03518.x>

“Adaptive optics in sectioning microscopes: the practical implementation”

J. Andilla, J. Ballesta, R. Aviles-Espinosa and X. Levecq

Proceedings of SPIE 7902, 79021A+ (2011)

<http://dx.doi.org/10.1117/12.873526>

“Closed loop adaptive optics for microscopy without a wavefront sensor”

P. Kner, L. Winoto, D. A. Agard and J. W. Sedat

Proceedings of SPIE 7570, 757006+ (2010)

<http://dx.doi.org/10.1117/12.840943>

“Image-based calibration of a deformable mirror in wide-field microscopy”

D. Turaga and T. E. Holy

Applied Optics 49, 2030 (2010)

<http://dx.doi.org/10.1364/AO.49.002030>

“High-resolution wide-field microscopy with adaptive optics for spherical aberration correction and motionless focusing”

P. Kner, J. W. Sedat, D. A. Agard and Z. Kam

Journal of Microscopy 237, 136 (2010)

<http://dx.doi.org/10.1111/j.1365-2818.2009.03315.x>

“Characterization of deformable mirrors for spherical aberration correction in optical sectioning microscopy”

M. Shaw, S. Hall, S. Knox, R. Stevens and C. Paterson

Optics Express 18, 6900 (2010)

<http://dx.doi.org/10.1364/OE.18.006900>

Selected publications where the AOKit Bio was used in ophthalmology

“Drifts in real-time partial wavefront correction and how to avoid them”

I. Marín-Franch, A. J. Del Águila-Carrasco, X. Levecq, and N. López-Gil

Applied Optics Vol. 56, Issue 14, pp. 3989-3994 (2017)

<https://doi.org/10.1364/AO.56.003989>

“Lens based adaptive optics scanning laser ophthalmoscope”

F. Felberer, J.-S. Kroisamer, C. K. Hitzenberger and M. Pircher

Optics Express 20, 17297 (2012)

<http://dx.doi.org/10.1364/OE.20.017297>

“Variability in bleach kinetics and amount of photopigment between individual foveal cones”

P. Bedggood and A. Metha

Investigative Ophthalmology & Visual Science 53, 3673 (2012)

<http://dx.doi.org/10.1167/iovs.11-8796>

“Improving wavefront boundary condition for *in vivo* high resolution adaptive optics ophthalmic imaging”

W. Zou, X. Qi, G. Huang and S. A. Burns

Biomedical Optics Express 2, 3309 (2011)

<http://dx.doi.org/10.1364/BOE.2.003309>

“Vision is adapted to the natural level of blur present in the retinal image”

L. Sawides, P. de Gracia, C. Dorronsoro, M. A. Webster and S. Marcos

PLoS ONE 6, e27031 (2011)

<http://dx.doi.org/10.1371/journal.pone.0027031>

“Contrast sensitivity benefit of adaptive optics correction of ocular aberrations”

P. de Gracia, S. Marcos, A. Mathur and D. A. Atchison

Journal of Vision 11, article 5 (2011)

<http://dx.doi.org/10.1167/11.12.5>

“Woofers-tweeters adaptive optics scanning laser ophthalmoscopic imaging based on lagrange-multiplier damped least-squares algorithm”

W. Zou, X. Qi and S. A. Burns

Biomedical Optics Express 2, 1986 (2011)

<http://dx.doi.org/10.1364/BOE.2.001986>

“Adapting to blur produced by ocular high-order aberrations”

L. Sawides, P. de Gracia, C. Dorronsoro, M. Webster and S. Marcos

Journal of Vision 11, article 21 (2011)

<http://dx.doi.org/10.1167/11.7.21>

“Visual acuity under combined astigmatism and coma: Optical and neural adaptation effects”

P. de Gracia, C. Dorronsoro, G. Marin, M. Hernandez and S. Marcos

Journal of Vision 11, article 5 (2011)

<http://dx.doi.org/10.1167/11.2.5>