

# Periklis Pantazis

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Extended CV

## Education

- 2001–2005 Ph.D., Biology and Bioengineering (Dr.rer.nat.) Dresden, Germany  
Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)  
*Marcos A. González-Gaitán Lab*  
*Thesis “Role of endocytic trafficking during Dpp gradient formation”*  
*Summa Cum Laude*
- 1995-2000 Master of Science in Biochemistry (Dipl.-Biochem.) Hanover, Germany  
Leibniz University of Hanover  
*Magna Cum Laude*

## Institutional Appointments

- since 02/2021 Director, LEICA and Imperial College Imaging Hub ICL, UK  
Centre of Excellence in Imaging to collaborate on joint research projects in order to drive scientific discoveries benefitting human health.
- since 09/2020 Reader (equiv. Associate Professor) in Advanced Optical Precision Imaging ICL, UK  
Creating a mechanistic understanding of development and disease progression by conceiving and applying advanced bioimaging techniques.
- 2018 - 2020 Senior Lecturer ICL, UK  
Conceiving and applying advanced bioimaging techniques.
- 2016 - 2018 HHMI Janelia Visiting Scientist HHMI Janelia Research Campus, USA  
Cooperation with the lab of Eric Schreiter in conducting primed conversion-related research at the Janelia Research Campus of the Howard Hughes Medical Institute.
- 2012 – 2018 Assistant Professor of Biosystems Analysis ETH Zürich, Switzerland  
*Department of Biosystems Science and Engineering (D-BSSE)*  
Conducting research on advancing biosystems imaging, advising Postdocs, PhD, and Master students in the Laboratory of Nano Bio Imaging.
- 2006 - 2011 Postdoctoral Scholar Caltech, USA  
*Scott E. Fraser Lab – Division of Biology*  
Developed imaging tools required for the mechanistic dissection of stem cell and developmental biology problems.
- 07-11/2005 Research Consultant Carl Zeiss MicroImaging GmbH, Germany  
*Application Centre*  
Designed and implemented localized photoactivation experiments on the newly developed Zeiss LSM 710 NLO microscope system.
- 02-11/2005 Postdoctoral Scholar MPI-CBG, Germany  
*Marcos A. González-Gaitán Lab*  
Combined sophisticated imaging with *in silico* modelling to quantitatively analyze the distribution, diffusion, and clearance of eGFP-labelled morphogens during *Drosophila* embryogenesis.

## Awards and Honors (incl. Group members)

- 2018-2023 Royal Society Wolfson Research Merit Award London, UK  
5-year Research support and Salary enhancement from The Royal Society
- 2018-2020 Peter und Traudl Engelhorn Postdoctoral Fellowship Award Munich, Germany  
2-year Postdoctoral Fellowship from the Peter und Traudl Engelhorn Stiftung (head: Nobel Laureate Prof. Robert Huber) for the postdoc Maaïke Welling to conduct research about asymmetry in mouse embryos using primed conversion. Only 7 fellowships/year are awarded.
- 2017 Spark Award 2017 Nomination Zurich, Switzerland  
The invention ‘Biodegradable SHG nanoprobe’ by the graduate student Ali Y. Sonay was placed among the top innovations filed by ETH Zurich in 2016 and nominated for the prestigious Spark Award of ETH Zurich.

- 2016 Janelia Graduate Research Fellowship Award HHMI Janelia Research Campus, USA  
Advisor of the graduate student Manuel A. Mohr who was granted a prestigious HHMI graduate fellowship that is awarded to only 5 applicants per year to conduct primed conversion-related research at the Janelia Research Campus of the Howard Hughes Medical Institute.
- 2016 HHMI Janelia Visiting Scientist Award HHMI Janelia Research Campus, USA  
2-year HHMI Janelia Visiting Scientist Award to co-supervise primed conversion-related research at the Janelia Research Campus of the Howard Hughes Medical Institute. It covers travel and research expenses of \$15000/year.
- 2015 Best Student Participant Award for the Lindau, Germany  
65th Nobel Laureate Meeting  
Advisor of the graduate student Ali Y. Sonay who was selected among 650 young scientists from 88 countries to attend the 65<sup>th</sup> Meeting of Nobel Prize Winners in Physiology or Medicine, Chemistry, and Physics.
- 2013 Best Student Poster Award Zurich, Switzerland  
Advisor on the best student poster at the Zurich Center for Imaging Science and Technology (CIMST) Summer School.
- 2008-2011 German Science Foundation Postdoctoral Fellowship Caltech, USA  
3-year Postdoctoral Fellowship of €45.000/year to perform research at the Biological Imaging Center of the California Institute of Technology (Caltech).
- 2009 NIH Travel Stipend Award Washington/DC, USA  
Travel Stipend Award of \$500 for presenting SHG nanoprobe for in vivo imaging at the 4<sup>th</sup> NIH Workshop "Imaging the Pancreatic Beta Cell".
- 2007 Participant Award for the 57th Nobel Laureate Meeting Lindau, Germany  
Travel Stipend awarded among the leading applications of 500 young researchers from 64 countries to attend the 57<sup>th</sup> Meeting of Nobel Prize Winners in Physiology or Medicine.
- 2001-2005 PhD Scholarship of the German Science Foundation Dresden, Germany  
Predoctoral Fellowship of €20.000/year to perform undergraduate studies at the Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG).

## Publications

### Refereed Primary Papers

Group members in bold

\*contributed equally

#corresponding author

- In Revision [53] Yaganoglu, S., Helassa, N., Gaub, B.M., Welling, M.A., Shi, J., Müller, D.J., Török, K., and Pantazis, P.#, "GenEPI: Piezo1-based fluorescent reporter for visualizing mechanical stimuli with high spatiotemporal resolution". [bioRxiv 702423](https://doi.org/10.1101/702423); <https://doi.org/10.1101/702423>
- Featured in: Landhuis, E. (2021) "Seven technologies to watch in 2021" [Nature](#) 589: 630-632 (2021)*
- 2021 [52] Sonay, A.Y., Kalyviotis, K., Yaganoglu, S., Unsal, A., Konantz, M., Teulon, C., Jiang, S., Behzadi, S., Crespy, D., Landfester, K., Roke, S., Lengerke, C., and Pantazis, P.#, (2021) "Biodegradable harmonophores for targeted high-resolution in vivo tumor imaging". [ACS Nano](#) 15, 4144–4154.
- Invention nominated for the SPARK Award 2017 at ETH Zurich and publication featured in: Brogan, C. (2021) "Tumours illuminated brightly and precisely with new biodegradable nanoprobe" [Imperial College London News](#).*
- 2020 [51] Welling, M., Kalyviotis, K., and Pantazis, P.# (2020), "Primed Track: Reliable Volumetric Single-cell Tracking and Lineage Tracing of Living Specimen with Dual-labeling Approaches". [Bio-protocols](#), 10(11), June 05.
- [50] Malkinson, G.\*, Mahou, P.\*, Chaudan, E., Gacoin, T., Sonay, A.Y., Pantazis, P., Beaurepaire, E., and Supatto, W.# (2020), "Fast in vivo imaging of SHG nanoprobe with multiphoton light-sheet microscopy". [ACS Photonics](#), 7:1036-1049.
- 2019 [49] Welling, M.A.\*, Mohr, M.A.\*, Ponti, A., Sabater, L.R., Boni, A., Kitazawa, Y., Liberali, P., Peters, A., Pelczar, P., and Pantazis, P.# (2019), "High fidelity lineage tracing in mouse pre-implantation embryos using primed conversion of photoconvertible proteins". [eLIFE](#), 21(8): e44491.
- 2018 [48] Slenders, E., Bové, H., Urbain, M., Mugnier, Y., Sonay, A.Y., Pantazis, P., Bonacina, L., Vanden Berghe, P., vandeVen, M., and Ameloot, M.#, (2018) "Image Correlation Spectroscopy with Second Harmonic Generating Nanoparticles in Suspension and in Cells." [J Phys Chem Lett](#), 20:6112-6118.

[47] Sugiyama, N.\*, Sonay, A.Y.\*, Tussiwand, R., Cohen, B., and Pantazis, P.#, (2018) "Effective Labeling of Primary Somatic Stem Cells with BaTiO<sub>3</sub> Nanocrystals for Second Harmonic Generation Imaging". *Small* 8:1703386.

*Provided cover of the journal*

2017 [46] Nugraha, B., Mohr, M.A., Ponti, A., Emmert, M.Y., Weibel, F., Hoerstrup, S.P., Moll, S., Certa, U., Prunotto, M., and Pantazis, P.#, (2017) "Monitoring and manipulating cellular crosstalk during kidney fibrosis inside a 3D in vitro co-culture". *Scientific Reports* 7:14490.

[45] Mohr, M.A., Kobitski, A.Yu., Sabater, L.R., Nienhaus, K., Obara, C.J., Lippincott-Schwartz, J., Nienhaus, G.U.#, and Pantazis, P.#, (2017) "Rational Engineering of Photoconvertible Fluorescent Proteins for Dual-Color Fluorescence Nanoscopy Enabled by a Triplet-State Mechanism of Primed Conversion". *Angew. Chem. Int. Ed.* 56:11628–11633.

*Featured in: Bergman, F. (2017) "Red fluorescence in two steps" ETH Zurich News.*

[44] Zhang, W., Lohman, A.W., Zhuravlova, Y., Lu, X., Wiens, M.D., Hoi, H., Yaganoglu, S., Mohr, M.A., Kitova, E.N., Klassen, J.S., Pantazis, P., Thompson, J.R., and Campbell, R.E.#, (2017) "Optogenetic control with a photocleavable protein" *Nature Methods* 14:391–394.

2016 [43] Mohr, M.A., Argast, P., and Pantazis, P.#, (2016) "Labeling cellular structures in vivo using confined primed conversion of photoconvertible fluorescent proteins" *Nature Protocols* 11:2419-2431.

2015 [42] Dempsey, W.P.\*, Hodas, N.O.\*, Ponti, A., and Pantazis, P.#, (2015) "Determination of the source of SHG verniers in zebrafish skeletal muscle" *Scientific Reports* 5:18119.

[41] Dempsey, W.P.\*, Georgieva, L.\*, Helbling, P.M., Sonay, A.Y., Truong, T.V., Haffner, M., and Pantazis, P.#, (2015) "In vivo single cell labeling by confined primed conversion" *Nature Methods* 12:645–648.

*Featured in 11 news outlets and scientific blogs among them: Bergman, F. (2015) "Chameleon proteins make individual cells visible" ETH Zurich News.*

2012 [40] Culic-Viskota, J.\*, Dempsey, W.P.\*, Fraser, S.E., and Pantazis, P.#, (2012) "Surface functionalization of barium titanate SHG nanoprobe for in vivo imaging in zebrafish" *Nature Protocols* 7:1618-33.

[39] Dempsey, W.P., Fraser, S.E., and Pantazis, P.#, (2012) "PhOTO Zebrafish: A transgenic resource for in vivo lineage tracing during development and regeneration" *PLoS ONE* 7:e32888.

*Featured in: "PhOTO zebrafish: a transgenic resource for in vivo lineage tracing during development and regeneration, Significance statement" Global Medical Discovery.*

2011 [38] Plachta, N., Bollenbach, T., Pease, S., Fraser, S.E., and Pantazis, P.#, (2011) "Oct4 kinetics predict cell lineage patterning in the early mammalian embryo" *Nature Cell Biology* 13:117-23.

*Provided cover of the journal and featured in: Zernicka-Goetz, M., (2011) "Proclaiming fate in the early mouse embryo" Nature Cell Biology 13:112-4.*

[37] Caneparo, L.\*, Pantazis, P.\*, Dempsey, W.P., and Fraser, S.E., (2011) "Intercellular bridges in vertebrate gastrulation" *PLoS ONE* 6:e20230.

2010 [36] Pantazis, P.#, Maloney, J., Wu, D., and Fraser, S.E., (2010) "Second Harmonic Generating (SHG) nanoprobe for in vivo imaging" *Proc Natl Acad Sci USA* 107:14535-40.

*Featured in: Cohen, B., (2010) "Biological imaging: Beyond fluorescence" Nature 467:407-8; Evanko, D., (2010) "Microscope harmonies" Nature Methods 7:779.*

[35] Tu, C., Ma, X., Pantazis, P., Kauzlarich, S.#, and Louie, A.#, (2010) "Paramagnetic, silicon quantum dots for magnetic resonance and two photon imaging of macrophages" *J Am Chem Soc* 132:2016-23.

2008 [34] Bollenbach, T.\*, Pantazis, P.\*, Kicheva, A.\*, Boekel, C., Kruse, K., Gonzalez-Gaitan, M.#, and Juelicher, F.#, (2008) "Precision of the Dpp gradient" *Development* 135:1137-46.

2007 [33] Kicheva, A.\*, Pantazis, P.#, Bollenbach, T.\*, Kalaidzidis, Y., Bittig, T., Juelicher, F.#, and Gonzalez-Gaitan, M.#, (2007) "Kinetics of morphogen gradient formation" *Science* 315(5811):521-5.

*Featured in: Kritikou, E., (2007) "Reaching one's range" Nature Reviews Molecular Cell Biology 8:181.*

[32] Pantazis, P.#, and González-Gaitán, M., (2007) "Localized multiphoton photoactivation of paGFP in Drosophila wing imaginal discs" *J Biomed Opt* 12:044004.

[31] Bollenbach, T., Kruse, K., Pantazis, P., Gonzalez-Gaitan, M., Juelicher, F.#, (2007) "Morphogen transport in epithelia." *Phys Rev E Stat Nonlin Soft Matter Phys.* 75 (1 Pt 1):011901.

2005 [30] Bollenbach, T., Kruse, K., Pantazis, P., Gonzalez-Gaitan, M., and Juelicher, F.#, (2005) "Robust formation of morphogen gradients" *Phys Rev Lett* 94:018103(1-4).

- [29] Kruse, K.\*, Pantazis, P.\*, Bollenbach, T., Juelicher, F.#, and Gonzalez-Gaitan, M.#, (2004) "Dpp gradient formation by Dynamin-dependent endocytosis: receptor trafficking and the diffusion model" *Development* 131:4843-56.
- 1999 [28] Tsikas, D.#, Sandmann, J., Holzberg, D., Pantazis, P., Raida, M., and Frolich, J.C., (1999) "Determination of S-nitrosoglutathione in human and rat plasma by high-performance liquid chromatography with fluorescence and ultraviolet absorbance detection after precolumn derivatization with o-phthalaldehyde" *Anal Biochem* 273:32-40.

## Refereed Reviews Publications

- 2018 [27] Mohr, M.A., and Pantazis, P.#, (2018) "Primed conversion: the new kid on the block for photoconversion" *Chemistry* 33:8268-8274.
- 2016 [26] Welling, M., Ponti, A., and Pantazis, P.#, (2016) "Symmetry breaking in the early mammalian embryo: the case for quantitative single-cell imaging analysis" *MHR-Molecular Human Reproduction* 22:172-181.
- 2014 [25] Pantazis, P.#, and Supatto W., (2014) "Advances in whole-embryo imaging: a quantitative transition is underway" *Nature Reviews Molecular Cell Biology* 15:327-39.
- 2013 [24] Mikut R.#, Dickmeis T., Driever W., Geurts P., Hamprecht F.A., Kausler B.X., Ledesma-Carbayo M.J., Marée R., Mikula K., Pantazis P., Ronneberger O., Santos A., Stotzka R., Strähle U., and Peyriéras N., (2013) "Automated processing of zebrafish imaging data: A survey" *Zebrafish* 10:401-21.
- 2012 [23] Pantazis, P.#, and Bollenbach, T., (2012) "Transcription factor kinetics and the emerging asymmetry in the early mammalian embryo" *Cell Cycle* 11:2055-8.
- [22] Dempsey, W.P., Fraser, S.E., and Pantazis, P.#, (2012) "SHG nanoprobes: Advancing harmonic imaging in biology" *Bioessays* 34:351-60.
- 2004 [21] Dudu, V.\*, Pantazis, P.\*, and Gonzalez-Gaitan, M.#, (2004) "Membrane traffic during embryonic development: epithelial formation, cell fate decisions and differentiation" *Curr Opin Cell Biol* 16:407-414.

## Refereed Conference Publications

- 2020 [20] Malkinson, G., Maioli, V., Boniface, A., Mahou, P., Ortas, J.F., Chaudan, L.A.E., Sonay, A.Y., Gacoin, T., Pantazis, P., Beaurepaire, E., and Supatto, W.#, (2020) "Advances in fast multiphoton microscopy using light-sheet illumination." *Biomedical Optics 2020*.
- 2018 [19] Nienhaus, K., Mohr, M.A., Kobitski, A, Y., Sabater, L.R., Obara, C.J., Lippincott-Schwartz, J., Nienhaus, G.U.#, and Pantazis, P.# (2018) "Primed Green-to-Red Photoconversion of Fluorescent Proteins Occurs via a Triplet State." *Biophysical Journal* 114:533a.
- 2017 [18] Sonay, A.Y., and Pantazis, P.#, (2017) "Bioinspired Second Harmonic Generation" *Proc. SPIE 10411, Clinical and Preclinical Optical Diagnostics, 104110D*.
- 2009 [17] Pantazis, P.#, Pu, Y., Psaltis, D., and Fraser, S.E., (2009) "Second Harmonic Generating (SHG) Nanoprobes: A new tool for biomedical imaging" *Proc. SPIE* 7183:71831-5.

## Refereed Books and/or Book Chapters

- 2020 [16] Konstantinos, K., Qin, H., and Pantazis, P.#, (2020) "Chapter 19 - PhOTo zebrafish and primed conversion: advancing the mechanistic view of development and disease" *Behavioral and Neural Genetics of Zebrafish*, Academic Press, Pages: 309-322.
- 2016 [15] Mohr, M.A., and Pantazis, P.#, (2016) "Single neuron morphology in vivo with confined primed conversion" *Methods Cell Biology* 133:125-38.
- Figure selected as cover image for: Volume 1, Methods in Cell Biology, The Zebrafish: Cellular and Developmental Biology, Part A Cellular Biology 4th Edition.*
- 2014 [14] Dempsey, W.P., Qin, H., and Pantazis, P.#, (2014) "In vivo cell tracking using PhOTo Zebrafish" *Methods Molecular Biology* 1148:217-28.

## Patents

### Total number of issued patents and pending patent applications: 13

- 2021 [13] Pantazis, P., Sonay, A.Y., Landfester, K., and Crespy, D., "Biodegradable second harmonic generating nanoprobes" *E.P. patent granted* (12 November 2021, EP 3518986).
- 2018 [12] Pantazis, P., Dempsey, W.P., Truong, T.V., Fraser, S.E., and Georgieva, L. "Method And Device To Achieve Spatially Confined Photointeraction At The Focal Volume Of A Microscope" *U.P. patent granted* (15 May 2018, US 90,971,136).

- [11] Pantazis, P., Pu, Y., Hong, J., Psaltis, D., and Fraser, S.E. "Second Harmonic Imaging Nanoprobes And Techniques For Use Thereof" *U.S. patent granted* (20 Feb 2018, US 9,971,136).
- 2017 [10] Pantazis, P. and Yaganoglu, S., "Piezo1-based fluorescent reporter" *E.P. patent pending* (2017, EP 2017/17210479.6).
- [9] Mohr, M.A., and Pantazis, P., "Engineered photoconvertible fluorescent proteins (pcFPs) for primed conversion" *U.S. patent pending* (2017, US 62/446,023).
- 2016 [8] Pantazis, P., Pu, Y., Hong, J., Psaltis, D., and Fraser, S.E. "Second Harmonic Imaging Nanoprobes And Techniques For Use Thereof" *U.S. patent granted* (25 Oct 2016, US 9,476,830).
- [7] Pantazis, P., Culic-Viskotski, J., Dempsey, W.P., and Fraser, S.E. "Functionalization of and use of functionalized second harmonic generating nanoprobes" *U.S. patent granted* (31 May 2016, US 9,352,055).
- 2015 [6] Pantazis, P., Culic-Viskotski, J., Dempsey, W.P., and Fraser, S.E. "Functionalization of and use of functionalized second harmonic generating nanoprobes" *U.S. patent granted* (29 Dec 2015, US 9,221,919).
- [5] Pantazis, P., Masmanidis, S., and Fraser, S.E. "Multipurpose Analysis Using Second Harmonic Generating Nanoprobes" *U.S. patent granted* (03 Feb 2015, US 8,945,471 B2).
- 2014 [4] Pantazis, P., Dempsey, W.P., Truong, T.V., Fraser, S.E., and Georgieva, L. "Method And Device To Achieve Spatially Confined Photointeraction At The Focal Volume Of A Microscope" *W.O. patent pending* (2014, WO 2014/147211).
- [3] Pantazis, P., Dempsey, W.P., Truong, T.V., Fraser, S.E., and Georgieva, L. "Method And Device To Achieve Spatially Confined Photointeraction At The Focal Volume Of A Microscope" *E.P. patent pending* (2014, EP 2014/055669).
- 2010 [2] Pantazis, P., Masmanidis, S., and Fraser, S.E. "Multipurpose Analysis Using Second Harmonic Generating Nanoprobes" *W.O. patent pending* (2010, WO 2010/090844).
- 2008 [1] Pantazis, P., Pu, Y., Hong, J., Psaltis, D., and Fraser, S.E. "Second Harmonic Imaging Nanoprobes And Techniques For Use Thereof" *W.O. patent pending* (2008, WO 2008/140584).

## Industry Brochure

- 2007 [1] Pantazis, P., (2007) "Localized Photoactivation / Lokalisierte Photoaktivierung" *Brochure* - Carl Zeiss MicroImaging GmbH.

## Invited Talks

14 invited plenary talks, 51 invited talks

Various online talks – available online: [Imaging ONEWORLD Series – Royal Microscopy Society](#)  
[The London Stem Cell Network Conference](#)

02/2020	LMS-Helmholtz Metabolism Meeting Invited Talk	London, UK
12/2019	American Society of Cell Biology Annual Meeting Invited Talk	Washington/DC, USA
12/2019	Materials Research Society Fall 2019 Meeting Invited Talk	Boston/MA, USA
10/2019	EMBO/EMBL Symposium 'Seeing is Believing' Invited Plenary Talk	Heidelberg, Germany
09/2019	International workshop in cardiac mechanoelectric coupling and arrhythmia Invited Plenary Talk	Freiburg, Germany
10/2018	Princeton University Invited Talk	Princeton/NJ, USA
10/2018	Fluorescent Proteins and Biological Sensors VI at Janelia Research Campus Invited Plenary Talk	Ashburn/VA, USA
07/2018	EPFL, School of Engineering Invited Talk	Lausanne, Switzerland
11/2017	Bioengineering Symposium at EPFL Invited Plenary Talk	Lausanne, Switzerland
11/2017	University of Geneva Invited Talk	Geneva, Switzerland

10/2017	ETH Zurich, D-ITET Invited Talk	Zurich, Switzerland
10/2017	ETH Zurich, D-CHAB Invited Talk	Zurich, Switzerland
07/2017	International Symposium on Imaging Frontier 2017 Invited Plenary Talk	Tokyo, Japan
07/2017	10th European Zebrafish Meeting Plenary Talk	Budapest, Hungary
05/2017	University of Washington Invited Talk	Seattle/WA, USA
05/2017	Max Planck Institute for Biophysical Chemistry Invited Talk	Göttingen, Germany
04/2017	University of Chicago Invited Talk	Chicago/IL, USA
03/2017	Technical University of Munich Invited Talk	Munich, Germany
02/2017	University of Münster Invited Talk	Münster, Germany
01/2017	University of California Irvine (UCI) Invited Talk	Irvine/CA, USA
11/2016	NanoBioTech-Montreux Invited Session Talk	Montreux, Switzerland
11/2016	Labeling & Nanoscopy 2016 <sup>11-13 SEP</sup> Deutsches Krebsforschungszentrum (DKFZ) Contributed talk	Heidelberg, Germany
10/2016	Harvard, Department of Systems Biology Invited Talk	Boston/MA, USA
06/2016	68 <sup>th</sup> Annual Meeting of the Japan Society of Cell Biology Invited Session Talk	Kyoto, Japan
06/2016	Swiss-Kyoto Symposium 2016 Invited Talk	Kyoto, Japan
05/2016	16 <sup>th</sup> European Light Microscopy Initiative (ELMI) Meeting Invited Talk	Debrecen, Hungary
04/2016	NIH Invited Talk	Washington/DC, USA
04/2016	HHMI Janelia Research Campus Invited Talk	Ashburn/VA, USA
03/2016	4 <sup>th</sup> European Zebrafish Principal Investigator Meeting Invited Talk Session 6 – Emerging Technologies	Lisbon, Portugal
03/2016	7 <sup>th</sup> Annual EFOR Meeting FIAP Jean Monnet Plenary Talk	Paris, France
02/2016	ETH Zurich, D-BIO, Institute of Biochemistry Invited Talk	Zurich, Switzerland
11/2015	Karlsruhe Institute of Technology (KIT) Invited Talk	Karlsruhe, Germany
10/2015	European Molecular Biology Laboratory (EMBL) Symposium “Seeing is Believing – Imaging the Processes of Life” Invited Fast Track Talk	Heidelberg, Germany
05/2015	15 <sup>th</sup> European Light Microscopy Initiative (ELMI) Meeting Invited Fast Track Talk	Barcelona, Spain

03/2015	Max Planck Institute for Polymer Research (MPIP) Invited Talk	Mainz, Germany
02/2015	Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG) Invited Talk	Dresden, Germany
01/2015	6 <sup>th</sup> Strategic Conference of Zebrafish Investigators Plenary Talk	Pacific Grove/CA, USA
11/2014	Max Planck Institute for Molecular Biomedicine Invited Talk	Münster, Germany
10/2014	Novartis Workshop “Using 3D cell cultures and organ printing in drug discovery – cells, biosensors and imaging technology” Plenary Talk	Basel, Switzerland
10/2014	University of Hasselt μFiBR 2014: Optical Imaging in Biomedical Nanotechnology Plenary Talk	Hasselt, Belgium
09/2014	Institut de Genetique et de Biologie Moleculaire and Cellulaire (IGBMC) Invited Talk	Strasbourg, France
05/2014	Agency for Science, Technology and Research (A*STAR) Invited Talk	Singapore
05/2014	Nanyang Technological University (NTU) META’14: 5th International Conference on Metamaterials, Photonic Crystals and Plasmonics Invited Talk	Singapore
05/2014	Korea Research Institute of Bioscience & Biotechnology (KRIBB) Swiss-Korean Life Science Symposium Invited Talk	Seoul, Korea
03/2014	Weizmann Institute 3rd European Zebrafish Principal Investigator Meeting Symposium on Imaging and Image Processing Plenary Talk	Rehovot, Israel
03/2014	Biomedical Research Foundation Academy of Athens (BRFAA), Invited Talk	Athens, Greece
11/2013	Swiss-Kyoto Symposium 2013 Invited Talk	Zurich, Switzerland
10/2013	Quantitative Single Cell Biology in Stem Cell Research Abcam Meeting Invited Talk	Munich, Germany
07/2013	European Zebrafish Meeting Workshop "Strategies for cell lineage tracing" Plenary Talk	Barcelona, Spain
04/2013	Annual Meeting of the Basel Stem Cell Network (BSCN) Plenary Talk	Basel, Switzerland
02/2013	LS2 Annual Meeting, “(R)evolutions in Biology” Invited Talk	Zurich, Switzerland
10/2012	École Polytechnique CNRS Conference “Microscopie non-linéaire en sciences du vivant” Invited Talk	Palaiseau, France
09/2012	University of Cambridge EMBO Workshop “Cell Biology of Early Mouse Development” Invited Talk	Cambridge, UK
09/2012	Lawrence Berkeley National Laboratory (LBNL) The Molecular Foundry Workshop	Berkeley/CA, USA

	Invited Talk	
01/2012	3 <sup>rd</sup> Annual EFOR Meeting FIAP Jean Monnet Invited Talk	Paris, France
11/2011	Institute of Science and Technology Austria (IST Austria) Invited Talk	Klosterneuburg, Austria

## External Funding

Raised ~£ 4.5M since 2012 in funding from government, charities (BBSRC, CRUK, The Royal Society, EU, SNF, HHMI, NWO, US Department of Energy and the Peter und Traudl Engelhorn Stiftung) and industry (LEICA Microsystems Ltd, F.Hoffman-La Roche)

2021-now	Leica and Imperial College Imaging Hub Director and Lead of the Centre of Excellence in Imaging; LEICA contribution > <u>£1.0M</u>	LEICA Microsystems
2021-now	Convergence Science Centre Grant PI of the grant 'Bioharmonophores: Redefining Photodynamic Therapy of Cancer'; <u>£120.000</u>	Cancer Research UK
2021-now	BBSRC Grant (BB/T017929/1) PI of the grant 'A digital light-sheet microscope for the analysis of biological processes under almost natural conditions'; <u>£0.6M</u>	BBSRC
2020-now	BBSRC Grant (BB/T011947/1) Co-PI of the grant 'Primed Conversion Oblique Plane Microscopy'; <u>£200,000</u>	BBSRC
2018-2023	Royal Society Wolfson Research Merit Award 5-year Research support and Salary enhancement, London/UK; <u>£220.000</u>	The Royal Society
2018-2020	Postdoctoral Fellowship for Maaïke Welling 2-year Postdoctoral Fellowship from the Peter und Traudl Engelhorn Stiftung, Munich/Germany; <u>CHF200.000</u>	Peter und Traudl Engelhorn Stiftung
2016-2018	Janelia Graduate Research Fellowship for Manuel A. Mohr 2-year Graduate Fellowship to perform part of the PhD research at the Janelia Research Campus of the Howard Hughes Medical Institute; <u>\$96.000</u>	HHMI
2016-2018	Rubicon Postdoctoral Fellowship for Maaïke Welling 2-year Postdoctoral Fellowship from the Netherlands Organization for Scientific Research; <u>€150.000</u>	NWO
2016-2017	R'Equip Grant: 316030_164087/1 co-PI of the Equipment grant "Light-Sheet Microscopy" to acquire a light-sheet microscope for performing fast volumetric imaging; <u>CHF461.364</u>	SNF
2015-2016	Project Grant: #3776 PI of the grant "Synthesis and fractionation of BaTiO <sub>3</sub> nanocrystals as SHG nanoprobe" to perform nanocrystal fractionation at the Lawrence Berkeley National Laboratory Molecular Foundry; <u>\$10.000</u>	US Department of Energy
2013-2016	Project Grant: 310034A_144048 PI of the grant "Imaging of pluripotency in systems biology"; <u>CHF471.500</u>	SNF
2013-2016	Marie Curie Career Integration Grant: RPF-ID277 PI of the grant "Systems imaging of emerging asymmetry in vertebrate development (SIEAVD)"; <u>€100.000</u>	European Commission (FP7)
2013-2015	Project Grant: RPF-ID277 PI of the grant "Establishing 3D in vitro reconstructed renal microenvironment through advanced multiphoton microscopy imaging"; <u>CHF420.000</u>	F. Hoffman-La Roche
2012-2013	Project Grant: #1603 PI of the grant "Synthesis and functionalization of BaTiO <sub>3</sub> Nanocrystals as SHG nanoprobe" to synthesize nanocrystals at the Lawrence Berkeley National Laboratory Molecular Foundry; <u>\$10.000</u>	US Department of Energy
2012-2013	NCCR Nano Module 1 Project Grant PI of the grant "Optical tracking of neutrophil dynamics in vivo"; CHF80.000	SNF
2011	Zeiss LSM780NLO Donation Global donation from Roche Pharma Research and Early Development (pRED) to ETH Zurich that included a share intended for the purchase of a non-linear optical microscope; <u>CHF1.4M</u>	F. Hoffman-La Roche

## Teaching Experience

### Lectures and Workshops

10-12/2021	BIOE96041 "Principles of Biomedical Imaging" Undergraduate class of >100 students (50% cover)	ICL
10-12/2021	BIOE60015 "Advanced Imaging Technologies for Systems Biology and Biomedical Research" Undergraduate class of <50 students (100% cover)	ICL
01-02/2021	BE9-MBMI "Brain Machine Interfaces" Undergraduate class of >100 students (25% cover)	ICL
10-12/2020	BIOE96041 "Principles of Biomedical Imaging" Undergraduate class of >100 students (50% cover)	ICL
10-12/2020	BIOE96072 "Advanced Imaging Technologies for Systems Biology" Undergraduate class of <50 students (100% cover)	ICL
01-02/2020	BIOE97075 "Brain Machine Interfaces" Undergraduate class of >100 students (25% cover)	ICL
11-12/2019	BIOE96041 "Principles of Biomedical Imaging" Undergraduate class of >100 students (25% cover)	ICL
01-02/2019	BE9-MBMI "Brain Machine Interfaces" Undergraduate class of >100 students	ICL
09-12/2017	636-0014-00L "Advanced Imaging Technologies" Master class of ~17 students	ETH Zurich
09-12/2017	636-0014-00L "Advanced Imaging Technologies" Master class of ~17 students	ETH Zurich
02-06/2017	636-0014-00L "Imaging in Systems Biology" Master class of ~15 students	ETH Zurich
02-06/2016	636-0014-00L "Imaging in Systems Biology" Master class of ~15 students	ETH Zurich
12/2015	41130-01 "Genetic Approaches in Biomedical Research" Bachelor class of ~100 students; Lecture "In vivo single-cell labeling by confined Primed Conversion"	UNI Basel
11/2015	Workshop "2nd course on Optogenetics" Institut Curie Workshop of ~30 students; Lecture "In vivo single-cell labeling by confined Primed Conversion"	Paris, France
02-06/2015	636-0014-00L "Imaging in Systems Biology" Master class of ~15 students	ETH Zurich
12/2014	35823-01 "Genetic Approaches in Biomedical Research" Bachelor class of ~100 students; Lecture "Advances in whole embryo imaging: A quantitative transition is underway"	UNI Basel
05/2014	35823-01 "Genetic Approaches in Biomedical Research" Bachelor class of ~100 students; Lecture "PhOTO Zebrafish: A transgenic resource for in vivo lineage tracing during development and regeneration"	UNI Basel
02-06/2014	636-0014-00L "Imaging in Systems Biology" Master class of ~15 students	ETH Zurich
11/2013	32672-01 "Genetic Approaches in Biomedical Research" Bachelor class of ~100 students; Lecture "Tracking pluripotency: Advanced imaging tools for probing asymmetry in early mammalian embryos"	UNI Basel
02-06/2013	636-0014-00L "Imaging in Systems Biology" Master class of ~15 students	ETH Zurich

### Advising and Mentoring (Past and Present)

#### Present lab members

Postdoctoral Fellows Maria Antonetta 'Maaike' Welling (PhD, Utrecht University)	ICL/ETH Zurich
PhD Students	ICL

Konstantinos Kalyviotis (MS, Democritus University of Thrace; PhD expected 03/2022)  
See Swee Tang (MS, Imperial College London; PhD expected 03/2023)  
Edagül Uluçay (MD, Imperial College London; PhD expected 09/2024)

Master Students

ICL

Andrew Kloska  
Daniel Lee  
Papavee Phongsopa  
Vishnu Seshan

Past

Postdoctoral Fellows

ETH Zurich

Nami Sugiyama (PhD, University of Helsinki)  
Current position: Postdoctoral Fellow, University of Basel, CH

Bramasta Nugraha (PhD, National University of Singapore)  
Current position: Senior Scientist, AstraZeneca, Göteborg, Sweden

William P. Dempsey (PhD, California Institute of Technology)  
Current position: Staff Scientist, Singular Genomics, San Diego/CA, USA

PhD Students

HHMI/ETH Zurich

Hanyu Qin (MS, Uppsala University; PhD 01/2019)  
Current position: Director in Business Development, Artivila Therapeutics, Shenzhen, China

Manuel Mohr (MS, ETH Zurich; PhD 08/2018)  
Current position: Senior Investigator, Scribe Therapeutics, Alameda/CA, USA

Ali Yasin Sonay (MS, Yeditepe University; PhD 02/2018)  
Current position: Postdoctoral Fellow, MSKCC, New York/NY, USA

Sine Yaganoglu (MS, ETH Zurich; PhD 01/2018)  
Current position: Business Development Manager, Sensirion, Zurich, CH

Master Students

ICL/ETH Zurich

Maëlle Benefice (BS, École Polytechnique ; MS 2020)  
Current position: PhD Student, Institut Fresnel, FR

Aysen Unsal (BS, University of Surrey; MS 2020)  
Current position: Industry Partnerships and Commercialisation, Imperial College London, UK

Dan-Felix Scherrer (MSc, University of Basel; MS 2018)  
Current position: PhD Student, University of Basel, CH

Lluc Rullan Sabater (BS, University of Pennsylvania; MS 2017)  
Current position: Data Engineering Analyst, Google, Dublin, IRE

Gabriel Hauswirth (BS, ETH Zurich; MS 2015)  
Current position: PhD Student, Monash University, AU

Patrick Helbling (BS, ETH Zurich; MS 2014)  
Current position: PhD Student, University of Zurich, CH

Scientific Research Assistant

ETH Zurich

Lada Georgieva (MS, EPFL)  
Current position: Senior Manager, COVAX, WHO, Geneva, CH

Outside Lab activities

- |      |                                                                                                               |           |
|------|---------------------------------------------------------------------------------------------------------------|-----------|
| 2020 | PhD Thesis Co-Referee<br>Serving as examiner of the PhD Thesis of Håkon Høgset (Prof Molly Stevens)           | ICL       |
| 2020 | PhD Thesis Committee Member<br>Serving on the PhD committee of Ioannis Gkouzionis (Prof Daniel Elson)         | ICL       |
| 2018 | MSc Thesis Co-Referee<br>Served as examiner of the MSc Thesis of Deborah Huber (Prof. Markus Affolter)        | UNI Basel |
| 2018 | MSc Thesis Co-Referee<br>Served as examiner of the MSc Thesis of Anton Stroganov (Prof. Aleksandra Radenovic) | EPFL      |
| 2018 | PhD Thesis Co-Referee<br>Served as examiner of the PhD Thesis of Deborah Huber (Dr. Govind Kaigala)           | IBM       |
| 2018 | PhD Thesis Co-Referee<br>Served as examiner of the PhD Thesis of Daniel Strebing (Prof. David Suter)          | EPFL      |

2016-2019	PhD Thesis Committee Member Served on the PhD committee of Karin Prummel (Prof. Christian Mosimann)	University of Zurich
2013-2017	PhD Thesis Committee Member Served on the PhD committee of Joanna Torres (Prof. Renato Paro)	ETH Zurich
2012-2017	PhD Thesis Committee Member Served on the PhD committee of Allwyn Pereira (Prof. Renato Paro)	ETH Zurich
2013-2017	PhD Thesis Committee Member Served on the PhD committee of Tetjana Serdiuk (Prof. Daniel Müller)	ETH Zurich
2012-2015	PhD Thesis Committee Member Served on the PhD committee of Moritz Freundschuh (Prof. Daniel Müller)	ETH Zurich
2015	PhD Thesis Co-Referee Served as examiner of the PhD Thesis of Moritz Freundschuh (Prof. Daniel Müller)	ETH Zurich
2015	PhD Thesis Co-Referee Served as examiner of the PhD Thesis of Subramanian Ramanathan (Prof. Daniel Müller)	ETH Zurich
2012	PhD Thesis Co-Referee Served as examiner of the PhD Thesis of Jelena Čulić-Viskota (Prof. Scott E. Fraser & Prof. Mark E. Davis)	Caltech

## Service

### Leadership Service to Imperial College London

2021-now	LEICA and Imperial College Imaging Hub Council of Operations, Chair
2021-now	MEng Molecular Bioengineering, Program Director
2021-now	Facility for Imaging by Light Microscopy steering committee, Academic Member for Engineering
2021-now	Department Research Committee, Member covering Optical Imaging and Fellowships
2018-now	Animal Welfare and Ethical Review Body, Academic Member for Engineering

### Scientific Journal Reviewer

ACS Nano  
 Advanced Science  
 Angewandte Chemie International Edition  
 Biophysical Journal  
 Chemical Communications  
 Development  
 Developmental Biology  
 Faculty of 1000 (F1000)  
 International Journal of Developmental Biology  
 Journal of Applied Physics  
 Journal of the American Chemical Society (JACS)  
 Journal of Visualized Experiments (JoVE)  
 Molecular Human Reproduction (MHR)  
 Nanoscale  
 Nature  
 Nature Cell Biology  
 Nature Chemical Biology  
 Nature Communications Biology  
 Nature Methods  
 Nature Nanotechnology  
 Nature Protocols  
 Proceedings of the National Academy of Science (PNAS)  
 Public Library of Science ONE (PLoS ONE)  
 Royal Society Open Science  
 Scientific Reports  
 Small  
 Theranostics

### Scientific Journal Editorial Boards

2020-now	Nature Communications Biology Serving as an External Editor for the Research Topics "Bioengineering, Biotechnology & Methods"
2019-now	Frontiers in Molecular Biosciences Serving as an Editor on the Research Topic "Mechanisms of Fluorescent Proteins"

2015-now Stem Cell Reviews and Reports (SCRR)  
Serving on the Editorial Board supervising the review of manuscripts and reviews

## Advisory Service

2021	Engineering and Physical Sciences Research Council (EPSRC) Reviewer Reviewed grant proposal asking for ~£1.5M	Swindon, UK
2021	ETH Grants Reviewed grant proposal asking for ~ CHF 1.0M	Zurich, Switzerland
2020	Austrian Science Fund (FWF) Reviewer Reviewed grant proposal asking for ~€1.5M	Vienna, Austria
2017	Department of Research and Development Ministry of Education, Youth and Sports of the Czech Republic Assessing the large research infrastructure, CzechBioImaging RI	Prague, CZ
2015	Netherlands Organization for Scientific Research (NOW) Reviewer Reviewed grant proposal asking for ~€250.000	The Hague, NL
2015	The French National Research Agency (ANR) Reviewer Reviewed grant proposal asking for ~€150.000	Paris, France
2015	The Austrian Academy of Science (ÖAW) Reviewer Reviewed fellowship proposal asking for ~€100.000	Vienna, Austria
2014	The German Science Foundation (DFG) Reviewer Reviewed grant proposal asking for ~€750.000	Bonn, Germany
2014	The Austrian Academy of Science (ÖAW) Reviewer Reviewed fellowship proposal asking for ~€100.000	Vienna, Austria
2013	The Swiss National Science (SNF) Reviewer Reviewed grant proposal asking for ~CHF500.000	Bern, Switzerland

## Leadership Service to the Academic Community

2021/22	Co-Organizer “See the Hidden” Organizing with LEICA Microsystems a workshop about advanced imaging in translating cancer research within the framework of the LEICA and Imperial College Imaging Hub.	London, UK
2017	Co-Chair “Technological Breakthroughs” Organizing a workshop about advanced imaging in the framework of the 7 <sup>th</sup> Strategic Conference for Zebrafish Investigators at Asilomar in Pacific Grove, California.	Pacific Grove/CA, USA
2016	Co-Category Chair “Transdisciplinary Imaging - Developmental Biology” for the World Molecular Imaging Congress Identified abstract reviewers, managed the review process in the category, and assisted with identifying abstracts for oral or poster presentation.	New York/NY, USA
2016	EXCITE Summer School 2016 Presented imaging lecture and organized practical session.	Zurich, CH
2015	Practical Day on aquatic animals in the framework of the LTK module 20 Co-organized the practical animal experimentation course and participated as speaker and my laboratory members as tutors.	Basel, CH
2012-now	European Zebrafish Image Processing Expert Group, Member Identifying and exchanging knowledge about key areas for automation of embryo handling and automated image acquisition and processing.	Karlsruhe, Germany

## Professional Organizations

2020-now	Royal Microscopical Society (RMS), Member
2020-now	British Society for Developmental Biology (BSDB), Member
2019-now	Material Research Society (MRS), Member
2016-now	American Chemical Society (ACS), Member
2016-now	International Zebrafish Society (IZFS), Member
2011-now	European Zebrafish Society, Member