

Periklis Pantazis

Extended CV

Periklis Pantazis

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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 09/2020 **Reader in Advanced Optical Precision Imaging (Associate Professor)** **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.
- 2011 - 2018 **Visiting Associate** **Caltech, USA**
Division of Biology and Biological Engineering
Continuing cooperation on existing patented technology with access to scientific facilities.
- 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 Center
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 modeling to quantitatively analyze the distribution, diffusion and clearance of eGFP-labeled 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 nanoprobes' 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 65th Nobel Laureate Meeting** **Lindau, Germany**
Advisor of the graduate student Ali Y. Sonay who was selected among 650 young scientists from 88 countries to attend the 65th 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 nanoprobes for in vivo imaging at the 4th 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 57th 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 [52] **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>
Invention filed: E.P. patent pending (2016, EP 2016/191538).
- [51] **Sonay, A.Y.**, **Yaganoglu, S.**, Konantz, M., Teulon, C., Jiang, S., Behzadi, S., Crespy, D., Landfester, K., Roke, S., Lengerke, C., and **Pantazis, P.#**, "Biodegradable harmonophores for targeted high-resolution in vivo tumor imaging". *bioRxiv* 694760. <https://doi.org/10.1101/694760>
Invention filed: E.P. patent pending (2016, EP 2016/191538).
Nominated for the SPARK Award 2017
- In Press [50] **Kalyviotis, K.**, **Qin, H.**, and **Pantazis, P.#**, "PhOTO Zebrafish and Primed Conversion: Advancing the Mechanistic View of Development and Disease". *Academic Press*.

- [49] **Welling, M., Kalyviotis, K., and Pantazis, P.#**, "Primed Track: Reliable Volumetric Single-cell Tracking and Lineage Tracing of Living Specimen with Dual-labeling Approaches". *Bio-protocols*.
- 2020 [48] Malkinson, G.*, Mahou, P.*, Chaudan, E., Gacoin, T., **Sonay, A.Y., Pantazis, P.**, Beaufrepaire, E., and Supatto, W.#, "Fast in vivo imaging of SHG nanoprobe with multiphoton light-sheet microscopy". *ACS Photonics*. 7:1036-1049.
- 2019 [47] **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 [46] 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.
- [45] **Sugiyama, N.*, Sonay, A.Y.***, Tussiwand, R., Cohen, B., and **Pantazis, P.#**, (2018) "Effective Labeling of Primary Somatic Stem Cells with BaTiO₃ Nanocrystals for Second Harmonic Generation Imaging". *Small* 8:1703386.
- 2017 [44] **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.
- [43] **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.*
Invention filed: U.S. provisional patent submitted (2017, Application Serial No. 62/446,023).
- [42] 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 [41] **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.
- Invention W.O. patent pending (2014, WO 2014/147211) and E.P. patent pending (2014, EP 2014/055669) licensed to: AHF Analysentechnik, Tübingen/Germany. Press release.*
- 2015 [40] **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.
- [39] **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.*
Invention W.O. patent pending (2014, WO 2014/147211) and E.P. patent pending (2014, EP 2014/055669) licensed to: DNAwrite, Cambridge/UK and Viventis Microscopy, Lausanne/CH.
- 2012 [38] 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.
- [37] **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 August 25 2012*

- 2011 [36] 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 front cover of the journal and featured in: Zernicka-Goetz, M., (2011) "Proclaiming fate in the early mouse embryo" Nature Cell Biology 13:112-4.
- [35] Caneparo, L.*, **Pantazis, P.***, Dempsey, W.P., and Fraser, S.E., (2011) "Intercellular bridges in vertebrate gastrulation" *PLoS ONE* 6:e20230.
- 2010 [34] **Pantazis, P.#**, Maloney, J., Wu, D., and Fraser, S.E., (2010) "Second Harmonic Generating (SHG) nanoprobes 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.
- [33] 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 [32] 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 [31] 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.
- [30] **Pantazis, P.#**, and González-Gaitán, M., (2007) "Localized multiphoton photoactivation of paGFP in Drosophila wing imaginal discs" *J Biomed Opt* 12:044004.
- [29] 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 [28] 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).
- [27] 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 [26] 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 [24] **Mohr, M.A.**, and **Pantazis, P.#**, (2018) "Primed conversion: the new kid on the block for photoconversion" *Chemistry* 33:8268-8274.
- 2016 [24] **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 [23] **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 [22] 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 [21] **Pantazis, P.#**, and Bollenbach, T., (2012) "Transcription factor kinetics and the emerging asymmetry in the early mammalian embryo" *Cell Cycle* 11:2055-8.
- [20] **Dempsey, W.P.**, Fraser, S.E., and **Pantazis, P.#**, (2012) "SHG nanoprobes: Advancing harmonic imaging in biology" *Bioessays* 34:351-60.

- 2004 [19] 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

- 2018 [18] 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 [17] **Sonay, A.Y.**, and **Pantazis, P.#**, (2017) "Bioinspired Second Harmonic Generation" *Proc. SPIE 10411, Clinical and Preclinical Optical Diagnostics, 104110D*.
- 2009 [16] **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

- 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

- 2018 [13] **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).
- [12] **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 [11] **Pantazis, P.** and **Yaganoglu, S.**, "Piezo1-based fluorescent reporter" *E.P. patent pending* (2017, EP 2017/17210479.6).
- [10] **Mohr, M.A.**, and **Pantazis, P.**, "Engineered photoconvertible fluorescent proteins (pcFPs) for primed conversion" *U.S. patent pending* (2017, US 62/446,023).
- 2016 [9] **Pantazis, P.**, **Sonay, A.Y.**, Landfester, K., and Crespy, D., "Biodegradable second harmonic generating nanoprobes" *E.P. patent pending* (2016, EP 2016/191538).
- Among the top 20 innovations of ETH Zurich in 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-Viskota, 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-Viskota, 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).

Licenses

Total number of exclusive and non-exclusive licenses: 3

- 2017 W.O. patent pending (2014, WO 2014/147211) and E.P. patent pending (2014, EP 2014/055669)
- [3] AHF Analysentechnik, Tübingen/Germany
Non-exclusive license covering manufacturing and sale of split-filters. [Press release.](#)
- [2] Start-up company DNAWrite, Cambridge/UK
Exclusive license covering macromolecular synthesis, sequencing, and cell-free analyte detection.
- [1] Start-up company Viventis Microscopy, Lausanne/CH
Exclusive license covering the use of primed conversion in a light-sheet microscope.

Industry Brochure

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

Invited Talks

14 invited plenary talks, 50 invited talks

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 Deutsches Krebsforschungszentrum (DKFZ) Contributed talk	Heidelberg, Germany
10/2016	Harvard, Department of Systems Biology Invited Talk	Boston/MA, USA
06/2016	68th 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	16th 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	4th European Zebrafish Principle Investigator Meeting Invited Talk Session 6 - Emerging Technologies	Lisbon, Portugal
03/2016	7th 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	15th 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	6th 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 Principle 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 Invited Talk	Berkeley/CA, USA

01/2012	3rd 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 ~£ 3.0M in funding from government and industry

2020	Responsive Mode Grant Primed Conversion Oblique Plane Microscopy; £200.000	BBSRC
2018-2023	Royal Society Wolfson Research Merit Award 5-year Research support and Salary enhancement, London/UK; £220.000	The Royal Society
2018-2020	Postdoctoral Fellowship for Maaïke Welling 2-year Postdoctoral Fellowship from the Peter und Traudl Engelhorn Stiftung, Munich/Germany; CHF200.000	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; \$96.000	HHMI
2016-2018	Rubicon Postdoctoral Fellowship for Maaïke Welling 2-year Postdoctoral Fellowship from the Netherlands Organization for Scientific Research; €150.000	NWO
2016-2017	R'Equip Grant: 316030_164087/1 co-PI of the Equipment grant "Light-Sheet Microscopy" (PI: Prof. Dagmar Iber, co-PIs: Prof. Renato Paro and Prof. Andreas Hierlemann) to acquire a light-sheet microscope for performing fast volumetric imaging; CHF461.364	SNF
2015-2016	Project Grant: #3776 PI of the grant "Synthesis and fractionation of BaTiO ₃ nanocrystals as SHG nanoprobe" to perform nanocrystal fractionation at the Lawrence Berkeley National Laboratory Molecular Foundry; \$10.000	US Department of Energy
2013-2016	Project Grant: 310034A_144048 PI of the grant "Imaging of pluripotency in systems biology"; CHF471.500	SNF
2013-2016	Marie Curie Career Integration Grant: RPF-ID277 PI of the grant "Systems imaging of emerging asymmetry in vertebrate development (SIEAVD)"; €100.000	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"; CHF420.000	F. Hoffman-La Roche
2012-2013	Project Grant: #1603 PI of the grant "Synthesis and functionalization of BaTiO ₃ Nanocrystals as SHG nanoprobe" to synthesize nanocrystals at the Lawrence Berkeley National Laboratory Molecular Foundry; \$10.000	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; CHF1.4	F. Hoffman-La Roche

Teaching Experience

Lectures and Workshops

01-03/2020	BIOE96072 "Advanced Imaging Technologies for Systems Biology" Undergraduate class of ~25 students	ICL
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01-02/2020	BIOE97075 "Brain Machine Interfaces" Undergraduate class of >100 students	ICL
11-12/2019	BIOE96041 "Principles of Biomedical Imaging" Undergraduate class of >100 students	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; <u>General Satisfaction: 4.4 of 5 points</u>	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; <u>General Satisfaction: 4.6 of 5 points</u>	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; <u>General Satisfaction: 4.4 of 5 points</u>	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
03/2013	32672-01 "Genetic Approaches in Biomedical Research" Bachelor class of ~100 students; Lecture "Bioimaging and bionanotechnology in development, regeneration, and disease"	UNI Basel
02-06/2013	636-0014-00L "Imaging in Systems Biology" Master class of ~15 students; <u>General Satisfaction: 4.4 of 5 points</u>	ETH Zurich

Advising and Mentoring (Past and Present)

Present lab members

Postdoctoral Fellows

Maria Antonetta 'Maaiké' Welling (PhD, Utrecht University)

ETH Zurich/ICL

PhD Students

Konstantinos Kalyviotis (MS, Democritus University of Thrace; PhD expected 09/2022)

See Swee Tang (MS, Imperial College London; PhD expected 09/2023)

ICL

Master Students

Maëlle Benefice (MS expected 09/2020)

Aysen Unsal (MS expected 09/2020)

Papavee Phongsopa (MS expected 09/2021)

ICL

Vishnu Seshan (MS expected 09/2021)

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, Wyss Center, Zurich, CH

William P. Dempsey (PhD, California Institute of Technology);

Current position: Senior Research Fellow, Caltech, USA

PhD Students

HHMI/ETH Zurich

Hanyu Qin (MS, Uppsala University; PhD 01/2019)

Current position: Consulting, China

Manuel Mohr (MS, ETH Zurich; PhD 08/2018)

Current position: Postdoctoral Fellow, Stanford University, Stanford/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

ETH Zurich

Dan-Felix Scherrer (MSc, University of Basel; MS 2018)

Current position: PhD Student, University of Basel, CH

Lluc Rullan Sabater (MS, University of Pennsylvania; MS 2017)

Current position: Consultant, QuintilesIMS, Basel, CH

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: Consultant, Zurich, CH

Outside Lab activities

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|-----------|--|----------------------|
| 2020 | PhD Thesis Co-Referee | ICL |
| | Serving as examiner of the PhD Thesis of Hakon Hogset (Prof Molly Stevens) | |
| 2020 | PhD Thesis Committee Member | ICL |
| | Serving on the PhD committee of Ioannis Gkouzionis (Prof Daniel Elson) | |
| 2018 | MSc Thesis Co-Referee | UNI Basel |
| | Served as examiner of the MSc Thesis of Deborah Huber (Prof. Markus Affolter) | |
| 2018 | MSc Thesis Co-Referee | EPFL |
| | Served as examiner of the MSc Thesis of Anton Stroganov (Prof. Aleksandra Radenovic) | |
| 2018 | PhD Thesis Co-Referee | IBM |
| | Served as examiner of the PhD Thesis of Deborah Huber (Dr. Govind Kaigala) | |
| 2018 | PhD Thesis Co-Referee | EPFL |
| | Served as examiner of the PhD Thesis of Daniel Strebinger (Prof. David Suter) | |
| 2016-2019 | PhD Thesis Committee Member | University of Zurich |
| | Served on the PhD committee of Karin Prummel (Prof. Christian Mosimann) | |
| 2013-2017 | PhD Thesis Committee Member | ETH Zurich |
| | Served on the PhD committee of Joanna Torres (Prof. Renato Paro) | |

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

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

2019-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

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

Leadership Service to the Academic Community

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

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 Society for Fish Models in Biology and Medicine (EuFishBioMed e.V.)**, Member