List of Publications of Prof. Dr. Martin Wolf

Papers peer reviewed (totally 4469 citations, h-index 33, accumulated impact factor points of 530.9 on 30th of September 2018)


35. Vogeli S, Wolf M, Wechsler B, Gygax L. Housing conditions influence cortical and behavioural reactions of sheep in response to videos showing social interactions of different valence. Behav Brain Res. 2015 May 1;284:69-76. (IF=3.4)


108. Spichtig S; Piccirelli M; Vorburger RS; Wolf M. Near-infrared imaging sensor with improved handling and direct localization in simultaneous magnetic resonance imaging measurements. Journal of Innovative Optical Health Sciences 2011, 4(2), 191-198. (IF=0.6)


123. Pizza F, Biallas M, Wolf M, Valko PO, Bassetti CL. Periodic leg movements during sleep and cerebral hemodynamic changes detected by NIRS. Clin Neurophysiol. 2009 Jul;120(7):1329-34. (IF=2.0)


**Review papers (peer reviewed)**


8. Wolf M, Ferrari M, Quaresima V. Progress of near infrared spectroscopy and imaging instrumentation for brain and muscle clinical applications. J. Biomed. Opt. 2007; 12, 062104. (IF=3.5: highly cited paper received enough citations to place it in the top 1% of its academic field based on a highly cited threshold for the field and publication year according to the Web of Science)


**Conference Proceedings**


Other Publications


Books

Professional Society Conferences

a) Organization of Conferences by Prof. Dr. Martin Wolf

1. Member of the Scientific Committee of the conference of the International Society on Oxygen Transport to Tissue July. 1st – 5th 2018 in Seoul, South Korea.
2. Member of the Committee of the Optical Society of America Biophotonics Congress: Biomedical Optics, April 3rd – 6th 2018, Hollywood, FL, USA
4. Member of the Scientific Committee of the conference of the International Society on Oxygen Transport to Tissue Aug. 19th – 23rd 2017 in Halle, Germany
6. Member of the program committee 1st Mexican Symposium on NIRS Neuroimaging (MexNIRS) 20th - 21st of Oct. 2017 Puebla, Mexico.
7. Organizer of the annual conference of the Biomedical Photonics Network at the University Hospital Zurich, Switzerland 29th of Nov. 2016.
12. Member of the program committee of the Biomedical Optics BIOMED topical meeting of the Optical Society of America, Miami, Fl, USA 2012.
13. Scientific committee of the Conferences on Biomedical Optics (ECBO), Munich, Germany 2011
15. Organizer of the annual conference of the Biomedical Photonics Network in Neuchâtel at the CSEM, Switzerland 2011.
16. President of the International Society on Oxygen Transport to Tissue Meeting in Switzerland in 2010.
17. Organizer of the annual conference of the Biomedical Photonics Network in Bern, Switzerland 2010.
20. Member of the organizing committee of the Conference of the International Society on Oxygen Transport to Tissue in Sapporo, Japan 2008.
23. Principal Organizer of the Pre-Congress-Course on “Microcirculation and Oxygen Transport” for young investigators at the Congress of the European Society of Paediatric Research, Prague, Czech Republic 2007.

24. Principal Organizer of the annual conference “Progress in Biomedical Photonics” of the Biomedical Photonics Network in Zurich, Switzerland 2007.

25. Member of the international organizing committee of the Conference of the International Society on Oxygen Transport to Tissue in Louisville, KY, USA in 2006.


27. Member of the scientific committee of the Annual Conference of the Austrian, German and Swiss Societies of Biomedical Engineering in Zurich, Switzerland 2006.

28. Member of the scientific committee of the Conference of the European Society of Pediatric Research in Barcelona, Spain 2006.


31. Principal Organizer of the “Engelberg Lectures” on Biomedical Photonics of the Swiss Society for Optics and Microscopy, Engelberg, Switzerland, 2005.

32. Principal Organizer of the founding conference of the Biomedical Photonics Network in Zurich, Switzerland 2004.

33. Host and local organizer of the final meeting of the EU concerted action on “Near Infrared Spectroscopy and Imaging”, Lucerne, Switzerland 1996.

b) Chairpersonship of Prof. Dr. Martin Wolf

1. Annual conference of the Biomedical Photonics Network at the University Hospital Zurich, Switzerland 29th of Nov. 2016.


4. Together with Prof. Dr. Daniel Eberli Stem Cell Research, Regenerative Medicine, and Advanced Technologies session at the 13th day of Clinical Research 12th June 2014, Center for Clinical Research, University of Zurich, Zurich, Switzerland.

5. Together with Prof. Dr. Daniel Eberli Stem Cell Research, Regenerative Medicine, and Advanced Technologies session at the 12th day of Clinical Research 4th April 2013, Center for Clinical Research, University of Zurich, Zurich, Switzerland.

6. Session 6 oral presentations at the conference of the International Society on Oxygen Transport to Tissue June 22nd - 26th 2013 in Hanover, NH, USA.


8. New Spectroscopic Techniques and Application session Biomedical Optics BIOMED topical meeting of the Optical Society of America, Miami, FL, USA 2012.


12. New Methods and Techniques for Brain Imaging Session of the Conferences on Biomedical Optics (ECBO), Munich, Germany 2011
13. Human Head Models Session of the Conferences on Biomedical Optics (ECBO), Munich, Germany 2011
14. Key organs: Brain session, of the Theo Murphy international scientific meeting on “Making light work: illuminating the future of biomedical optics” of the Royal Society, Chicheley Hall, United Kingdom 2010
15. Afternoon session, Seminar on Optical Imaging in Medicine organized by the Polish Academy of Sciences in Warsaw, Poland 2009
16. “NIRS” session of the conference of the International Society on Oxygen Transport to Tissue in Cleveland, USA in 2009
17. Morning session of the annual conference of the Biomedical Photonics Network in St. Gallen, Switzerland 2009
20. “Imaging and Image Processing” and “Sensors” sessions of the Annual Conference of the Austrian, German and Swiss Societies of Biomedical Engineering 2006 in Zurich, Switzerland
22. “Diagnostic Applications” day of the Engelberg Lectures of the Swiss Society for Optics and Microscopy in Engelberg, Switzerland, 2005.
28. “Microcirculation” session at the World Congress on Medical Physics and Biomedical Engineering in Nice, France 1997.

c) Invited Talks of Prof. Dr. Martin Wolf

2. A liquid phantom with adjustable oxygenation for evaluating and comparing near-infrared spectroscopy oximeters. SPIE Photonics West, 26th of Jan to 3rd of Feb 2018, San Francisco, CA, USA
5. NewBornCare: clinical monitoring based on vision and spectroscopy. DATE conference, Lausanne, Switzerland 27th to 30th March 2017.
16. How current near-infrared spectroscopy works and future perspectives. Minisymposium on NIRS in Neonatology, Newborn Research Zurich, University Hospital Zurich, Switzerland 30th of Nov. 2015.
21. Der Weg von der Oximetrie zur Bildgebung mit Licht: die Nahinfrarotspektroskopie. Zukunftswegs Neonatologie, Division of Neonatology, Medical University of Graz, Austria, 10th Dec. 2013
22. How to measure oxygenation by near infrared spectroscopy (NIRS)? Symposium on Neonatal Brain Monitoring University of Leuven, Belgium 7th June 2013
23. Intelligente Materialien helfen den Frühgeborenen, Techapéro of the National Research Program 62, Dübendorf, Switzerland 17th June 2013
24. Optical imaging of tissue: Current state and future of instrumental and methodological approaches. Conference of the International Society on Oxygen Transport to Tissue June 22nd - 26th 2013 in Hanover, NH, USA
27. Light to investigate the oxygenation of tissue non-invasively: From near-infrared spectroscopy to imaging. Dept. of Clinical Chemistry, University Hospital Zuirch 3rd Dec. 2013
34. Specific developments of the NIRS technology for use in the neurosciences. Bringing Multi-Channel NIRS-EEG to Clinical Practice. Seminar, University of Bern, Switzerland (2012).
41. How to non-invasively image oxygenation in tissue in humans. Zurich Center for Integrative Human Physiology, Zurich, Switzerland (2011).
44. 3D Messtechnik für medizinische Anwendungen. 50 Years Laser. (SSOM) & 3D Measuring (SLN) Workshop of the Swiss Society of Optics and Microscopy and the SwissLaser.Net, NTB Interstate University of Applied Sciences of Technology Buchs, Switzerland (2010).
47. A New Light in Oxygenation and Perfusion Assessment of Tissue with Non-Invasive Near-Infrared Spectroscopy and Imaging. Chinese University of Hong Kong, China (2010).


57. Measuring brain function in neonates by NIRS and NIRI. At the congress of the International Society on Oxygen Transport to Tissue, Sapporo, Japan (2008).


59. Neue Forschungsergebnisse aus der Neonatologie (New research in neonatology), Perinatology, University Hospital Zurich, Switzerland (2008).

60. Near-infrared imaging to study tissue: State of the art and potential. ARTORG, University of Bern, Switzerland (2008).


64. Keynote lecture on “30 years of near infrared spectrophotometry and imaging: Where are we today?” at the ESPR meeting in Prague, Czech Republic (2007).

65. Tutorial on near infrared spectroscopy (NIRS): instrumentation, methods and future developments. Pre-Congress-Course at the ESPR meeting in Prague, Czech Republic (2007).


71. More light in medical research: Near infrared spectroscopy and imaging. Talk at the Biomedical Research Laboratory, University College London, UK (2006).
75. Medical implants and device design. National University of Ireland, Galway (2006).
77. Biomedical photonics brings new light in brain research. “Swiss photonics future”-optics workshop of the Swiss Society for Optics and Microscopy, Davos, Switzerland (2005).
80. Near-Infrared Spectroscopy as a Diagnostic Tool in Medicine. Clinic for Obstetrics, University Hospital Zurich, Switzerland (2005).
86. Light in neonatal research. Talk at the seminar at the Department of Gynecology/Obstetrics, where the highlights of the year 2004 are presented, University Hospital Zurich, (2004).
95. Near-infrared spectroscopy in medicine: State of the art and potential. CSEM Centre Suisse d'Electronique et de Microtechnique SA, Dr. V. Neuman (2003).
d) Invited Round-Tables by Prof. Dr. Martin Wolf

1. Technology-focused round-table at the 5th Light4Health 2014 held at the Institute of Photonic Sciences in Castelldefels, Barcelona, Spain, October 16, 2014.

e) Oral Presentations by Prof. Dr. Martin Wolf


5. Wolf M. Brain oxygenation, perfusion and function: experience from the clinic. 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Milano, Italy 26th to 29th of August 2015.


15. Wolf M. Functional brain activity studies using near-infrared imaging. Seminar on Optical Imaging in Medicine organized by the Polish Academy of Sciences in Warsaw, Poland (2009)


31. Wolf M. Light in neonatal research. Talk at the seminar at the Department of Gynecology/Obstetrics, where the highlights of the year 2004 are presented, University Hospital Zurich, (2004).


58. Wolf M, Duc G. The measurement of cerebral blood flow with NIRS. Inaugural Meeting of European Union Concerted Action on NIRS & Imaging of Biological Tissue, Chester, UK 1993 (abstract newsletter 1:28).

f) Posters Presented by Prof. Dr. Martin Wolf

3. Mata Pavia J, Wolf M, Charbon E. High spatial resolution, time-resolved 3D near-infrared imaging. Meeting of the National Competence Center for Biomedical Imaging (NCCB), Zurich, Switzerland, 2011 (abstract)
infrared imaging and electroencephalography. Conference of the European Society of Paediatric Research, Newcastle, UK, 2011 (abstract)


**g) Other presentations (Co-authorship)**


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23. Ostojic D, Scholkmann F, Wolf M. A new approach to calculate arterial oxygen saturation from blood volume pulsations measured on the human forehead using near-infrared spectroscopy NIRS. 15th day of Clinical Research 31st March 2016 Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 3466, poster)
24. Scholkmann F, Wolf M. A new approach to assess the complex coupling between cardiovascular activity and cerebral tissue oxygenation in preterm neonates: Multiscale convergent-cross mapping. 15th day of Clinical Research 31st March 2016 Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 3469, poster)

25. Kalyanov A, Germanier C, Sanchez Majos S, Rudin M, Wolf M. Imaging of hypoxia in cancer by multispectral near-infrared tomography. 15th day of Clinical Research 31st March 2016 Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 3517, poster)


27. Mata Pavia J, Wyser D, Kalyanov A, Germanier C, Rudin M, Wolf M. Hypoxia measurements on mice with near-infrared optical tomography (NIROT). 14th day of Clinical Research 9th April 2015 Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 2222, poster)


29. Lindner S, Zhang C, Mata Pavia J, Antolovic IM, Charbon E, Wolf M. A circuit architecture for high throughput biological imaging applications. Meeting of the National Competence Center for Biomedical Imaging (NCCBI) at ETHZ, Zurich, Switzerland, 28th of August 2015 (abstract, poster)

30. Stachel H, Schenk D, Wolf M, Bernhard J. A new device to measure abdominal oxygenation to prevent shock in preterm patients. CTI Medtech Event 8th Sept. 2015, Bern, Switzerland. (poster)


33. Ostojic D, Scholkmann F, Wolf M. A new approach to calculate arterial oxygen saturation from blood volume pulsations measured on the human forehead using near-infrared spectroscopy NIRS. Biomedical Photonics Network Meeting 11th Dec. 2015, University of Applied Sciences, Biel, Switzerland. (poster)

34. Scholkmann F, Wolf M, Wolf U. New insights into the physiological origin of fluctuations in fNIRS signals – A new analysis based on systemic physiology complemented (SPC) fNIRS brain imaging (SPC-fNIRS). Biomedical Photonics Network Meeting 11th Dec. 2015, University of Applied Sciences, Biel, Switzerland. (oral)

35. Scholkmann F, Hafner T, Wolf M, Wolf U. How the brain and body reacts to visual stimulations of different colors: A study using systemic physiology complemented fNIRS brain imaging. Biomedical Photonics Network Meeting 11th Dec. 2015, University of Applied Sciences, Biel, Switzerland. (oral)


38. Scholkmann F, Wolf M. Removing movement artifacts from functional near-infrared spectroscopy (fNIRS) neuroimaging signals: A new approach using time frequency decomposition and adaptive local regression. 11th Symposium of the Zurich Center for Integrative Human Physiology, 11th Sept. 2015 in Zurich, Switzerland. (abstract, poster)


40. Lindner S, Mata Pavia J, Charbon E, Wolf M. Optimization of single photon avalanche diodes for application in near-infrared imaging. Meeting of the National Competence Center for Biomedical Imaging (NCCBI) at EPFL, Lausanne, Switzerland, 20th of August 2014 (abstract, poster)


42. Scholkmann F, Wolf U, Wolf M. Very-low frequency fluctuations in cerebral hemodynamics and oxygenation measured with fNIRS – New insights into their origin using capnography and time-frequency coherence analysis. Neuroscience Center Zurich Symposium 11th Sept. 2014, University of Zurich, Switzerland. (abstract, poster)


44. Scholkmann F, Klein S, Wolf M, Wolf U. The effect of colored different light exposures on human cerebral hemodynamics and oxygenation, as well as end-tidal pCO2 and skin conductance – A multimodal fNIRS study. fNIRS conference Oct. 10th to 12th 2014 in Montreal, Canada. (abstract, poster)


52. Sanchez S, Mata Pavia J, Lindner S, Charbon E, Wolf M. Last generation near infrared imaging system. 13th day of Clinical Research 12th June 2014, Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 2222, poster)

53. Scholkmann F, Kleiser S, Pastewski M, Happarachchi T, Hagmann C, Fauchère JC, Wolf M. Using nonlinear data analysis and data mining to assess physiological changes in preterm infants measured with near-infrared spectroscopy, pulse oximetry and electrocardiography. 13th day of Clinical Research 12th June 2014, Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 2216, poster)

54. Mata Pavia J, Sanchez Majos S, Charbon E, Wolf M. Measurement and modeling of microlenses for sensitivity enhancement of novel near-infrared imager. 13th day of Clinical Research 12th June 2014, Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract 2245, poster)


59. Flück D, Bonne T, Jacobs RA, Sarmthein J, Wolf M, Lundby C. Why do we reach exhaustion when exercising? The effect of muscle and brain oxygenation. 9th Symposium of the Zurich Center for Integrative Human Physiology, 23rd Aug. 2013 in Zurich, Switzerland. (abstract, talk)

60. Scholkmann F, Holper L, Wolf U, Wolf M. An emerging paradigm in neuroscience: Assessing inter-brain coupling by functional near-infrared spectroscopy (fNIRS) or imaging (fNIRI) hyperscanning. Conference of the International Society on Oxygen Transport to Tissue June 22nd - 26th 2013 in Hanover, NH, USA (abstract, talk)

61. Egli C, Scholkmann F, Wolf M. A fresh look at functional near-infrared spectroscopy (fNIRS) signals – the local correlation approach. 12th day of Clinical Research 4th April 2013, Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract, poster)


64. Mata Pavia J, Charbon E, Wolf M. Measurement and modeling of microlenses mounted on single-photon avalanche diode array for a near-infrared imaging application. Biomedical
56. Metz AJ, Scholkmann F, Achermann P, Wolf M. How to reduce movement artifacts in near-infrared spectroscopy (NIRS) time series using acceleration data – a new method. 12th day of Clinical Research 4th April 2013, Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract, poster)

57. Quandt BM, Krehel M, Wolf M, Bona GL, Scherer LJ. Flexible polymer optical fibers for measurement of the pulse and blood oxygen saturation in reflection mode. Biomedical Photonics Network Annual Meeting, 1st of Nov. 2013, Inselspital Bern, Switzerland (abstract, poster)

58. Scholkmann F, Holper L, Wolf M Assessing inter-personal brain coupling using functional near-infrared imaging (fNIRI) hyperscanning: a new approach in neuroscience. 12th day of Clinical Research 4th April 2013, Center for Clinical Research, University of Zurich, Zurich, Switzerland (abstract, poster)


64. Holper L, Scholkmann F, Wolf M. Between brain connectivity measured by wireless functional near infrared spectroscopy (fNIRS). NCCR Neuro Concluding Symposium and ZNZ Symposium, Zurich, Switzerland 2012. (abstract, poster)


66. Demel A, Feilke K, Wolf M, Schöning M, Poets CF, Franz AR. Dynamics in Regional Cerebral Oxygenation Saturation (rcStO2) and Cerebral Blood Flow Volume (CBFV) in Moderately Preterm and Term Infants during the First Days of Life. Pediatric Academic Societies, Boston, MA, USA 2012. (abstract, poster)


123. Arri SJ, Biallas M, Haensse D, Fauchère JC, Bucher HU, Wolf M. The precision of cerebral oxygenation and haemoglobin concentration measurements in neonates measured by near-
infrared spectroscopy. Zurich Center for Integrative Human Physiology, Zurich, Switzerland 2007 (abstract).


130. Mühlemann Th, Haensse D, Wolf M. Ein drahtloser Sensor für die bildgebende in-vivo Nahinfrarotspektroskopie. Annual Conference of the Austrian, German and Swiss Societies of Biomedical Engineering 2006. (paper in proceedings, received the Poster Award of the Max Anliker Foundation).


data in preterm and term neonates. World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia, 2003 (abstract).


Professional Activities

1. Secretary of the international fNIRS Society 2014 to date.
2. Member of the committee of the EXperimental and Clinical Imaging TEchnologies (EXCITE) Center Zurich, a collaboration between ETHZ, University Hospital Zurich and University of Zurich within the framework of the academic medicine 2014 to date.
4. Member of **executive committee** of the collaborative project entitled “Safeguarding the brains of our smallest children - a feasibility randomised trial on near-infrared spectroscopy combined with treatment guideline in premature infants” 2012-2016.

5. **Member of the committee** of the Center for Imaging Sciences and Technologies ETHZ and University of Zurich 2011 to 2014.

6. **Past-President** of the International Society on Oxygen Transport to Tissue 2010-2011.

7. **President** of the International Society on Oxygen Transport to Tissue 2009-2010.


9. **Member of the Executive Committee** of the International Society on Oxygen Transport to Tissue 2006 to 2008.

10. **Member of the board** of the Swiss Society for Optics and Microscopy SSOM 2005 to date.

11. **Member of the council** of the Circulation, Oxygen Transport and Haematology Section of the European Society of Pediatric Research 2005 to 2012.

12. **Co-founder** and **president** of the Biomedical Photonics Network, the Swiss society of professionals in Biomedical Optics since 2004.


14. **Member of the Executive Committee** of the International Society on Oxygen Transport to Tissue 2000 to 2003.

15. **Head** of the multi center study group of the EU concerted action on Near Infrared Spectroscopy and Imaging on the “Comparison of cerebral blood flow before and after a change in pCO₂ in neonates” 1994-1996.

**Awards**


4. **Scott Lindner** of the Biomedical Optics Research Laboratory received the best presentation Award of the Biomedical Photonics Network conference Dec. 11th 2017 in Bern, Switzerland.


10. **Ahnen L** of the Biomedical Optics Research Laboratory received the Britton Chance Award of the International Society on Oxygen Transport to Tissue July 10th – 14th 2016 in Chicago, USA.

11. **Jiang J,** Ahnen, Kalyanov, S Lindner, M Wolf, S Sanchez Majosa **A New Method Based on Graphics Processing Units for Fast Near Infrared Optical Tomography.** Bruley Award of the Conference of the International Society on Oxygen Transport to Tissue July 10th – 14th 2016 in Chicago, USA.


18. **Scholkmann F,** Spichtig S, Muehlemann Th, Wolf M won the best presentation Award of the “Centro Stefano Franschini” Award at the conference of International Society on Oxygen Transport to Tissue, Ascona, Switzerland 2010.


21. **Scholkmann F,** Spichtig S, Muehlemann Th, Wolf M won the Poster Award of the Heraeus the Seminar entitled “Optical Imaging of Brain Function” December 2009 in Bad Honnef, Germany funded by the “Wilhelm und Else Heraeus” foundation.
22. **Zimmermann B** won the Medal of ETH for his Master Thesis supervised by **M. Wolf** in 2009.


24. **Mühlemann Th**, Haensse D, **Wolf M**. Ein drahtloser Sensor für die bildgebende in-vivo Nahinfrarotspektroskopie. Poster Award of the Max Anliker Foundation at the Annual Conference of the Austrian, German and Swiss Societies of Biomedical Engineering 2006.

25. **Dr. D. W. Brown** of the Biomedical Optics Research Laboratory received the first Britton Chance Award of the International Society on Oxygen Transport to Tissue 2005.


29. Fred Bamatter award of the Schweizerischen Gesellschaft für Pädiatrie 1997, for excellent research in neonatology.