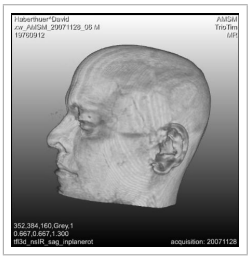

David Haberthür

Education

09.2006–present **Ph. D.-Student**, *Institute of Anatomy, University of Bern*, Bern, Switzerland.
Ultra-High resolution lung imaging to study lung development. Synchrotron radiation based tomographic microscopy images were used to visualize the three-dimensional lung structure at high resolution and to study the lung development of mice, rat and primates.

10.2006-08.2008 **Master of Advanced Studies ETH in Medical Physics**, *Swiss Federal Institute of Technology, Department of Physics*, Zürich, Switzerland.
Extra occupational Master of Advanced Studies ETH in Medical Physics, a two-year program designed for M. Sc. or Ph. D.-Students. Acquired fundamental knowledge in medical physics, and specialized in different fields of medical physics, e. g. biocompatible Materials, Radiotherapy, medical Optics and Acoustics.

05.2001-10.2002 **Master Student**, *Biomedical Photonics, Institute of applied Physics, University of Bern*, Bern, Switzerland.
Master Thesis: Use of Lasers in Medicine: Tissue Soldering and Precise Cutting. Studied laser applications in medicine, including interaction of lasers with cartilage and heart tissue. Performed study on tissue soldering.

01.2000-07.2000 **Exchange Student**, *Department of Physics, Strathclyde University*, Glasgow, Scotland, United Kingdom.
Exchange term in the United Kingdom, multiple lectures including Software Design, Imaging and Laser physics.

Theses

Ph. D.-Thesis **Work in progress: Ultra-high resolution tomographic imaging of the lung**, *Supervisors: Prof. Dr. Johannes C. Schittny, Dr. Mauricio Reyes and Prof. Dr. Marco F.M. Stampanoni*.
I am currently studying lung development using three-dimensional datasets obtained with high resolution synchrotron radiation based x-ray tomographic microscopy. I have developed a skeletonization work flow at our group using the image processing software MeVisLab using multiple visualization pipelines and pre-existing modules and strive to extract quantitative information from the branching pattern in the gas-exchange region of the mammalian lung.

Post-graduate Master Thesis **Quality guided wide field x-ray tomographic imaging**, *Supervisors: Dr. Christoph Hintermüller and Prof. Dr. Marco F.M. Stampanoni*.
During this master thesis I implemented the necessary acquisition protocols at the TOMCAT beam line of the Swiss Light Source to increase the field of view of the tomographic imaging process in horizontal direction. This implementation is the base for imaging of samples bigger than the size currently possible, while keeping the resolution at the desired level. Different image acquisition protocols have been implemented for providing the end-user of the beam line the possibility to acquire quality guided tomographic wide field scans of his samples in an unattended, automatic way.

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Master Thesis **Use of Lasers in Medicine: Tissue Soldering and Precise Cutting**, *Supervisor: Prof. Dr. Martin Frenz*.
During my master thesis I worked with infrared diode-lasers to coagulate a dye-enhanced solder to join cartilage tissue. The goal of the study was to evaluate the influence of laser parameters and solder ingredients on the tensile strength and the thermally induced cartilage damage of a bond between cartilage and an implant. Additionally I worked with a pulsed Er:YAG laser for ablation and cutting of calcified heart tissue.

Skills

Academic Objective
Since the start of my academic career I have been fascinated by the combination of physics, imaging and medical research. During my Ph. D.-thesis I have been working on new imaging methods for the study of the three-dimensional lung structure during development. The fractal structure of the lung is eerily fascinating on all levels, I strive to provide possibilities to assess this structure on a minute level—down to the single alveoli. To support the ongoing effort to study lung samples in their full size, I have developed a method of enhancing the field of view of tomographic imaging as part of my master thesis of the extra-occupational master of advanced studies.

Visualization MeVisLab, Imaris, Amira
Analysis of tomographic datasets is computationally intensive. I have developed several work flows using MeVisLab, Imaris and Amira for the three-dimensional visualization and analysis of tomographic datasets of mammalian lungs, several GB in size.

OS Windows, Mac OS X, Linux
Very good user and good administration experience.

Programming MATLAB, Python
I have developed a lot of programs using MATLAB and Python, be it for the processing of multi-GB datasets or the interaction with the TOMCAT-beam line at the Swiss Light Source.

Publishing LaTeX, Internet, Microsoft Office
Nearly all my documents are prepared in LaTeX, Manuals for our group are shared on my work wiki website and I have a very good grasp of all Microsoft Office programs.

Languages

German **Mother Tongue**
English **Very Good** *Highly experienced in spoken and written English*
French **Fluent** *High-school level*
Italian **Fluent** *As a kid I lived in Italy for 6 years*

Other Interests

Photography I really enjoy digital photography as a whole, but especially like technical challenges like panorama photography.

Sports Be it a solitary sport like swimming (since about 25 years), biking (I used to work as a bike messenger) and skiing or team sports like ultimate frisbee, I'm up for it!

Cooking I am looking forward to the day I have cooked all the recipes in my cookbooks at home.

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selected Publications

Nenad Filipovic, David Haberthur, Frank S. Henry, Danko Milasinovic, Dalibor Nikolic, Johannes C. Schittny, and Akira Tsuda. Recirculation Identified In A 3D Alveolar Duct Reconstructed Using Synchrotron Radiation Based X-ray Tomographic Microscopy. *Am. J. Respir. Crit. Care Med.*, 181(1-MeetingAbstracts):A2192–, 2010.

David Haberthür. Quality guided wide field x-ray tomographic imaging. Master's thesis, University of Bern, Switzerland, Paul Scherrer Institut, Switzerland, ETH Zürich, Switzerland, August 2008.

David Haberthür, Christoph Hintermüller, Johannes C. Schittny, and Marco Stampanoni. Quality Guided Synchrotron Radiation Based X-Ray Tomographic Microscopy of Large Lung Samples. *Am. J. Respir. Crit. Care Med.*, 179(1-MeetingAbstracts):A1060–, 2009.

David Haberthür, Christoph Hintermüller, Akira Tsuda, Marco Stampanoni, and Johannes C. Schittny. Generation of Acinar Skeletons after Synchrotron Radiation Based X-Ray Tomographic Microscopy of the Lung Parenchyma. *Am. J. Respir. Crit. Care Med.*, 179(1-MeetingAbstracts):A3531–, 2009.

David Haberthür, Manuela Semmler-Behnke, Shinji Takenaka, Wolfgang G. Kreyling, Marco Stampanoni, Akira Tsuda, and Johannes C. Schittny. Multimodal imaging for the detection of sub-micron particles in the gas-exchange region of the mammalian lung. volume 186 of *Conference Series*, page 012040 (3pp). Journal of Physics, IOP Publishing, 2009.

David Haberthür, Christoph Hintermüller, Federica Marone, Johannes C. Schittny, and Marco Stampanoni. Radiation dose optimized lateral expansion of the field of view in synchrotron radiation x-ray tomographic microscopy. *Journal of Synchrotron Radiation*, 2010. in Press.

M. Sausbier, C. Dullin, C. Kabagema, K. Flockerzie, D. Haberthür, J. Wessels, F. Alves, J. C. Schittny, W. Neuhuber, P. Ruth, and U. Sausbier. Enhanced cathepsin k release from osteoclasts is linked to idiopathic osteoporosis in mice with BK channel ablation. *Naunyn-Schmiedeberg's Archives of Pharmacology*, 379(Suppl. 1):147, APR 2009. 50th Annual Meeting of the Deutsche-Gesellschaft-fur-Experimentelle-und-Klinische-Pharmakologie-und -Toxikologie, Mainz, GERMANY, MAR 10-12, 2009.

Ulrike Sausbier, Christian Dullin, Clement Kabagema, Katarina Flockerzie, David Haberthür, Marco Stampanoni, Johannes C. Schittny, Winfried Neuhuber, Walter Stühmer, Peter Ruth, Frauke Alves, and Matthias Sausbier. BK channel ablation in osteoclasts leads to enhanced Cathepsin K release and is linked to idiopathic osteoporosis in mice. *Nature Medicine*. submitted.

Johannes C. Schittny, David Haberthür, Manuela Semmler-Behnke, Shinji Takenaka, Marco Stampanoni, Wolfgang G. Kreyling, and Akira Tsuda. High Resolution 3-dimensional Imaging Of Ultrafine Particles In The Lung Parenchyma. *Am. J. Respir. Crit. Care Med.*, 181(1-MeetingAbstracts):A3643–, 2010.

Akira Tsuda, Nenad Filipovic, David Haberthür, Renee Dickie, Yasuto Matsui, Marco Stampanoni, and Johannes C. Schittny. Finite element 3D reconstruction of the pulmonary acinus imaged by synchrotron X-ray tomography. *J Appl Physiol*, 105(3):964–976, 2008.

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