



Personal Information

Stephan Scheidegger

Prof. Dr. sc. nat.
Dipl. NDS ETHZ Medizinphysik

ZHAW School of Engineering
Zurich University of Applied Sciences
scst@zhaw.ch

ORCID ID: 0000-0002-2622-2918

www.zhaw.ch

Education

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| 2003 | Master of Secondary and Higher Education
(Physics, University of Zurich) |
| 2000 | Master of Advanced Studies in Medical Physics,
ETH Zurich |
| 1999 | PhD, ETH Zurich (Dept. of Physics) |
| 1996 | Master of Sciences, ETH Zurich |
| 1990 | Matura (Typus C: Focus Mathematics and
Sciences) |

Professional Experience & Research

Professional- & Research Activities

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| 2019 | Research guest, Interdisciplinary Computing and Complex
Biosystems Research Group, School of Computing,
Newcastle University, Newcastle upon Tyne, UK |
| 2016 – present | Coordinator of platform Medical Systems – Systems Medicine |
| 2012 - present | Programme Director Systems Engineering ZHAW |

2011 - present	Professor for Medical Physics, Zurich University of Applied Sciences, research focus medical biophysics and systems science in medicine, medical imaging physics
2008 - 2011	Lecturer and Senior Researcher, Zurich University of Applied Sciences, Winterthur, Switzerland, research topics: radiation biophysics, modelling and computer simulation of anti-cancer therapy, medical imaging physics, co-founder of the Centre of Applied Mathematics and Physics ZHAW
2002 – 2003	Medical Physicist, Veterinary Hospital Zurich / University of Zurich, research topic: Modelling of treatment response of radiotherapy
2001 - 2008	Consultant, Digital Volume Tomography, Ludent Ltd.
1999 – 2002	Paul Scherrer Institute (PSI), Villigen, Switzerland
1996 – 1999	Research Assistant ETH Zurich, development of novel methods for analysing X-ray diffraction images, research at ESRF in Grenoble, France

Teaching Activities

2008 - present	Lectures in the field of quantitative physiology, medical biophysics, biomedical engineering, physics and systems science, ZHAW
2005 – 2017	Lecturer for radiological physics, VetSuisse faculty, University of Zurich
2003 - 2008	Institut Montana and Kantonsschule Wohlen, physics teaching and projects in systems dynamics and education in collaboration with University of Zurich (IGB)

Memberships & Activities in Scientific Societies

2012 - 2017	Board Member of Swiss Society of Biomedical Engineering (SSBE)
2007 - 2017	Board Member of Aargauische Naturforschende Gesellschaft (ANG), between 2008-2011 President and Delegate for the Swiss Academy of Sciences, since 2011 Vice President ANG
Other memberships	European Society for Hyperthermic Oncology (ESHO) Swiss Society for Radiobiology and Medical Physics (SSRMP); Swiss Physical Society (SPS) Swiss Association of Swiss radiation Oncology (SASRO)

Selected Publications (for all publications, s. <https://www.zhaw.ch/de/ueberuns/person/scst/>)

Weyland, SM, Thumser-Hdenner P, Nytko, KJ, Rohrer Bley C, Ulzega S, Petri-Fink A, Lattuada M, Fuchsli RM, Scheidegger S (2020): Holistic View on Cell Survival and DNA Damage: How Model-Based Data Analysis Supports Exploration of Dynamics in Biological Systems, *Computational and Mathematical Methods in Medicine*, 2013, <https://dx.doi.org/10.1155/5972594>

Scheidegger S, Fellermann H (2019): Optimizing Radiation Therapy Treatments by Exploring Tumour Ecosystem Dynamics in – silico. In: Fellermann H, Bacardit J, Goñi-Moreno A & Fuchsli RM (Eds): ALIFE 2019: *Proc. of The 2019 Conference on Artificial Life*, 236-242. The MIT Press Journals, https://doi.org/10.1162/isal_a_00167

Nytko KJ, Thumser-Henner P, Weyland MS, Scheidegger S, & Rohrer Bley C (2019): Cell line-specific efficacy of thermoradiotherapy in human and canine cancer cells in vitro. *PLoS one*, **14**(5), e0216744.

Pyka M, Eschle P, Sommer C, Weyland MS, Kubik R, Scheidegger S (2018): Effect of thyroid shielding during mammography: measurements on phantom and patient as well as estimation with Monte Carlo simulation. *European Radiology Experimental* 2:14; <https://doi.org/10.1186/s41747-018-0042-9>

Schulz N, Chaachouay H, Nytko KJ, Weyland MS, Roos M, Fuchsli RM, Guscetti F, Scheidegger S, Rohrer Bley C (2017): Dynamic In Vivo Profiling of DNA Damage and Repair after Radiotherapy Using Canine Patients as a Model. *Int J Mol Sci* 2017, **18**, 1176; doi:10.3390/ijms18061176

D'Isidoro F, Eschle P, Zumbrunn T, Sommer C, Scheidegger S, Ferguson SJ (2017): Determining 3D Kinematics of the Hip Using Video Fluoroscopy: Guidelines for Balancing Radiation Dose and Registration Accuracy. *J Arthroplasty*, 2017 May 25. pii: S0883-5403(17)30475-8. doi: 10.1016/j.arth.2017.05.036.

Boye D, Springer O, Wassmer F, Scheidegger S, Remonda L, Berberat J (2015): Effects of contour propagation and background corrections in different MRI flow software packages. *Acta Radiologica Open* 4(6), 1-6

Scheidegger S, Fuchs HU, Fuchsli RM (2014): Computational Methods for Exploring the Dynamics of Cancer: The Potential of State Variables for Description of Complex Biological Systems. *Proc. NOLTA 2014*, 168-171.

Scheidegger S, Fuchs HU, Zaugg K, Bodis S, Fuchsli RM (2013): Using State Variables to Model the Response of Tumour Cells to Radiation and Heat: A Novel Multi-Hit-Repair (MHR-) Approach. *Computational and Mathematical Methods in Medicine*, 2013, <http://dx.doi.org/10.1155/2013/587543>

Lohse I, Lang, S, Hrbacek J, Scheidegger S, Bodis S, Sanchez-Macedo N, Feng J, Lütolf UM, Zaugg K (2011): Effect of high dose per pulse flattening filter – free beams on cancer cell survival. *Radiother Oncol* 101, 226-232

Scheidegger S, Lutters G, Bodis S (2011): A LQ-based kinetic model formulation for exploring dynamics of treatment response of tumours in patients. *Z. Med. Phys.* 21,164–173

Spaeth, N, Wyss, MT, Weber, B, Scheidegger, S, Lutz, A, Verwey, J, Radovanovic, I, Pahnke, J, Wild, D, Westera, G, Weishaupt, D, Hermann, DM, Kaser-Hotz, B, Aguzzi, A, Buck A (2004): Uptake of ¹⁸F-Fluorocholin, ¹⁸F-Fluoroethyl-L-Tyrosine, and ¹⁸F-FDG in Acute Cerebral Radiation Injury in the Rat: Implications for Separation of the Radiation Necrosis from Tumor Recurrence. *J. Nucl. Med.*, 45, 1931-1938