



Syn Schmitt

DATE OF BIRTH

June, 13th 1975

PLACE OF BIRTH

Leonberg/Germany

FAMILY STATUS

married, 2 children

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Curriculum vitae

Academic History

EBERHARD KARLS UNIVERSITÄT TÜBINGEN

2004 - 2006 Final examination: Dr. rer. nat. (PhD in Biophysics)
Title: "Über die Anwendung and Modifikation des Hill'schen Muskelmodells in der Biomechanik" (About the application and modification of the Hill-type muscle model in biomechanics)
Supervisor: Prof. Dr. Hanns Ruder (Theoretical Astrophysics)
Date of defence: December, 22th 2006
Grade: very good (magna cum laude)

UNIVERSITÄT STUTTGART

1996 - 2003 Final examination: Diploma in physics (M.Sc.),
1. State examination in physics and sports (M.Ed.)

High School Education

TECHNISCHE OBERSCHULE STUTTGART

1994 - 1996 Final examination: Fachgebundene Hochschulreife

GOTTLIEB-DAIMLER-SCHULE SINDELFINGEN

1991 - 1994 Final examination: Elektrotechn. Berufskolleg, Fachhochschulreife

GRUNDSCHULE AND REALSCHULE WEIL DER STADT

1981 - 1991 Final examination: Mittlere Reife

Employment record

2018 - today Full professor in the Department of Civil and Environmental Engineering and the Stuttgart Center for Simulation Sciences (SC SimTech) at the University of Stuttgart

2012 - 2018 Juniorprofessor (assistant professor) at the Institute of Sports and Exercise Science (inspo, until 04.09.2018)

2008 - 2012 Research assistant at the Institute of Sports and Exercise Science Stuttgart (inspo, since 01.04., until 04.09.)

2007 - 2008 Research scientist at inspo in the biomechanics, movement and exercise science group (from July 2007 to March 2008)

2006 Research scientist at the Institute of Astronomy and Astrophysics Tübingen (TAT) (2 months)

2005 - 2006 Research scientist at the Institute of Sports and Sport Science Freiburg (18 months)

2004 - 2007 Research scientist in the Department of Sports Medicine Freiburg (3 ½ years)

2003 Student researcher at TAT (3 months)

2001 - 2003 Student researcher at inspo (3 years)

2000 - 2001 Internship at Bosch Techniques d'Automation S.A. in Bonneville / France - quality management (5 months)

1997 - 2000 Student worker at Robert Bosch GmbH Feuerbach (3 years)

1991 - 1994 Apprenticeship for electronic technician at IBM Germany GmbH Sindelfingen (3 years)

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Awards, Honors and Affiliations

- since 2018 Faculty member of the International Max Planck Research School for Intelligent Systems (IMPRS-IS)
- since 2018 Member of the “Computational Biomechanics Committee“ of the Int. Association of Applied Mathematics and Mechanics (GAMM e.V.)
- since 2016 Fellow of the Stuttgart Center for Simulation Sciences of the University of Stuttgart (appointed by the Rector)
- 2016 Session organiser “Coupled problems in biological systems“ of the Biophysics Division at the DPG-Frühjahrstagung (Spring Meeting)
- 2014/15 Session organiser “Modeling of non-linear dynamics in biological movement“ of the Biophysics Division of the DPG-Spring Meeting
- 2014 Second place on the short list for the professorship “Biomechanics, Human Movement and Load on the Musculo-skeletal System” at Charité Centrum 9, Berlin
- since 2013 Member of the Kepler-Society e.V.
- 2012 - 2018 Head of department “Modellierung and Simulation im Sport“ (Modelling and simulation in sports) at inspo
- 2011 5 months on parental leave
- 2011 Co-organisation of the second workshop for young researchers in mechanics with focus on biomechanics (Engelberg/Switzerland)
- 2010 - 2014 Member of the “Fachausschuss Biomechanik“ of the International Association of Applied Mathematics and Mechanics (GAMM e.V.)
- since 2010 Member of the International Association of Applied Mathematics and Mechanics (GAMM e.V.)
- 2009 “Research Seed Capital“ - Prize for excellent young researchers funded by the Ministry of the Arts, Culture and Science of the State Baden-Württemberg and the University of Stuttgart for the project “Vom virtuellen zum künstlichen Muskel“.
- 2009 - 2012 Head of junior research group “Computer Simulation of Human Movement“ at the Institute of Sports and Exercise Science
- since 2008 Associate young researcher at the Stuttgart Research Centre and Cluster of Excellence for Simulation Technology (SRC SimTech)
- since 2003 Member of the German Physicist Society (DPG)
- 2001 - 2010 CEO of fastmovingbytes.com GbR
- since 1999 Member of the International Skiing Instructors Association (ISIA) for Alpine skiing, Telemarking and Snowboarding

Other skills and interests

LANGUAGE

- German native language
- English very good understanding, very good spoken and written
- French very good understanding, good spoken, weak written (lived and worked in France for 5 months)

PERSONAL INTERESTS

Skiing, Telemarking, Surfing, Windsurfing, Running, Biking, Climbing

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External research funding

2018 “Occupant Safety for Future Crash in Cars (OSCCAR)“

Funding agency: EU project 768947

Funding period and budget: 30 months, approx. 300,000 Euro

Own role: Principal investigator, part of Consortium

“Impact response of active muscle: experimentation and modelling“

Funding agency: DFG (German National Science Foundation)

Funding period and budget: 30 months, 264,562 Euro

Own role: Principal investigator, SCHM2392/5-2

2017 “SimWalk – data integration to account for neuro-muscular adaptation“

Funding agency: Research Centre SimTech U Stuttgart, DFG (EXC310/2)

Funding period and budget: 14 months, approx. 85,000 Euro

Own role: Principal investigator

“Mass Personalization” together with Fraunhofer IPA and U Stuttgart

Funding agency: State Baden-Württemberg and University of Stuttgart

Funding period and budget: 12 months, 70,000 Euro

Own role: Principal investigator

“Passive-mechanics characteristics and creep at the spine level - implications on loading and occupational health”

Funding agency: German Health Insurance (DGUV e.V.), FP-0390A

Funding period and budget: 24 months, 153,969 Euro

Own role: Coordinator and principal investigator

“Model-based ergonomics in digital environments”

Funding agency: U Stuttgart in the framework ARENA2036

Funding period and budget: 12 months, 50,000 Euro

Own role: Principal investigator

“Deep Control Representations in Biological Motor Control - A Machine Learning approach to learn and understand control representations in biophysical models”

Funding agency: Baden-Württemberg foundation “neurorobotics”

Funding period and budget: 36 months, approx. 210,000 Euro

Own role: Principal investigator, Coordinator: Prof. Toussaint

“Ataro - a hand-arm-robot”

Funding agency: Research Centre SimTech U Stuttgart, DFG (EXC310/2)

Funding period and budget: 6 months, approx. 15,000 Euro

Own role: Principal investigator

2016 “Soft Tissue Robotics - Simulation-Driven Concepts and Design for Control and Automation for Robotic Devices Interacting with Soft Tissues”

Funding agency: DFG, International Research Training Group GRK2198/1

Funding period and budget: 42 months, approx. 240,000 Euro

Own role: Participating researcher

“Multilevel modelling in motor control and rehabilitation robotics”

Funding agency: Research alliance “System Human - From a digital model to applications” of the state Baden-Württemberg and U Stuttgart and Tübingen

Funding period and budget: 3 years, 455,000 Euro

Own role: Principal investigator together with Röhrle and Giese (CIN, Tü)

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- 2016 “System dynamics of a bipedal model standing on one leg: computer simulation and technical robot”
Funding agency: Research Centre SimTech U Stuttgart, DFG (EXC310/2)
Funding period and budget: 9 months, approx. 55,000 Euro
Own role: Principal investigator, PN4-8
- “Design of an integrated simulation framework to predict internal dynamics of the spine of specific subjects”
Funding agency: DAAD-ATN research exchange with QUT, Brisbane/Aus
Funding budget: 7,869 Euro
Own role: Principal investigator
- 2015 “Next Generation active Human Body Models“
Funding agency: Tech Center i-protect of Daimler and Robert Bosch
Funding period and budget: 3 years, 294,000 Euro
Own role: Principal investigator
- 2014 “Feasibility study to simulate a digital human body model including active muscles in the pre-crash phase”
Funding agency: Crash safety department, Daimler AG
Funding budget: 23,200 Euro
Own role: Principal investigator
- “Support for teaching in the programme biomedical engineering”
Funding agency: State BW
Funding budget: 11,000 Euro
Own role: Participating teacher
- “Teaching support in the biorobotics course and the summer school 2014”
Funding agency: State BW
Funding budget: approx. 10,000 Euro
Own role: Principal teacher
- 2013 “SimWalk - a simulation framework and testbed for digital human walking“
Funding agency: Research Centre SimTech U Stuttgart, DFG (EXC310/2)
Funding period and budget: 3 years, approx. 215,000 Euro
Own role: Principal investigator, PN4-1
- “Impact response of active muscle: experimentation and modelling“
Funding agency: DFG
Funding period and budget: 2 years, 177,789 Euro
Own role: Principal investigator, SCHM2392/5-1
- 2012 “Lab equipment for running a pneumatic robot”
Funding agency: Rector of the University of Stuttgart
Funding budget: 9,800 Euro
Own role: Principal investigator
- “Initial funding for building a biorobot to study one-leg standing”
Funding agency: Institute of Sports and Movement Science
Funding budget: 20,000 Euro
Own role: Principal investigator
- “Influence of body posture on load and passive-mechanical characteristics of the human spine“
Funding agency: German Health Insurance (DGUV/ BGN)
Funding period and budget: 3 years, 120,000 Euro
Own role: Principal investigator

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- 2012 “Multi-body simulation of the human spine: calculation of internal loads and multi-scale coupling with finite element analysis“ - continuation
Funding agency: Research Centre SimTech U Stuttgart, DFG (EXC310/1)
Funding period and budget: 2 years, approx. 80,000 Euro
Own role: Principal investigator, PN4-3/2
- 2011 “Multi-body simulation of the human lumbar spine towards a biomechanical demonstrator“
Funding agency: Research Centre SimTech U Stuttgart, DFG (EXC310/1)
Funding period and budget: 1 Jahr, 63.300 €
Own role: Principal investigator
- 2010 “Multi-body dynamics: further development of the 1-dimensional Hill-type muscle model“
Stuttgart Research Centre for Simulation Technology, DFG (EXC310/1)
Requested funding: 14,700.- €
Role: Principal investigator
- “MuscleUp - Towards an Interface for Detailed Musculo-skeletal Models“
EU FP7-PEOPLE-2009-IRSES, No° 246994
Requested funding: 93,600.- € (EU); 140,000.- AUD (Australia); 72,000.- NZD (New Zealand), Project coordinator: Prof. (jun.) Oliver Röhrle
Role: Principal investigator
- 2009 “Vom virtuellen zum künstlichen Muskel“ (From virtual to artificial muscle)
Research seed capital (RiSC) from a competitive call of Ministry of Science, Research and the Arts of Baden-Württemberg
Requested funding: 100,000.- €
Role: Principal investigator
- 2008 “Multi-body simulation of the human spine: calculation of internal loads and multi-scale coupling with finite element analysis“
Stuttgart Research Centre for Simulation Technology, DFG (EXC310/1)
Requested funding: 190,000.- €
Role: Principal investigator

References

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International collaboration partners

Prof. Peter Pivonka, Dr. Judith Little

Biomechanics and Spine Research Group, School of Engineering Systems,
Queensland University of Technology, Brisbane/Australia
DAAD-ATN research exchange funding 2016, research visit 2016

Prof. Dr.-Ing. Ellen Kuhl

Department of Mechanical Engineering, Stanford University, Palo Alto/USA
Project "Virtual gym", research visit 2015

Prof. Martyn Nash und A/Prof. Leo Cheng

Auckland Bioengineering Institute, University of Auckland, Auckland/New Zealand
Project FP7-PEOPLE-2009-IRSES "MuscleUp - Towards an Interface for Detailed Musculo-skeletal Models"

Prof. Peter Hunter, Prof. Peter Xu, Prof. Ian Anderson und A/Prof. Thor Bezier

University of Auckland, Auckland/New Zealand
Project GRK2198/1 "Soft Tissue Robotics"

Prof. Dr. phil. Hartmut Geyer

Robotics Institute, Carnegie Mellon University Pittsburgh, PA / USA
Joined work on a parallel elastic actuator and human walking study

National collaboration partners

Prof. Dr.-Ing. Frank Allgöwer

Institute for Systems Theory and Control, University of Stuttgart
Supervising students; project network 4 in SimTech; GRK2198/1

Fa. Daimler AG

Ergonomics and biomechanics, Daimler AG Sindelfingen
"The interrelation of comfort and biomechanics - towards the prediction of human-car interaction in typical car tasks"

Fa. Daimler AG

Safety research, Daimler AG Sindelfingen
"Active human body models for safety research in cars"

Prof. Dr.-Ing. Wolfgang Ehlers

Institute of Applied Mechanics (Civil engineering), University of Stuttgart
*Project "Multi-body simulation of the human spine"; SimTech project network 4
"Coupled problems in biomechanics and mechanobiology"*

Prof. Dr.-Ing. Jörg Fehr

Institute of Theoretical and Computational Mechanics, University of Stuttgart
Supervising students; joined work towards new human body models for safety research in cars

Fraunhofer Institute for Manufacturing Engineering and Automation IPA

Dept. Biomechatronic Systems, *Project "Mass Personalization"*

Prof. Dr. rer. nat. Bernard Haasdonk

Institute for Applied Mathematics and Numerical Simulation, University of Stuttgart
Joined work towards surrogate-models of the human intervertebral disc

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Dr. rer. nat. Daniel Häufle

Hertie-Institute for Clinical Brain Research, University of Tübingen
Project "Multi-level modelling in rehabilitation robotics and motor control"

Dr. phil. Falk Mörl

Research cooperation for occupational health (FSA GmbH)
Project "Passive-mechanics characteristics of the human spine"

Fa. Robert Bosch GmbH

Cooperate research, Renningen
Joined research towards "Human body models supporting the development of ECUs in drive-by-wire systems"

Prof. Oliver Röhrle PhD

Continuum Biomechanics and Mechanobiology, University of Stuttgart
SimTech project network 4 "Coupled problems in biomechanics and mechanobiology"; joined discussion group; supervising students

Prof. Dr. phil. Tobias Siebert

Institute of Sports and Exercise Science, University of Stuttgart
Project "Muscles in impact: experiment and simulation" (SI841/7-1, SCHM2392/5-1)

Prof. Dr. rer. nat. Marc Toussaint

Machine Learning and Robotics
Institute of Parallel and Distributed Systems, University of Stuttgart
Project "DeepControl" within research agenda "Neurorobotics"

Research activities

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Publications

JOURNAL ARTICLES (SUBMITTED)

S. Schmitt, B. Waldsich, C. von Neukirch. The impact of wearing a lumbar orthosis on load distribution in intervertebral discs and facet joints – a computer simulation study, submitted.

M. Hammer, M. Günther, D.F.B. Haeufle, **S. Schmitt**. Tailoring anatomical muscle paths: a sheath-like solution for muscle routing in musculo-skeletal computer models, submitted.

S. Brändle, **S. Schmitt**, M. Müller. A Systems-Theoretic Analysis of Low-Level Human Motor Control - Application to a Single-Joint Arm Model, submitted

D.F.B. Häufle, D. Wirtz, K. Kraschewski, **S. Schmitt**, O. Röhrle. A simulation study on wobbling masses: eigen-frequency and force-coupling to the skeleton change with muscle activity, submitted.

S. Schmitt, A. Bayer, J. Rissler, D. Häufle, M. Günther. Muscular activity reduces peak loads on intervertebral discs, submitted.

JOURNAL ARTICLES AND FULL-LENGTH CONFERENCE PROCEEDINGS (REFEREED)

S. Wolfen, J. Walter, M. Günther, D.F.B. Haeufle, **S. Schmitt**. Bioinspired pneumatic muscle spring units mimicking the human motion apparatus: benefits for passive motion range and joint stiffness variation in antagonistic setups, *Proc. of 25th International Conference on Mechatronics and Machine Vision in Practice (M2VIP)*, accepted, 2018.

D.F.B. Haeufle, B. Schmorte, H. Geyer, R. Müller, **S. Schmitt**. The benefit of combining neuronal feedback and feed-forward control for robustness in step down perturbations of simulated human walking depends on the muscle function, *Frontiers in Computational Neuroscience*, accepted, 2018.

M. Günther, D. Häufle, **S. Schmitt**. The basic mechanical structure of the skeletal muscle machinery: one model for linking microscopic and macroscopic scales, *Journal of Theoretical Biology*, accepted, 2018.

D. Driess, H. Zimmermann, S. Wolfen, D. Suissa, D. Haeufle, D. Hennes, M. Toussaint, **S. Schmitt**. Learning to Control Redundant Musculoskeletal Systems with Neural Networks and SQP: Exploiting Muscle Properties, In *Proc. of the Int. Conf. on Robotics and Automation (ICRA)*, 2018.

D. Suissa, M. Günther, A. Shapiro, I. Melzer, **S. Schmitt**. On laterally perturbed human stance - experiment, model and control, *Applied Biomechanics and Bionics*, vol. 2018, Article ID 4767624, 20 pages, 2018. doi: 10.1155/2018/4767624

K. Christensen, M. Günther, **S. Schmitt**, T. Siebert. Strain in shock-loaded skeletal muscle and the time scale of muscular wobbling mass dynamics, *Scientific Reports*, 7(1):13266, 2017. doi: 10.1038/s41598-017-13630-7

R. Rockenfeller, M. Günther, S. Schmitt, T. Götz. Corrigendum to "Comparative Sensitivity Analysis of Muscle Activation Dynamics". *Computational and Mathematical Methods in Medicine*, vol. 2017, Article ID 6752731, 2017. doi: 10.1155/2017/6752731

C. Kleinbach, O. Martynenko, J.Promies, D.F.B. Häufle, J. Fehr, **S. Schmitt**. Implementation and Validation of the Extended Hill-type Muscle Model with Robust

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Routing Capabilities in LS-DYNA for Active Human Body Models. *BioMedical Engineering OnLine* 16:109, 2017. DOI 10.1186/s12938-017-0399-7

N. Brown, D. Bubeck, D.F.B. Häufle, J. Weickenmeier, E. Kuhl, W. Alt, **S. Schmitt**. Weekly Time Course of Neuro-Muscular Adaptation to Intensive Strength Training. *Frontiers in Physiology* 8:329, 2017. doi: 10.3389/fphys.2017.00329

O. Röhrle, M. Sprenger, **S. Schmitt**. A two-muscle, continuum-mechanical forward simulation of the upper limb. *Biomechanics and Modeling in Mechanobiology*, 16(3): 743–762, 2017. doi: 10.1007/s10237-016-0850-x

U. Lindemann, M. Schwenk, M. Weyrich, **S. Schmitt**, W. Schlicht, C. Becker. Effect of uphill and downhill walking performance in geriatric patients using a wheeled walker, *Zeitschrift für Gerontologie und Geriatrie* 50:483–487, 2017. doi: 10.1007/s00391-016-1156-4

A. Bayer, **S. Schmitt**, M. Günther, D. Häufle. The influence of biophysical muscle properties on simulating fast human arm movements, *Computer Methods in Biomechanics and Biomedical Engineering* 20(8), 803–821, 2017. doi: 10.1080/10255842.2017.1293663

D. Häufle, T. Bäuerle, J. Steiner, L. Bremicker, **S. Schmitt**, C. Bechinger. External control strategies for self-propelled particles: optimizing navigational efficiency in the presence of limited resources, *Physical Review E* 94(1), 012617, 2016. doi:10.1103/PhysRevE.94.012617

K. Ghazi-Zahedi, D. Häufle, G. Montufar, **S. Schmitt**, N. Ay. Evaluating Morphological Computation in Muscle and DC-motor Driven Models of Human Hopping, *Frontiers in Robotics and Artificial Intelligence* 3(42), 2016. doi: 10.3389/frobt.2016.00042

S. Hochstein, P. Rauschenberger, B. Weigand, T. Siebert, **S. Schmitt**, W. Schlicht, S. Převorovská, F. Maršík. Assessment of physical activity of the human body considering the thermodynamic system, *Computer Methods in Biomechanics and Biomedical Engineering*, 19(9):923–933, 2015. doi: 10.1080/10255842.2015.1076804

L. Feller, C. Kleinbach, J. Fehr, **S. Schmitt**. Incorporating Muscle Activation Dynamics into the Global Human Body Model, In *Proceedings of the IRCOBI Conference 2016*, 512–523, 2016.

R. Rockenfeller, M. Günther, **S. Schmitt**, T. Goetz. Comparing different muscle activation dynamics using sensitivity analysis, *Computational and Mathematical Methods in Medicine*, vol. 2015, Article ID 585409, 16 pages, 2015. doi: 10.1155/2015/585409

TK Rupp, W. Ehlers, N. Karajan, M. Guenther, **S. Schmitt**. A forward dynamics simulation of human lumbar spine flexion predicting the load sharing of intervertebral discs, ligaments, and muscles. *Biomechanics and Modeling in Mechanobiology*, 14(5):1081–1105, 2015. doi: 10.1007/s10237-015-0656-2

S. David, **S. Schmitt**, J. Utz, A. Hub, W. Schlicht. Navigation within buildings: Novel movement detection algorithms supporting people with visual impairments. *Research in Developmental Disabilities*, 35:2026–2034, 2014. doi: 10.1016/j.ridd.2014.04.032

D. Häufle, M. Günther, A. Bayer, **S. Schmitt**. Hill-type muscle model with serial damping and eccentric force-velocity relation. *Journal of Biomechanics*, 25:47(6): 1531–6, 2014. doi: 10.1016/j.jbiomech.2014.02.009

D. Häufle, M. Günther, G. Wunner, **S. Schmitt**. Quantifying control effort of biological and technical movements: an information entropy based approach. *Physical Review E*, 89 (1): 012716, 2013. doi:10.1103/PhysRevE.89.012716

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S. Schmitt, M. Günther, A. Bayer, T. Rupp, D. Häufle. Theoretical Hill-Type Muscle and Stability: Numerical Model and Application, *Computational and Mathematical Methods in Medicine*, vol. 2013, Article ID 570878, 7 pages, 2013. doi: 10.1155/2013/570878

M. Günther, O. Röhrle, D. Häufle, **S. Schmitt**. Spreading out muscle mass within a Hill-type model: a computer simulation study. *Computational and Mathematical Methods in Medicine*, vol. 2012, Article ID 848630, 13 pages, 2012. doi: 10.1155/2012/848630

N. Karajan, O. Röhrle, W. Ehlers, **S. Schmitt**. Linking Continuous and Discrete Intervertebral Disc Models through Homogenisation. *Biomechanics and Modeling in Mechanobiology*, 12(3):453-466, 2012. doi:10.1007/s10237-012-0416-5

S. Schmitt, D. Häufle, R. Blickhan, M. Günther. Nature as an engineer: one simple concept of a bio-inspired functional artificial actuator. *Bioinspiration & Biomimetics*, 7 (2012) 036022, 2012.

F. Mörl, T. Siebert, **S. Schmitt**, R. Blickhan, M. Günther. Electro-mechanical delay in Hill-type muscle models. *Journal of Mechanics and Medicine in Biology*, 12(5): 85-102, 2012.

D. Häufle, M. Günther, R. Blickhan, **S. Schmitt**. Can Quick Release Experiments Reveal the Muscle Structure? A Bionic Approach? *Journal of Bionic Engineering*, 9(2): 211-223, 2012.

D. Häufle, M. Günther, R. Blickhan, **S. Schmitt**. Proof of concept: model based bionic muscle with hyperbolic force-velocity relation. *Applied Bionics and Biomechanics*, 9(3):267-274, 2012.

D. Häufle, M. Taylor, **S. Schmitt**, H. Geyer. A clutched parallel elastic actuator concept: towards energy efficient powered legs in prosthetics and robotics. *Proceedings of the 4th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob2012)*, 1614-1619, 2012.

T. Rupp, **S. Schmitt**. Inverse dynamics of the lower extremities: novel approach considering upper and lower ankle joint axis. *Journal of Mechanics in Medicine and Biology*, 11(3):515-527, 2011.

S. Schmitt, M. Günther. Human leg impact: energy dissipation of wobbling masses. *Archive of Applied Mechanics*, 81(7):887-897, 2011.

D. Häufle, M. Günther, R. Blickhan, **S. Schmitt**. Proof of concept of an artificial muscle: theoretical model, numerical model and hardware experiment. *Proceedings of the 12th IEEE Conference on Rehabilitation Robotics*, 1-7, 2011.

M. Günther, **S. Schmitt**. A macroscopic ansatz to deduce the Hill relation. *Journal of Theoretical Biology*, 263(4):407-418, 2010.

S. Schmitt, M. Melnyk, W. Alt, A. Gollhofer. Novel approach for a precise determination of short-time intervals in ankle sprain experiments. *Journal of Biomechanics*, 42:2823-2825, 2009.

M. Melnyk, C. Schloz, S. **Schmitt**, A. Gollhofer. Neuromuscular ankle joint stabilisation after 4-weeks WBV training. *International Journal of Sports Medicine*, 30(6):461-466, 2009.

M. Günther, **S. Schmitt**, V. Wank. High-frequency oscillations as a consequence of neglected serial damping in Hill-type muscle models. *Biological Cybernetics*, 97(1): 63-79, 2007.