Jun.-Prof. Dr. Syn Schmitt

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born 13.06.1975 in Leonberg (Germany)

Scientific Career

Since 2016	Fellow of the SC SimTech – Stuttgart Centre for Simulation Sciences
Since 2012	Junior Professor for "Sports and Movement Science" at the Institute of Sport and Movement Science, University of Stuttgart, Germany
2007 - 2012	Research Scientist at the Institute of Sports and Sports Science, University Freiburg and Institute of Sports and Movement Science, University Stuttgart
2006	PhD in Theoretical Physics/ Biomechanics, University Tübingen, Germany
2004 - 2006	PhD student in Theoretical Physics/Biomechanics, University Tübingen, Germany and University Freiburg/Germany
1996 - 2003	Study of Physics and Sports Science at the University of Stuttgart, Germany

Ten most important publications

* Publications jointly together with UoA-researchers involved within this IRTG

§ Publications jointly together with USTUTT-researchers involved within this IRTG

A) Published in publication outlets with scientific quality assurance and book publications:

1. Rupp, T.K.; Ehlers, W.; Karajan, N.; Günther, M.; Schmitt, S.: 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): p. 1081-1105, 2015.
2. § Haeufle, D.F.B.; Günther, M.; Wunner, G.; Schmitt, S.: Quantifying Control Effort of Biological and Technical Movements: An Information-Entropy-Based Approach. Physical Review E, 89(1), 012716, 2014.
3. § Haeufle, D.F.B.; Günther, M.; Bayer, A.; Schmitt, S.: Hill-Type Muscle Model with Serial Damping and Eccentric Force-Velocity Relation. Journal of Biomechanics 47(6), p. 1531-1536, 2014.
4. § Karajan N.; Röhrle O.; Ehlers W.; Schmitt S.: Linking continuous and discrete intervertebral disc models through homogenisation. Biomechanics and Modeling in Mechanobiology 12(3): p. 453-66, 2012.
5. § Schmitt, S.; Haeufle, D.F.B.; Blickhan, R.; Günther, M.: Nature as an engineer: one simple concept of a bio-inspired functional artificial muscle. Bioinspiration & Biomimetics, 7(3), 9 pages, 2012.

6. § Haeufle, D.F.B.; Günther, M.; Blickhan, R.; Schmitt, S.: Can Quick Release Experiments Reveal the Muscle Structure? A Bionic Approach. Journal of Bionic Engineering, 9(2), p. 211-223, 2012.
7. § Günther, M.; Röhrle, O.; Haeufle, D.; Schmitt, S.: Spreading out muscle mass within a Hilltype model: a computer simulation study. Computational and Mathematical Methods in Medicine, Article ID 848630, 13 pages, 2012.
8. Schmitt, S.; Günther, M.: Human leg impact: energy dissipation of wobbling masses. Archive of Applied Mechanics, 81(7), p. 887-897, 2011.
9. Günther, M.; Schmitt, S.: A macroscopic ansatz to deduce the Hill relation. Journal of Theoretical Biology, 263(4), p. 407-418, 2010.
10. Günther, M.; Schmitt, S.; Wank, V.: High-frequency oscillations as a consequence of neglected serial damping in Hill-type muscle models. Biological Cybernetics, 97(1), p. 63-79, 2007.

A) Other publications

B) Patents

1. DE 10 2008 058 604.8 „Vorrichtung zur Nachbildung des Bewegungsverhaltens eines natürlichen Muskels“, Schmitt, S.; Günther, M., Blickhan, R., 2010.

Supervised graduate students since graduation year 2011

No.	Last Name, First Name	Degree	Title of the dissertation	Duration of thesis
1	Häufle, Daniel	Dr. rer. nat.	Contraction dynamics of biological muscles: mechanical and thermodynamical prediction, and experimental verification (Mitbericht)	2009 - 2012
2	Rupp, Tille	Dr.-Ing.	Biomechanics of the spine	2009 -
3	Bayer, Alexandra	Dr. phil.	Computational motor control	2011 -
4	Strempel, Maria	Dr.-Ing.	Motor control of 3-d walking	2013 -

Most important research grants since 2011

No.	Research Project	Funding Period	Name(s) of the principal investigator(s)	Funding source and reference number
1	Active muscle in impacts: experiment and simulation	11/2013 - 02/2015	Schmitt, S.	DFG SCHM2392/5-1
2	3-d digital human walking	11/2013 - 10/2017	Schmitt, S.	ExC 310/2 PN 4-1
3	MuscleUp - Towards an Interface for Detailed Musculoskeletal Models	11/2011 - 10/2016	Röhrle, O. (Coordinator), Schmitt, S.	FP7-PEOPLE-2009-IRSES Project #246994
4	Detailed human model of the lumbar spine	12/2008 - 03/2014	Schmitt, S.	ExC 310/1, PN 4-3
5	From virtual to artificial muscle	10/2010 - 12/2011	Schmitt, S.	RISC, Kapitel, 1403 Tit.Gr. 74)