

# List of publications – Stefanie Schmier

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## Original Papers in Peer Reviewed Journals & Peer Reviewed Books and Book Series

### 2016

- (3) S. Schmier, C. Lauer, I. Schäfer, K. Klang, G. Bauer, M. Thielen, K. Termin, C. Berthold, S. Schmauder, T. Speck & K.G. Nickel (2016): Developing the experimental basis for an evaluation of scaling properties of brittle and 'quasibrittle' biological materials. – In: J. Knippers, T. Speck & K.G. Nickel (eds.), Biomimetic Research for Architecture and Building Construction: Biological Design and Integrative Structures, 277 – 294. Biologically-Inspired Systems, Vol. 9, Springer International Publishing, Switzerland. DOI 10.1007/978-3-319-46374-2.
- (2) K. Klang, G. Bauer, N. Toader, C. Lauer, K. Termin, S. Schmier, W. Haase, C. Berthold, K.G. Nickel, T. Speck & W. Sobek (2016): Plants and animals as source of inspiration for energy dissipation in load bearing systems and facades. – In: J. Knippers, T. Speck & K.G. Nickel (eds.), Biomimetic Research for Architecture and Building Construction: Biological Design and Integrative Structures, 109 – 133. Biologically-Inspired Systems, Vol. 9, Springer International Publishing, Switzerland. DOI 10.1007/978-3-319-46374-2.

### 2015

- (1) S. Schmier, S. Eckert, V. Gudenus, M. Caliaro, G. Bauer & T. Speck (2015): Mechanical Tests with Mycelium Stabilized Paper-Straw-Grain-Samples. – In: B. Imhof & P. Gruber (eds.), Built to Grow – Blending Architecture and Biology, 99-103, Birkhäuser, Basel.

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## Conference Proceedings

### 2017

- (4) S. Schmier, C. Bos, S. Kleiser, R. Kappel, H.F. Bohn, R. Schwaiger & T. Speck (2017): The attachment system of *Passiflora discophora* as an inspiration for bioinspired technical anchorage systems. – In: A.B. Kesel & D. Zehren (eds.), Bionik: Patente aus der Natur. Tagungsbeiträge zum 8. Bionik-Kongress in Bremen, 174-179. Bionik-Innovations-Centrum (B-I-C), Bremen, Deutschland.

## 2016

- (3) T. Speck, T. Masselter, S. Poppinga, M. Thielen, G. Bauer, K. Bunk, L. Hesse, S. Schmier, A. Westermeier (2016): Fibres in biology and technology: smart fibre-reinforced materials and structures inspired by plants and animals. – Proceedings ECCM17 – 17<sup>th</sup> European Conference on Composite Materials, 8-16. München, Germany. (elektronisch erschienen)

## 2015

- (2) G. Bauer, S. Schmier, M. Thielen & T. Speck (2015): Energy dissipation in plants – from puncture resistant seed coats to impact resistant tree barks. – In: H. Yamamoto, M. Morita & J. Gril (eds.), Proceedings of the 8th Plant Biomechanics Conference, 190-195. Nagoya, Japan.
- (1) H.F. Bohn, F. Günther, S. Schmier, S. Fink, T. Speck (2015): A passionate climber: Functional morphology and biomechanics of the adhesive tendrils in *Passiflora discophora*. – In: H. Yamamoto, M. Morita & J. Gril (eds.), Proceedings of the 8th Plant Biomechanics Conference, 208-212. Nagoya, Japan.

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## Further Conference Contributions, Poster and Oral Presentations

(\*T) invited Talks, (T) Talks, (P) Poster presentation, (Uni) Talks for internal university colloquia, (Sci) Talks for scientific colloquia. Presenter is underlined when several authors are listed.

## 2017

- (T-Uni) S. Schmier, C. Lauer & I. Schäfer: Towards scaling of natural materials: Overcoming morphological challenges – Doktorandenkolloquium des SFB-TRR 141, Tübingen, Germany (08.09.2017).
- (T-Sci) S. Schmier, C. Bos, S. Kleiser, R. Kappel, H.F. Bohn, R. Schwaiger & T. Speck: Tight junction: Mechanics of the tendrils of *Passiflora discophora* – Gordon Research Conference “Science of Adhesion”, South Hadley, USA (27.07.2017).
- (T-Sci) S. Schmier, C. Bos, S. Kleiser, R. Kappel, H.F. Bohn, R. Schwaiger & T. Speck: Tight junction: Mechanics of the tendrils of *Passiflora discophora* – Gordon Research Seminar “Science of Adhesion”, South Hadley, USA (23.07.2017).
- (P-Sci) S. Schmier, C. Bos, S. Kleiser, R. Kappel, H.F. Bohn, R. Schwaiger & T. Speck: Tight junction: Mechanics of the tendrils of *Passiflora discophora* – Gordon Research Seminar and Conference “Science of Adhesion”, South Hadley, USA (23.-25.07.2017).
- (T-Uni) S. Schmier, N. Hosoda & T. Speck: Anatomical and mechanical investigations on the coconut (*Cocos nucifera*) endocarp – Group seminar of Dr. Taniguchi, NIMS, Japan (22.05.2017).
- (T-Uni) S. Schmier, G. Bauer, M. Thielen & T. Speck: Functional morphology and mechanical properties of the endocarp of *Cocos nucifera* – 5. FIT-Kolloquium, Freiburg, Germany (10.02.2017).

## 2016

- (\*T-Sci) S. Schmier, C. Bos, S. Kleiser, R. Kappel, H.F. Bohn, R. Schwaiger & T. Speck: Tight junction: Learning from the climber *Passiflora discophora* how to improve technical anchorage systems – International Symposium on Advanced Manufacturing Science for Future Systems “Biomimetics”, Tokio, Japan (05.12.2016).
- (P-Sci) S. Schmier, C. Bos, S. Kleiser, R. Kappel, H.F. Bohn, R. Schwaiger & T. Speck: The attachment system of *Passiflora discophora* as an inspiration for bioinspired technical anchorage systems – 8. Bionik-Kongress, Bremen, Germany (21.10.2016).
- (P-Sci) S. Schmier, M. Thielen, G. Bauer & T. Speck: Impact damping in fruit walls and seed coats – Research Network ‘Functional Nanostructures’, Annual meeting 2016, Bad Herrenalb, Germany (06.10.2016).
- (T-Uni) C. Lauer, I. Schäfer & S. Schmier: Scaling of properties of highly porous biological and biomimetic constructions – Doktorandenkolloquium des SFB-TRR 141, Tübingen, Germany (22.06.2016).

- (T-Sci) S. Schmier, D. Otters, M. Jentzsch, G. Bauer, M. Thielen & T. Speck: Biomechanical analysis of the endocarp of *Cocos nucifera* – Society of Experimental Biology, Annual meeting 2016, Brighton, U.K. (06.07.2016).
- (T-Sci) T. Speck, T. Masselter, S. Poppinga, M. Thielen, G. Bauer, K. Bunk, L. Hesse, S. Schmier & A. Westermeier: Fibres in Biology and Technology: Smart Fibre-Reinforced Materials and Structures Inspired by Plants and Animals – 17<sup>th</sup> European Conference on Composite Materials, München, Germany (29.06.2016).
- (T-Sci) S. Schmier, G. Bauer, D. Otters, K. Wenz, M. Thielen & T. Speck: Biomechanic qualities of impact resistant tree barks and puncture resistant seed coats – Interdisciplinary German-Japanese Symposium, Dresden, Germany (10.05.2016).
- (P-Sci) S. Schmier, S. Kleiser, T. Speck & H.F. Bohn: Holding tight like *Passiflora discophora*: Biomechanical analyses of the attachment system of a tendril climber with adhesive pads – 3<sup>rd</sup> Euro Bio-Inspired Materials Conference, Potsdam, Germany (22.02.-25.02.2016).
- (P-Sci) G. Bauer, S. Schmier, M. Thielen, D. Kovaleva, N. Toader, K. Wenz, D. Otters & T. Speck: Impact protection in architecture inspired by fibrous multilayered plant structures – 3<sup>rd</sup> Euro Bio-Inspired Materials Conference, Potsdam, Germany (22.02.-25.02.2016).

## 2015

- (T-Sci) H.F. Bohn, F. Günther, S. Schmier, S. Fink & T. Speck: A passionate climber: functional morphology and biomechanics of the adhesive tendrils in *Passiflora discophora* – 8<sup>th</sup> Plant Biomechanics Conference, Nagoya, Japan (03.12.2015).
- (P-Sci) G. Bauer, S. Schmier, M. Thielen & T. Speck: Energy dissipation in plants – from puncture resistant seed coats to impact resistant tree barks – 8<sup>th</sup> Plant Biomechanics Conference, Nagoya, Japan (02.12.2015).

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## Published Annual Reports and Scientific Reports

### 2017

- (5) G. Bauer, S. Schmier, M. Thielen & T. Speck (2017): Pflanzen und Tiere als Ideengeber für Energiedissipation in lasttragenden Systemen und Fassaden III – Skalierungseigenschaften von hochporösen biologischen und biomimetischen Konstruktionen III. – In: Freiburger Zentrum für interaktive Werkstoffe und bioinspirierte Technologien (FIT) Report 2016, 78-82, FIT, Freiburg.
- (5a) G. Bauer, S. Schmier, M. Thielen & T. Speck (2017): Plants and animals as source of inspiration for energy dissipation in load bearing systems and facades III – Scaling of properties of Highly Porous Biological and Biomimetic Constructions III. – In: Freiburg Center for Interactive Materials and Bioinspired Technologies (FIT) Report 2016, 82-85, FIT, Freiburg.
- (4) S. Schmier, P. Huy-Nguyen, A. Hache, H. F. Bohn & T. Speck (2017): Haftstrukturen von Kletterpflanzen als Ideengeber für bioinspirierte Haft- und Verankerungssysteme II. – In: Freiburger Materialforschungszentrum (FMF) Report 2016, 47-49, FMF, Freiburg.
- (4a) S. Schmier, P. Huy-Nguyen, A. Hache, H. F. Bohn & T. Speck (2017): Attachment structures of climbing plants as concept generators for bio-inspired anchorage systems II. – In: Freiburg Materials Research Center (FMF) Report 2016, 49-50, FMF, Freiburg.

### 2016

- (3) S. Schmier, G. Bauer, M. Thielen & T. Speck (2016): Pflanzen und Tiere als Ideengeber für Energiedissipation in lasttragenden Systemen und Fassaden – Skalierungseigenschaften von hochporösen biologischen und biomimetischen Konstruktionen. – In: Freiburger Zentrum für interaktive Werkstoffe und bioinspirierte Technologien (FIT) Report 2015, 15-18, FIT, Freiburg.

- (3a) S. Schmier, G. Bauer, M. Thielen & T. Speck (2016): Plants and animals as source of inspiration for energy dissipation in load bearing systems and facades – Scaling of properties of Highly Porous Biological and Biomimetic Constructions. – In: Freiburg Center for Interactive Materials and Bioinspired Technologies (FIT) Report 2015, 18-20, FIT, Freiburg.
- (2) H. F. Bohn, S. Schmier, S. Kleiser, F. Klimm & T. Speck (2016): Haftstrukturen von Kletterpflanzen als Ideengeber für bioinspirierte Haft- und Verankerungssysteme. – In: Freiburger Materialforschungszentrum (FMF) Report 2015, 36-38. FMF, Freiburg.
- (2a) H. F. Bohn, S. Schmier, S. Kleiser, F. Klimm & T. Speck (2016): Attachment structures of climbing plants as concept generators for bio-inspired anchorage systems. – In: Freiburg Materials Research Center (FMF) Report 2015, 38-40, FMF, Freiburg.

## 2015

- (1) H.F. Bohn, S. Schmier, S. Fink & T. Speck (2015): Kletterpflanzen als Ideengeber für bionische Haft- und Verankerungssysteme: Mechanische Untersuchungen der Haftranken von *Passiflora discophora*. – In: Freiburger Materialforschungszentrum (FMF) Report 2014, 37-39, FMF, Freiburg.
- (1a) H.F. Bohn, S. Schmier, S. Fink & T. Speck (2015): Climbing plants as model systems for biomimetic anchoring systems: mechanical analysis of the adhesive tendrils of *Passiflora discophora*. – In: Freiburg Materials Research Center (FMF) Report 2014, 39-40, FMF, Freiburg.

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## Miscellaneous

- 2016 SpiegelONLINE – Wissenschaft/ 18.07.2016/ Biomechanik: Der Architekt der Kokosnuss (Autor: Jörg Römer) and 20 further reports on the oral presentation at the SEB 2016