

Publication list – Dr. rer. nat. Falk J. Tauber, né Esser

Last update: 29th August 2020

Original Papers in Peer Reviewed Journals & Peer Reviewed Books and Book Series (*)

2020

F.J. Tauber, T. Masselter, T. Speck, (2020): Biomimetic soft robotic peristaltic pumping system for coolant liquid transport. FPHS 2020 – Future Production of Hybrid Systems, Conference on Future Production of Hybrid Structures (23th September 2020). Wolfsburg, Germany

S. Conrad, T. Speck & F.J. Esser (2020) Multi-material 3D-printer for rapid prototyping of bio-inspired soft robotic elements. In: Vouloutsi V et al. (eds.) Biomimetic and Biohybrid Systems. Living Machines 2020. Lecture Notes in Computer Science, Springer

F.J. Esser, P. Auth & T. Speck, (2020) "Artificial Venus flytraps: a research review and outlook on their importance for novel bioinspired materials systems." Front. Robot. AI 7: 75. doi: 10.3389/frobt.2020.00075

2019

F. Esser, F. Krüger, T. Masselter & T. Speck, (2019): Characterization of Biomimetic Peristaltic Pumping System Based on Flexible Silicone Soft Robotic Actuators as an Alternative for Technical Pumps. In: Martinez-Hernandez U. et al. (eds) Biomimetic and Biohybrid Systems. Living Machines 2019. Lecture Notes in Computer Science, vol 11556. Springer, Cham 101–113

F. Esser, F.D. Scherag, S. Poppinga, A. Westermeier, M. D. Mylo, T. Kampowski, G. Bold, J. Rühle & T. Speck, (2019): Adaptive Biomimetic Actuator Systems Reacting to Various Stimuli by and Combining Two Biological Snap-Trap Mechanics. In: Martinez-Hernandez U. et al. (eds) Biomimetic and Biohybrid Systems. Living Machines 2019. Lecture Notes in Computer Science, vol 11556. Springer, Cham, pp. 114-121

F. Esser, T. Masselter & T. Speck, (2019): Silent pumpers: a comparative topical overview of the peristaltic pumping principle in living nature, engineering and biomimetics. In: Advanced Intelligent Systems. doi: 10.1002/aisy.201900009.

2018

F. Esser, F. Krüger, T. Masselter & T. Speck, (2018): Development and Characterization of a Novel Biomimetic Peristaltic Pumping System with Flexible Silicone-Based Soft Robotic Ring Actuators. In: Vouloutsi V, Halloy J, Mura A, Mangan M, Lepora N, Prescott TJ, Verschure PFMJ (eds) Biomimetic and Biohybrid Systems: 7th International Conference, Living Machines 2018, Proceedings. Springer International Publishing, Cham, pp 157–167

2017

F. Esser, T. Steger, D. Bach, T. Masselter & T. Speck (2017) Development of novel foam-based soft robotic ring actuators for a biomimetic peristaltic pumping system. In: Mangan M, Cutkosky M, Mura A, Verschure PFMJ, Prescott T, Lepora N (eds) Biomimetic and Bio-hybrid Systems. Living Machines 2017. Lecture Notes in Artificial Intelligence 10384:138-147. doi: 10.1007/978-3-319-63537-8_12

P. Comanns, F. Esser, P.H. Kappel, W. Baumgartner, J. Shaw & P.C. Withers (2017) Adsorption and movement of water by skin of the Australian thorny devil (Agamidae: *Moloch horridus*). Royal Society Open Science. 2017 4 170591; DOI: 10.1098/rsos.170591. Published 13 September 2017

2016

P. Comanns, P.C. Withers, F. Esser & W. Baumgartner (2016) Cutaneous water collection by a

moisture-harvesting lizard, the thorny devil (*Moloch horridus*). *Journal of Experimental Biology* 2016 219:3473-3479; doi: 10.1242/jeb.148791

Conference Proceedings

2018

F. Esser, F. Krüger, T. Masselter, T. Speck, (2018): Novel biomimetic soft robotic peristaltic pumping systems based on flexible pneumatic ring actuators. In: Kesel, A.B., Zehren, D. (Hrsg.), *Bionik: Patente aus der Natur. 9. Bremer Bionik Kongress 2018* (26. - 27. Oktober 2018), Bionik-Innovations-Centrum, Bremen ISBN 978-3-00-061443-9

2017

F. Esser, D. Bach, T. Masselter & T. Speck (2017) Nature as concept generator for novel biomimetic pumping systems. In: *Bionik: Patente aus der Natur, Tagungsbeiträge zum 8. Bionik-Kongress in Bremen* 116-122. ISBN 978-3-00-055030-0

2015

F. Esser, I. Scholz & T. Gries (2015): The Biomimetic Woodpecker Tongue: a fiber-based, light weight biomimetic soft robot. – In: *H7. Bremer Bionik Kongress – Tagungsbeiträge* Hrsg.: Antonia B. Kesel, Doris Zehren ISBN 978-3-00-048202-1 2015

Original 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

2020

(T-Sci) F.J. Tauber, T. Masselter, T. Speck, (2020): Biomimetic soft robotic peristaltic pumping system for coolant liquid transport. *FPHS 2020 – Future Production of Hybrid Systems, Conference on Future Production of Hybrid Structures* (23th September 2020). Wolfsburg, Germany (Online-Conference) (23.09.20)

(T-Sci) S. Conrad, T. Speck, F.J. Esser (2020): Multi-material 3D-printer for rapid prototyping of bioinspired soft robotic elements. *Biomimetic and Biohybrid Systems: 9th International Conference, Living Machines 2020* (28.-30. July 2020). Freiburg, Germany (Online-Conference) (30.07.19)

(T-Sci) F. Esser, T. Speck, (2020): Plants as biological role models for bioinspired novel material systems and principle demonstrators. *5th Bioinspired Materials – International School and Conference on Biological Materials Science 2020* (16.-19. March 2020). Irsee, Germany (Web-based Conference) (16.03.20)

2019

(T-Sci) F. Esser, F. Krüger, T. Masselter, T. Speck, (2019): Ein biomimetisches peristaltisches Pumpsystem auf Basis von flexiblen Silikon-Soft-Robotik-Aktoren als Alternative zu technischen Pumpsystemen. *DGM Werkstoffwoche Dresden 2019* (18.-20. September 2019). Dresden, Germany (18.09.19)

(T-Sci) F. Esser, F.D. Scherag, S. Poppinga, A. Westermeier, M. D. Mylo, T. Kampowski, G. Bold, J. Rühle, T. Speck, (2019): Adaptive biomimetic actuator systems reacting to various stimuli by and combining two biological snap-trap mechanics. *Biomimetic and Biohybrid Systems: 8th International Conference, Living Machines 2019* (10.-12. July 2019). Nara, Japan (12.07.19)

- (T-Sci) F. Esser, F. Krüger, T. Masselter, T. Speck, (2019): Characterization of Biomimetic Peristaltic Pumping System Based on Flexible Silicone Soft Robotic Actuators as an Alternative for Technical Pumps. Biomimetic and Biohybrid Systems: 8th International Conference, Living Machines 2019 (10.-12. July 2019). Nara, Japan (11.07.19)

2018

- (T-Sci) F. Esser, F. Krüger, T. Masselter, T. Speck, (2018): Novel biomimetic soft robotic peristaltic pumping systems. 9. Bremer Bionik Kongress 2018 (26. - 27. Oktober 2018), Bionik-Innovations-Centrum, Bremen. (21.10.18)
- (T-Sci) F. Esser, F. Krüger, T. Masselter, T. Speck, (2018): Characterization of a Biomimetic Soft Robotic Peristaltic Pumping System. 27. Colloquium of the Freiburg Materials Research Center (FMF) (08.-09.10.18) Schluchsee, Germany (08.10.18)
- (T-Sci) F. Esser, F. Krüger, T. Masselter, T. Speck, (2018): Development and Characterization of a Novel Biomimetic Peristaltic Pumping System with Flexible Silicone-Based Soft Robotic Ring Actuators. Biomimetic and Biohybrid Systems: 7th International Conference, Living Machines 2018 (17.-20. July 2018). Paris, France (19.07.18)
- (T-Sci) F. Esser, T. Masselter, T. Speck, (2018): New type of biomimetic peristaltic pumping system based on flexible silicone soft robotic actuators as an alternative for technical pumps. Society of Experimental Biology, Annual Main Meeting 2018, (03.-06.07.18) Florence, Italy (06.07.2018)
- (*T-Sci) F. Esser, T. Masselter, T. Speck, (2018): Biomimetic Peristaltic Pumping System based on Silicone Soft Robotic Actuators. Heriot Watt University - Institute of Signals, Sensors and Systems (Institute of Signals, Sensors and Systems Seminar) Edinburgh, Scotland. Gelandener Vortrag (20.06.18)

2017

- (T-Sci) F. Esser, T. Masselter & T. Speck (2017): A Novel Foam-based Soft Robotic Ring Actuators for a Biomimetic Peristaltic Pumping System. – 26th Colloquium of the Freiburg Materials Research Center (FMF) 2017, Schluchsee, Germany (10.10.2017)
- (T-Sci) F. Esser, T. Masselter & T. Speck (2017): Novel biomimetic soft-robotic pumping systems. – Research Network 'Functional Nanostructures', Annual meeting 2017, Bad Herrenalb, Germany. (06.10.2017).
- (P-Sci) F. Esser, T. Steger, D. Bach, T. Masselter & T. Speck (2017): Development of novel foam-based soft robotic ring actuators (FSRAs) for a biomimetic peristaltic pumping system.. Living Machines 2017 Conference Stanford California. (26.07.2017)

2016

- (P-Sci) F. Esser, D. Bach, T. Masselter, T. Speck (2017): Nature as concept generator for novel biomimetic pumping systems. In: Bionik: Patente aus der Natur, Tagungsbeiträge zum 8. Bionik-Kongress in Bremen 116-122. ISBN 978-3-00-055030-0

2014

- (P-Sci) F. Esser, I. Scholz, T. Gries: 7. Bionik Kongress "Patente aus der Natur", HS-Bremen, Poster: „The Biomimetic Woodpecker Tongue: a fiber-based, light weight biomimetic soft robot“, October 2014

2012

- (P-Sci) F. Esser, P. Comanns & W. Baumgartner: 6. Bionik Kongress "Patente aus der Natur", HS-Bremen, Poster: „High efficient water acquisition from moist sand“, October 2012

(T-Sci) F. Esser, W. Baumgartner: Talk on Morphology: „Characterization of water extraction from moist soil by moisture harvesting lizards” 105th Annual Meeting of the German Zoological Society, Universität Konstanz (22.09.2012)

Published Annual Reports and Scientific Reports

2020

S. Conrad, F. Esser, T. Speck, (2020): A Multi-material 3D-printer for rapid prototyping of bio-inspired demonstrators. In: Freiburg center for interactive materials and bioinspired technologies (FIT) Report 2019, Freiburg, pp 44-46

F. Esser, T. Speck, (2020): Adaptive actuator systems for biomimetic snap-trap demonstrators. In: Freiburg center for interactive materials and bioinspired technologies (FIT) Report 2019, Freiburg, pp 40-41

2019

F. Esser, T. Masselter, T. Speck, (2019): Biomimetic silicon-based soft-robotic pneumatic peristaltic pumping system. In: Freiburger Materialforschungszentrum (FMF) Report 2018, Freiburg, pp 36-38.

F. Esser, T. Masselter, T. Speck, (2019): Biomimetische silikonbasierte soft-robotische pneumatische Peristaltikpumpe. In: Freiburger Materialforschungszentrum (FMF) Report 2018, Freiburg, pp 36-38.

2018

F. Esser, T. Masselter, T. Speck, (2018): Innovative biomimetische Pumpsysteme für Soft-Robotik, Fahrzeuge und andere technische Anwendungen. In: Freiburger Materialforschungszentrum (FMF) Report 2017, Freiburg, pp 25-29.

2017

F. Esser, D. Bach, T. Masselter, T. Speck, (2017): Vorbilder aus der Natur für neue biomimetische Pumpsysteme. In: Freiburger Materialforschungszentrum (FMF) Report 2016, 44 – 46. FMF, Freiburg.

F. Esser, D. Bach, T. Masselter, T. Speck, (2017): Concept generators from nature for novel biomimetic pumping systems. In: Freiburger Materialforschungszentrum (FMF) Report 2016, 46 – 47. FMF, Freiburg

Miscellaneous

2016

F. Esser, (2016) „The devil is in the details“ Biosphere Magazine Issue 21 pp. 53-59