

Publications and lectures

PD Dr. rer. nat. habil. Simon Poppinga

Recent media coverage of my research can be found [here](#), [here](#), and [here](#).

Patents

EP 2320015 – Hingeless, infinitely deformable folding mechanism. Erfinder: Knippers J, Lienhard J, Schleicher S, Poppinga S, Masselter T, Speck T. Patentanmeldung: 10.11.2009, EP20060743126 / Patentoffenlegung: 11.05.2011, EP 2 320 015 A2 / Patenterteilung 13.08.2020 (für D, A, CH)

378 003 P-EP – Gelenkloser, stufenlos verformbarer Klappmechanismus. Erfinder: Knippers J, Lienhard J, Schleicher S, Poppinga S, Masselter T, Speck T. Patentanmeldung: 10.11.2009

Preprints

Kruppert S, Horstmann M, Weiss LC, Barmaeva E, Kubitz N, Poppinga S, Westermeier AS, Speck T, Tollrian R (2021) Facing the green threat: a waterflea's defenses against a carnivorous plant. *bioRxiv*. DOI: 10.1101/2021.10.19.464940

Peer-reviewed publications

- 67 **Carmesin CF, Fleischmann AS, Klepsch MM, Westermeier AS, Speck T, Jansen S, Poppinga S (2021)** Structural gradients and anisotropic hydraulic conductivity in the enigmatic eel traps of carnivorous corkscrew plants (*Genlisea*, Lentibulariaceae). *American Journal of Botany*. DOI: 10.1002/ajb2.1779
- 66 **Bauer U, Müller U, Poppinga S (2021)** Complexity and diversity of motion amplification and control strategies in motile carnivorous plant traps. *Proceedings of the Royal Society B* **288**: 20210771. DOI: 10.1098/rspb.2021.0771
- 65 **Horstmann M, Fleischmann A, Tollrian R, Poppinga S (2021)** Snapshot prey spectrum analysis of the phylogenetically early-diverging carnivorous *Utricularia multifida* from *U.* section *Polypompholyx* (Lentibulariaceae). *PLoS ONE* **16**: e0249976. DOI: 10.1371/journal.pone.0249976
- 64 **Speck T, Poppinga S, Speck O, Tauber F (2021)** Bio-inspired life-like motile materials systems: changing the boundaries between living and technical systems in the Anthropocene. *The Anthropocene Review* (online before print). DOI: 10.1177/20530196211039275
- 63 **Poppinga S, Schenk P, Speck O, Speck T, Bruchmann B, Masselter T (2021)** Self-actuated paper and wood models: low-cost handcrafted biomimetic compliant systems for research and teaching. *Biomimetics* **6**: 42. DOI: 10.3390/biomimetics6030042
- 62 **Cheng T, Thielen M, Poppinga S, Tahouni Y, Wood D, Steinberg T, Menges A, Speck T (2021)** Bio-inspired motion mechanisms: computational design and material programming of 4D-printed wearable systems. *Advanced Science* **8**: 2100411. DOI: 10.1002/advs.202100411
- 61 **Tahouni Y, Krüger F, Poppinga S, Wood D, Pfaff M, Rühle J, Speck T, Menges A (2021)** Programming sequential motion steps in 4D-printed hygromorphs by architected mesostructure and differential hygro-responsiveness. *Bioinspiration & Biomimetics* **16**: 055002. DOI: 10.1088/1748-3190/ac0c8e
- 60 **Kuolt H, Kampowski T, Poppinga S, Speck T, Tautenhahn T, Moosavi A, Weber J, Gabriel F, Pierri E, Dröder K (2021)** Biomimetic suction cups for energy-efficient industrial applications. In: *Proceedings of the Conference on Future Production of Hybrid Structures (FPHS)*. Springer. in print

- 59 **Westermeier AS, Hiss N, Speck T, Poppinga S (2020)** Functional-morphological analyses of the delicate snap-traps of the aquatic carnivorous waterwheel plant (*Aldrovanda vesiculosa*) with 2D and 3D imaging techniques. *Annals of Botany* **126**: 1099–1107. DOI: 10.1093/aob/mcaa135
- 58 **Kampowski T, Thiemann L-L, Kürner L, Speck T, Poppinga S (2020)** Exploring the attachment of the Mediterranean medicinal leech (*Hirudo verbana*) to porous substrates. *Journal of the Royal Society Interface* **17**: 20200300. DOI: 10.1098/rsif.2020.0300
- 57 **Sachse R & Westermeier A, Mylo M, Nadasdi J, Bischoff M, Speck T, Poppinga S (2020)** Snapping mechanics of the Venus flytrap (*Dionaea muscipula*). *Proceedings of the National Academy of Sciences USA* **117**: 16035–16042. DOI: 10.1073/pnas.2002707117
- 56 **Poppinga S & Correa D, Bruchmann B, Menges A, Speck T (2020)** Plant movements as concept generators for the development of biomimetic compliant mechanisms. *Integrative and Comparative Biology* **60**: 886–895. DOI: 10.1093/icb/icaa028. **Corrigendum:** *Integrative and Comparative Biology* **60**: 1569. DOI: 10.1093/icb/icaa144
- 55 **Bauer U, Poppinga S, Müller UK (2020)** Mechanical ecology - Taking biomechanics to the field. *Integrative and Comparative Biology* **60**: 820–828. DOI: 10.1093/icb/icaa018
- 54 **Kuolt H, Kampowski T, Poppinga S, Speck T, Moosavi A, Tautenhahn R, Weber J, Gabriel F, Pierri E, Dröder K (2020)** Increase of energy efficiency in vacuum handling systems based on biomimetic principles. In: *Proceedings of the 12th International Fluid Power Conference* (12. IFK). Volume 3. Dresden: Technische Universität Dresden, pp. 17–26. DOI: 10.25368/2020.89.
- 53 **Poppinga S, Pezzotta M, Fleischmann A (2020)** Evidence for motile suction traps in *Utricularia westonii* from *Utricularia* subgenus *Polypompholyx*. *Carnivorous Plant Newsletter* **49**: 239–131.
- 52 **Correa D & Poppinga S, Mylo MD, Westermeier AS, Bruchmann B, Menges A, Speck T (2020)** 4D pine scale: biomimetic 4D printed autonomous scale and flap structures capable of multi-phase movement. *Philosophical Transactions of the Royal Society A* **37**: 20190445. DOI: 10.1098/rsta.2019.0445
- 51 **Poppinga S, Smaij J, Westermeier AS, Horstmann M, Kruppert S, Tollrian R, Speck T (2019)** Prey capture analyses in the carnivorous aquatic waterwheel plant (*Aldrovanda vesiculosa* L., Droseraceae). *Scientific Reports* **9**: 18590. DOI: 10.1038/s41598-019-54857-w
- 50 **Poppinga S, Böse A-S, Seidel R, Hesse L, Leupold J, Caliaro S, Speck T (2019)** A seed flying like a bullet: ballistic seed dispersal in Chinese witch hazel (*Hamamelis mollis* OLIV., Hamamelidaceae). *Journal of the Royal Society Interface* **16**: 20190327. DOI: 10.1098/rsif.2019.0327
- 49 **Esser F, Scherag FD, Poppinga S, Westermeier A, Mylo MD, Kampowski T, Bold G, Rühle J, Speck T (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 **11556**: 114–121. DOI: 10.1007/978-3-030-24741-6_10
- 48 **Hesse L, Leupold J, Poppinga S, Wick M, Strobel K, Masselter T, Speck T (2019)** Resolving form-structure-function relationships in plants with MRI for biomimetic transfer. *Integrative and Comparative Biology* **59**: 1713–1726. DOI: 10.1093/icb/icz051
- 47 **Horstmann M, Heier L, Kruppert S, Weiss LC, Tollrian R, Adamec L, Westermeier A, Speck T, Poppinga S (2019)** Comparative prey spectra analyses on the endangered aquatic carnivorous waterwheel plant (*Aldrovanda vesiculosa*, Droseraceae) at several naturalized microsites in the Czech Republic and Germany. *Integrative Organismal Biology* **1**: oby012. DOI: 10.1093/iob/oby012
- 46 **Poppinga S, Speck T (2019)** Bark, the neglected tree postural motor system. *New Phytologist* **221**: 7–9. DOI: 10.1111/nph.15375

- 45 **Speck T, Bauer G, Masselter T, Poppinga S, Schmier S, Thielen M, Speck O (2018)** Biomechanics and functional morphology of plants – inspiration for biomimetic materials and structures. In: Geitmann A, Gril J (eds.), *Plant Biomechanics*. Springer International Publishing AG, pp. 399–422. DOI: 10.1007/978-3-319-79099-2_18
- 44 **Kampowski T, Demandt S, Poppinga S, Speck T (2018)** Kinematical, structural and mechanical adaptations to desiccation in poikilohydric *Ramonda myconi* (Gesneriaceae). *Frontiers in Plant Science* **9**: 1701. DOI: 10.3389/fpls.2018.01701
- 43 **Westermeier AS & Sachse R, Poppinga S, Vögele P, Adamec L, Speck T, Bischoff M (2018)** How the carnivorous waterwheel plant (*Aldrovanda vesiculosa*) snaps. *Proceedings of the Royal Society B: Biological Sciences* **285**: 20180012. DOI: 10.1098/rspb.2018.0012.
- 42 **Gallenmüller F, Langer M, Poppinga S, Kassemeyer H-H, Speck T (2018)** Spore liberation in mosses revisited. *AoB PLANTS* **10**: plx075. DOI: 10.1093/aobpla/plx075
- 41 **Nestle N, Šandor A, Bruchmann B, Speck T, Gallenmüller F, Poppinga S (2018)** Fossilized but functional – Tomographic insights into nature’s most resilient actuators. *Proceedings of the Bruker Micro-CT User Meeting 2018*: 49–55.
- 40 **Kampowski T, Mylo MD, Poppinga S, Speck T (2018)** How water availability influences morphological and biomechanical properties in the one-leaf plant *Monophyllaea horsfieldii* R.Br.. *Royal Society Open Science* **5**: 171076. DOI: 0.1098/rsos.171076
- 39 **Poppinga S, Zollfrank C, Prucker O, Rühle J, Menges A, Cheng T, Speck T (2018)** Toward a new generation of smart biomimetic actuators for architecture. *Advanced Materials* **30**: 1703653. DOI: 10.1002/adma.201703653. **Back cover:** *Advanced Materials* **30**: 1870135. DOI: 10.1002/adma.201870135
- 38 **Körner A, Born L, Mader A, Sachse R, Saffarian S, Westermeier AS, Poppinga S, Bischoff M, Gresser GT, Milwich M, Speck T, Knippers J (2018)** Flectofold – a biomimetic compliant shading device for complex free form facades. *Smart Materials and Structures* **27**: 017001. DOI: 10.1088/1361-665X/aa9c2f
- 37 **Poppinga S, Bauer U, Speck T, Volkov AG (2018)** Motile traps. In: Ellison AM, Adamec L (eds.), *Carnivorous plants - Physiology, ecology, and evolution*. Oxford University Press, pp. 180–193. DOI: 10.1093/oso/9780198779841.003.0014
- 36 **Bauer U, Jetter R, Poppinga S (2018)** Non-motile traps. In: Ellison AM, Adamec L (eds.), *Carnivorous plants - Physiology, ecology, and evolution*. Oxford University Press, pp. 194–206. DOI: 10.1093/oso/9780198779841.003.0015
- 35 **Kampowski T, Mylo MD, Speck T, Poppinga S (2017)** On the morphometry, anatomy and water stress behaviour of the anisocotyledonous *Monophyllaea horsfieldii* (Gesneriaceae) and their eco-evolutionary significance. *Botanical Journal of the Linnean Society* **185**: 425–442. DOI: 10.1093/botlinnean/box063
- 34 **Bischoff M, Sachse R, Westermeier AS, Körner A, Born L, Poppinga S, Gresser GT, Speck T, Knippers J (2017)** Modeling and analysis of the trapping mechanism of *Aldrovanda vesiculosa* as biomimetic inspiration for façade elements. In: Bögle A, Grohmann M (eds.), *IASS Annual Symposium 2017 Interfaces: architecture.engineering.science*, 25–28th September, Hamburg, Germany.
- 33 **Born L, Körner A, Schieber G, Westermeier AS, Poppinga S, Sachse R, Bergmann P, Betz O, Bischoff M, Speck T, Knippers J, Milwich M, Gresser GT (2017)** Fiber-reinforced plastics with locally adapted stiffness for bio-inspired hingeless, deployable architectural systems. In: Herrmann A (eds.), *21st Symposium on Composites*, Vol. 742: Trans Tech Publications (Key Engineering Materials), pp. 689–696. DOI: 10.4028/www.scientific.net/KEM.742.689
- 32 **Westermeier AS, Fleischmann A, Müller K, Schäferhoff B, Rubach C, Speck T, Poppinga S (2017)** Trap diversity and character evolution in carnivorous bladderworts (Utricularia, Lentibulariaceae). *Scientific Reports* **7**: 12052. DOI: 10.1038/s41598-017-12324-4

- 31 **Poppinga S, Daber LE, Westermeier AS, Kruppert S, Horstmann M, Tollrian R, Speck T (2017)** Bio-mechanical analysis of prey capture in the carnivorous Southern bladderwort (*Utricularia australis*). *Scientific Reports* 7: 1776. DOI: 10.1038/s41598-017-01954-3
- 30 **Poppinga S, Nestle N, Šandor A, Reible B, Masselter T, Bruchmann B, Speck T (2017)** Hygroscopic motions of fossil conifer cones. *Scientific Reports* 7: 40302. DOI: 10.1038/srep40302
- 29 **Adamec L, Poppinga S (2016)** Measurement of the critical negative pressure inside traps of aquatic carnivorous *Utricularia* species. *Aquatic Botany* 133: 10–16. DOI: 10.1016/j.aquabot.2016.04.007.
- 28 **Poppinga S, Kampowski T, Metzger A, Speck O, Speck T (2016)** Comparative kinematical analyses of Venus flytrap (*Dionaea muscipula*) snap-traps. *Beilstein Journal of Nanotechnology* 7: 664–674. DOI: 10.3762/bjnano.7.59
- 27 **Speck T, Masselter T, Poppinga S, Thielen M, Bauer G, Bunk K, Hesse L, Schmier S, Westermeier AS (2016)** Fibres in biology and technology: smart fibre-reinforced materials and structures inspired by plants and animals. In: *Proceedings of the ECCM17 - 17th European Conference on Composite Materials*, Munich, Germany, 26-30th June 2016 (ISBN 978-3-00-053387-7).
- 26 **Poppinga S, Körner A, Sachse R, Born L, Westermeier AS, Hesse L, Knippers J, Bischoff M, Gresser GT, Speck T (2016)** Compliant mechanisms in plants and architecture. In: Knippers J, Speck T, Nickel K. (eds.), *Biomimetic research for architecture and building construction: biological design and integrative structures*. Biologically-inspired systems, Springer, Heidelberg, Berlin, pp. 169–193. DOI: 10.1007/978-3-319-46374-2_9
- 25 **Poppinga S, Weißkopf C, Westermeier AS, Masselter T, Speck T (2016)** Fastest predators in the plant kingdom: functional morphology and biomechanics of suction traps found in the largest genus of carnivorous plants. *AoB PLANTS* 8: plv140. DOI: 10.1093/aobpla/plv140
- 24 **Kampowski T, Eberhard L, Gallenmüller F, Speck T, Poppinga S (2016)** Functional morphology of suction discs and attachment performance of the Mediterranean medicinal leech (*Hirudo verbana* CARENA). *Journal of the Royal Society Interface* 13: 20160096. DOI: 10.1098/rsif.2016.0096
- 23 **Poppinga S, Haushahn T, Warnke M, Masselter T, Speck T (2015)** Sporangium exposure and spore release in the Peruvian maidenhair fern (*Adiantum peruvianum*, Pteridaceae). *PLOS ONE* 10: e0138495. DOI: 10.1371/journal.pone.0138495
- 22 **Schleicher S, Lienhard J, Poppinga S, Speck T, Knippers J (2015)** A methodology for transferring principles of plant movements to elastic systems in architecture. *Computer-Aided Design* 60: 105–117. DOI: 10.1016/j.cad.2014.01.005
- 21 **Poppinga S, Metzger A, Speck O, Masselter T, Speck T (2013)** Schnappen, schleudern, saugen: Fallenbewegungen fleischfressender Pflanzen. *Biologie in unserer Zeit* 43: 352–361. DOI: 10.1002/biuz.201310520
- 20 **Poppinga S, Hartmeyer S, Masselter T, Hartmeyer I, Speck T (2013)** Trap diversity and evolution in the family Droseraceae. *Plant Signaling & Behavior* 8: e24685. DOI: 10.4161/psb.24685
- 19 **Poppinga S, Masselter T, Speck T (2013)** Faster than their prey: new insights into the rapid movements of active carnivorous plants traps. *BioEssays* 35: 649–657. DOI: 10.1002/bies.201200175
- 18 **Hartmeyer S, Hartmeyer I, Masselter T, Seidel R, Speck T, Poppinga S (2013)** Catapults into a deadly trap: The unique prey capture mechanism of *Drosera glanduligera*. *Carnivorous Plant Newsletter* 42: 4–14.
- 17 **Poppinga S, Hartmeyer S, Seidel R, Masselter T, Hartmeyer I, Speck T (2012)** Catapulting tentacles in a sticky carnivorous plant. *PLOS ONE* 7: e45735. DOI: 10.1371/journal.pone.0045735

- 16 **Poppinga S, Joyeux M (2011)** Different mechanics of snap-trapping in the two closely related carnivorous plants *Dionaea muscipula* and *Aldrovanda vesiculosa*. *Physical Review E* **84**: 041928. DOI: 10.1103/PhysRevE.84.041928
- 15 **Lienhard J, Schleicher S, Poppinga S, Masselter T, Milwich M, Speck T, Knippers J (2011)** Flectofin: a hingeless flapping mechanism inspired by nature. *Bioinspiration & Biomimetics* **6**: 045001. DOI: 10.1088/1748-3182/6/4/045001
- 14 **Vincent O, Weißkopf C, Poppinga S, Masselter T, Speck T, Joyeux M, Quilliet C, Marmottant P (2011)** Ultra-fast underwater suction traps. *Proceedings of the Royal Society B* **278**: 2909–2914. DOI: 10.1098/rspb.2010.2292
- 13 **Schleicher S, Lienhard J, Knippers J, Poppinga S, Masselter T, Speck T (2011)** Bio-inspired kinematics of adaptive shading systems for free form facades. In: Nethercot D et al. (eds), *Proceedings of the 35th Annual Symposium of IABSE / 52nd Annual Symposium of IASS / 6th International Conference on Space Structures 'Taller Longer Lighter - Meeting growing demand with limited resources'*, London, UK, 0551.
- 12 **Schleicher S, Lienhard J, Poppinga S, Masselter T, Speck T, Knippers J (2011)** Adaptive façade shading systems inspired by natural elastic kinematics. In: *Proceedings of the International Adaptive Architecture Conference IAAC (2011)*, London, pp. 2–12.
- 11 **Masselter T, Barthlott W, Bauer G, Bertling J, Cichy F, Ditsche-Kuru P, Gallenmüller F, Gude M, Haushahn T, Hermann M, Immink H, Knippers J, Lienhard J, Luchsinger R, Lunz K, Mattheck C, Milwich M, Mölders N, Neinhuis C, Nellesen A, Poppinga S, Rechberger M, Schleicher S, Schmitt C, Schwager H, Seidel R, Speck O, Stegmaier T, I. Tesari, Thielen M, Speck T (2011)** Biomimetic products. In: Y. Bar-Cohen (ed.), *Biomimetics - Nature Based Innovation*, pp. 377–429. CRC Press, Pasadena.
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- 9 **Lienhard J, Schleicher S, Knippers J, Poppinga S, Speck T (2010)** Form-finding of nature inspires kinematics for pliable structures. In: Zhang Q et al. (eds.), *Proceedings of the International Symposium of the International Association of Shell and Spatial Structures (IASS), Spatial Structures Temporary and Permanent*, Shanghai, China, pp. 2545–2554.
- 8 **Poppinga S, Lienhard J, Masselter T, Schleicher S, Knippers J, Speck T (2010)** Biomimetic deployable systems in architecture. In: Lim CT, Goh JCH (eds.), *IFMBE Proceedings 31, 6th World Congress on Biomechanics (WCB) 2010*, Singapore, pp. 40–43. DOI: 10.1007/978-3-642-14515-5_11
- 7 **Poppinga S, Masselter T, Lienhard J, Schleicher S, Knippers J, Speck T (2010)** Plant movements as concept generators for deployable systems in architecture. In: Brebbia CA (ed.), *Design & Nature V: Comparing Design in Nature with Science and Engineering*, WIT Press, Southampton, Boston, pp. 403–409. DOI: 10.2495/DN100351
- 6 **Lienhard J, Poppinga S, Schleicher S, Speck T, Knippers J (2010)** Elastic architecture: nature inspired pliable structures. In: Brebbia CA (ed.), *Design & Nature V: Comparing Design in Nature with Science and Engineering*, WIT Press, Southampton, Boston, pp. 469–477. DOI: 10.2495/DN100421
- 5 **Schleicher S, Lienhard J, Poppinga S, Speck T, Knippers J (2010)** Abstraction of bio-inspired curved-line folding patterns for elastic foils and membranes in architecture. In: Brebbia CA (ed.), *Design & Nature V: Comparing Design in Nature with Science and Engineering*, WIT Press, Southampton, Boston, pp. 479–489. DOI: 10.2495/DN100431
- 4 **Poppinga S, Koch K, Bohn H, Barthlott W (2010)** Comparative and functional morphology of hierarchically structured anti-adhesive surfaces in carnivorous plants and kettle trap flowers. *Functional Plant Biology* **37**: 952–961. DOI: 10.1071/FP10061

- 3 **Rembold K, Irmer A, Poppinga S, Rischer H, Bringmann G (2010)** Propagation of *Triphyophyllum peltatum* (Dioncophyllaceae) and observations on its carnivory. *Carnivorous Plant Newsletter* **39**: 71–77.
- 2 **Lienhard J, Poppinga S, Schleicher S, Masselter T, Speck T, Knippers J (2009)** Abstraction of plant movements for deployable structures in architecture. In: Thibaut B (ed.), *Proceedings of the 6th Plant Biomechanics International Conference*, Ecofog, Cayenne, French Guyana, pp. 389–397.
- 1 **Poppinga S, Barthlott W, Koch K (2007)** Plants that trap animals: microscopic characteristics of anti-adhesive surfaces. 33rd Microscopy Conference of the Deutsche Gesellschaft für Elektronenmikroskopie e. V., Saarbrücken, 02.-07.09.2007. *Microscopy and Microanalysis* **13**: 192–193. DOI: 10.1017/S1431927607080968

Further publications

- 47 **Müller UK, Poppinga S (2020)** Form, structure, and function: How plants vs. animals solve physical problems. *Integrative and Comparative Biology* **60**: 815–819. DOI: 10.1093/icb/icaa118
- 46 **Kampowski T, Poppinga S, Speck T (2020)** Steigerung der Energieeffizienz industrieller Vakuum-handhabungsprozesse mit Hilfe bionischer Wirkprinzipien. In: *Freiburger Materialforschungszentrum (FMF) Report 2020*, FMF, Freiburg.
- 45 **Kampowski T, Poppinga S, Speck T (2020)** Increasing the energy efficiency of industrial vacuum handling processes using biomimetic approaches. In: *Freiburger Materialforschungszentrum (FMF) Report 2020*, FMF, Freiburg.
- 44 **Westermeier A, Poppinga S, Körner A, Born L, Sachse R, Saffarian S, Knippers J, Bischoff M, Gresser G, Speck T (2019)** Keine Gelenkbeschwerden – Wie Pflanzen sich bewegen und die Technik inspirieren. In: Knippers J, Schmid U, Speck T (eds.), *Biomimetics for architecture: learning from nature*. Birkhäuser Verlag Basel, pp. 32–41.
- 43 **Westermeier A, Poppinga S, Körner A, Born L, Sachse R, Saffarian S, Knippers J, Bischoff M, Gresser G, Speck T (2019)** No joint ailments: how plants move and inspire technology. In: Knippers J, Schmid U, Speck T (eds.), *Biomimetics for architecture: learning from nature*. Birkhäuser Verlag Basel, pp. 32–41.
- 42 **Saffarian S, Born L, Körner A, Mader A, Westermeier AS, Poppinga S, Milwich M, Gresser GT, Speck T, Knippers J (2019)** From pure research to biomimetic products: the Flectofold facade shading device. In: Knippers J, Schmid U, Speck T (eds.), *Biomimetics for architecture: learning from nature*. Birkhäuser Verlag Basel, pp. 42–51.
- 41 **Saffarian S, Born L, Körner A, Mader A, Westermeier AS, Poppinga S, Milwich M, Gresser GT, Speck T, Knippers J (2019)** Von der Grundlagenforschung zum bionischen Produkt: die Fassadenverschattung Flectofold. In: Knippers J, Schmid U, Speck T (eds.), *Biomimetics for architecture: learning from nature*. Birkhäuser Verlag Basel, pp. 42–51.
- 40 **Poppinga S (2019)** Grüne Fallensteller: Karnivore (fleischfressende) Pflanzen. *Informationsschrift* **10**, Botanischer Garten der Albert-Ludwigs-Universität Freiburg i. Br.
- 39 **Mylo M, Westermeier A, Poppinga S, Speck T (2018)** Establishment of a methodology for full-field 3D displacement and deformation analyses of plants and (bio-inspired) technical materials systems and structures. In: Kesel AB, Zehren D (eds.), *Bionik: Patente aus der Natur. Tagungsbeiträge zum 9. Bionik-Kongress Hochschule Bremen*, pp. 211–216.

- 38 **Poppinga S, Westermeier AS, Fleischmann A, Müller K, Speck T (2018)** Evolution of a sucker: Functional principles of traps in carnivorous bladderworts (*Utricularia*, Lentibulariaceae). *Atlas of Science* (<http://atlasofscience.org/evolution-of-a-sucker-functional-principles-of-traps-in-carnivorous-bladderworts-utricularia-lentibulariaceae/>).
- 37 **Poppinga S, Westermeier AS, Speck T, Fleischmann A (2018)** Differenze strutturali e funzionali nelle trappole delle utricolarie (Structural and functional diversity of bladderwort traps). *AIPC (Associazione Italiana Piante Carnivore) Magazine* **50**: 4–17.
- 36 **Poppinga S, Alamsyah F, Bauer U, Fleischmann A, Horstmann M, Klink S, Kruppert S, Lin Q, Müller U, Northrop A, Płachno BJ, Prins A, Scharmann M, Sirová D, Skates L, Westermeier AS, Ellison AM (2018)** What's new in the world of carnivorous plants - Summary of two symposia held in July 2017. *Carnivorous Plant Newsletter* **47**: 18–27.
- 35 **Westermeier A, Mylo M, Poppinga S, Speck T (2018)** Full-field 3D deformation and displacement analyses on plant surfaces. In: *Freiburger Zentrum für Interaktive Materialien und Bioinspirierte Technologien (FIT) Report 2018*, FIT, Freiburg, pp. 39–41.
- 34 **Thielen M, Poppinga S, Speck T (2018)** Personalisierter 3D- und 4D-Druck von programmier- und schaltbaren sowie selbstregulierend multifunktionalen Materialsystemen für Sport und Medizin (4DmultiMATS) – Inspiration von windenden Kletterpflanzen und Fettkraut. In: *Freiburger Materialforschungszentrum (FMF) Report 2018*, FMF, Freiburg, pp. 32–34
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Lectures, posters, and further conference contributions

(K) Keynote lecture, (*T) invited talk, (T) regular talk, (Pa) panel discussion, (ST) short talk accompanying poster, (P) poster. Presenter(s) is/are underlined when several authors are listed.

- 2021 (*T) Poppinga S (2021) Plant movement biomimetics: Blurring the frontiers between living and technical systems. BASF-JONAS Family Days, online presentation, 24.09.2021.
- 2020 (*T) Poppinga S (2020) Suckers, snappers, and catapults: How carnivorous plants catch their prey. Monday Seminar series @ Department of Systematic and Evolutionary Botany, University of Zürich (online presentation), 12.10.2020.
- (*Pa) Poppinga S (2020) Panel on smart buildings/adaptive architecture. The Convergence Center for Living Multifunctional Material Systems (LiMC2) webinar, July 23 (online)
- (*T) Poppinga S (2020) Plant movements as models for novel bioinspired façade shading systems I. The Convergence Center for Living Multifunctional Material Systems (LiMC2) webinar, July 22 (online)
- (*T) Poppinga S (2020) Schnappen, saugen, schleudern: Wie fleischfressende Pflanzen ihre Beute fangen. Biologisches Kolloquium Universität Ulm, AG Jansen, 28.01.2020.
- (T) Poppinga S, Speck T (2020) Abstraction of slow and fast plant movement principles for the technical transfer into biomimetic motile structures. Annual Meeting of the Society for Integrative & Comparative Biology, 03-07.01.2020, Austin, TX, USA.
- 2019 (*T) Poppinga S (2019) Wie Pflanzen sich bewegen und die Architektur inspirieren. Waldhaus Freiburg, 17.10.2019
- (K) Poppinga S (2019) Biomechanics, functional morphology, and diversity of *Utricularia* suction traps. Plant Biology CS 2019, Budweis, Czech Republic.
- (P) Westermeier A, Poppinga S, Speck T (2019) Visualisation of delicate plant soft tissue via μ -computer tomography: the snap-traps of the carnivorous aquatic *Aldrovanda vesiculosa* as a case study. Plant Biology CS 2019, Budweis, Czech Republic.
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(*T) Poppinga S (2016) Snappers, suckers & catapults: How motile carnivorous plants catch prey. Talk accompanying the science festival at Kew Gardens, London, UK (06.08.2016)

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