

Publication List JONAS:

1. Nanopatterning the graphite surface with ordered macrocyclic or ribbon-like assemblies of isocytosine derivatives: an STM study, A. Ciesielski, S. Colella, L. Zalewski, B. Bruchmann, P. Samori, *Cryst. Eng. Comm.* 2011, 13 (18), 5535 – 5537.
2. Copolymerization of a dendronized monomer with styrene and different acrylates: Determination of reactivity ratios, A. Krebs, B. Bruchmann, A. Müller-Cristadoro, R. al-Hellani, A. D. Schlüter, *J. Polym. Sci., Part A, Polym. Chem.* 2013, 51(6), 1372 – 1377.
3. Titanium dioxide mesoporous electrodes for solid-state dye-sensitized solar cells: cross-analysis of the critical parameters, S. Colella, E. Orgiu, I. Bruder, A. Liscio, V. Palermo, B. Bruchmann, P. Samori, P. Erk, *Adv. Energy Mater.* 2014, 1301362.
4. 3D micro-extrusion of graphene based active electrodes: towards high-rate AC line filtering performance electrochemical capacitors, T. Nathan-Walleser, I.-M. Lazar, M. Fabritius, F. J. Toelle, Q. Xia, B. Bruchmann, S. S. Venkataraman, M. G. Schwab, R. Mülhaupt, *Adv. Funct. Mater.* 2014, 24, 4706 – 4716.
5. Synthesis of neutral, water-soluble oligo-ethylene glycol-containing dendronized homo- and copolymers of generations 1, 1.5, 2, and 3, X. Sun, J.-P. Lindner, B. Bruchmann, A. D. Schlüter, *Macromolecules* 2014, 47, 7337.
6. Nitrogenated graphene and carbon nanomaterials by carbonization of polyfurfuryl alcohol in the presence of urea and dicyandiamide, M. Beckert, M. Menzel, F. J. Toelle, B. Bruchmann, R. Mülhaupt, *Green Chem.* 2015, 17, 1032 – 1037.
7. Dendritic Polyurea Polymers, D. Tuerp, B. Bruchmann, *Macromol. Rapid Commun.* 2015, 36, 138 – 150.
8. Nitrogen-doped multilayer graphene as functional filler for carbon/polyamide 12 nanocomposites, M. Beckert, M. Menzel, F. J. Toelle, B. Bruchmann, R. Mülhaupt, *Macromol. Mater. Eng.* 2015, 300, 785 – 792.
9. DYNAMERS: Dynamic polymers as self-healing materials, N. Roy, B. Bruchmann, J.-M. Lehn, *Chem. Soc. Rev.* 2015, 44, 3786.
10. Cement-based composites reinforced with localized and magnetically oriented Al₂O₃ microplatelets, D. Carnelli, R. Libanori, B. Feichtenschlager, L. Nicoleau, G. Albrecht, A. R. Studart, *Cement and Concrete Research* 2015, 78, 245 – 251.
11. Composites reinforced via mechanical interlocking of surface-roughened microplatelets within ductile and brittle matrices, R. Libanori, D. Carnelli, N.

- Rothfuchs, M. R. Binelli, M. Zanini, L. Nicoleau, B. Feichtenschlager, G. Albrecht, A. R. Studart, *Bioinspir. Biomim.* 2016,11, 036004, DOI 10.1088/1748 3190/11/3/036004.
12. Explosive raspberries: controlled magnetically triggered bursting of microcapsules, E. Loiseau, A. Quarry de Boiry, F. Niedermair, G. Albrecht, P. A. Ruehs, A. R. Studart, *Adv. Funct. Mater.* 2016, 26, 4007 – 4015.
 13. Isocyanate-free route to polycarbohydrate urethane thermosets and 100 % bio-based coatings derived from glycerol feedstock, S. Schmidt, B. S. Ritter, D. Kratzert, B. Bruchmann, R. Mülhaupt, *Macromolecules* 2016, 49, 7268 – 7276.
 14. Fused dihydrodibenzobarrelene (Dibenzobicyclo[2.2.2]octadiene) and lactone rings via one step Diels-Alder and intramolecular reaction with difumarates and substituted anthracenes, J. Rowlett, C. Plenk, P. Deglmann, J. Sprafke, R. Mülhaupt, B. Bruchmann, *Chemistry Select* 2016, 1, 4935 – 4939.
 15. Hygroscopic motions of fossil conifer cones, S. Poppinga, N. Nestle, A. Šandor, B. Reible, T. Masselter, B. Bruchmann, T. Speck, *Sci. Rep.* 2017, 7, 40302, DOI: 10.1038/srep40302.
 16. Fossile Zapfenschuppen bewegen sich noch nach Millionen von Jahren, S. Poppinga, T. Masselter, T. Speck, N. Nestle, B. Bruchmann, B. Reible, *Naturwissenschaftliche Rundschau* 2017, 70, Nr. 3, 500 - 501
 17. Strong microcapsules with permeable porous shells made through phase separation in double emulsions, E. Loiseau, F. Niedermair, G. Albrecht, P. Rühls, A.R. Studart, *Langmuir* 2017, 33, 2402 – 2410.
 18. Erythritol dicarbonate as intermediate for solvent- and isocyanate-free tailoring of bio-based polyhydroxyurethane thermoplastics and thermoplastic elastomers, S. Schmidt, F.J. Gatti, M. Luitz, B.S. Ritter, B. Bruchmann, R. Mülhaupt, *Macromolecules* 2017, 50, 2296 – 2303.
 19. Liquid Sorbitol Ether Carbonate as Intermediate for Rigid and Segmented Non-Isocyanate Polyhydroxyurethane Thermosets, S. Schmidt, N. E. Göppert, B. Bruchmann, R. Mülhaupt, *Eur. Polym. J.* 2017, 94, 136 - 142.
 20. Toward a New Generation of Smart Biomimetic Actuators for Architecture, S. Poppinga, C. Zollfrank, O. Prucker, J. Rühle, A. Menges, T. Cheng, T. Speck, *Adv. Mater.* 2018, 30, 1703653.
 21. How the carnivorous waterwheel plant (*Aldrovanda vesiculosa*) snaps, A.S. Westermeier, R. Sachse, S. Poppinga, P. Vögele, L. Adamec, T. Speck, M. Bischoff, *Proc. R. Soc. B: Biological Sciences* 285: 20180012.
 22. Biodegradation of synthetic polymers in soils: Tracking carbon into CO₂ and microbial biomass, M.T. Zumstein, A. Schintlmeister, T. F. Nelson, R. Baumgartner, D. Woebken, M. Wagner, H.-P. E. Kohler, K. McNeill, M. Sander., *Sci. Adv.* 2018, 4, eaas9024.

23. Fossilized but functional – Tomographic insights into nature’s most resilient actuators N. Nestle, A. Šandor, B. Bruchmann, T. Speck, F. Gallenmüller, S. Poppinga, Proceedings of the Bruker Micro-CT User Meeting 2018, 49-55.
24. Biomechanics and functional morphology of plants – inspiration for biomimetic materials and structures, T. Speck, G. Bauer, T. Masselter, S. Poppinga, S. Schmier, M. Thielen, O. Speck, in: A. Geitmann, J. Gril (eds.), Plant Biomechanics. Springer International Publishing AG (2018), 399-422.
25. Kinematical, structural and mechanical adaptations to desiccation in poikilohydric *Ramonda myconi* (Gesneriaceae), T. Kampowski, S. Demandt, S. Poppinga, T. Speck, *Frontiers in Plant Science* 2018, 9, 1701.
26. Spore liberation in mosses revisited, F. Gallenmüller, M. Langer, S. Poppinga, H.-H. Kassemeyer, T. Speck, *AoB PLANTS* 2018, 10: plx075.
27. Semi-crystalline non-isocyanate polyhydroxyurethanes as thermoplastics and thermoplastic elastomers and their use in 3D printing by Fused Filament Fabrication, V. Schimpf, J.B. Max, B. Stolz, B. Heck, R. Muelhaupt, *Macromolecules* 2019, 52, 1, 320-331.
28. Polyfunctional Acrylic Non-Isocyanate Hydroxyurethanes as Photo-curable Thermosets for 3D Printing, V. Schimpf, A. Asmacher, A. Fuchs, B. Bruchmann, R. Muelhaupt, *Macromolecules* 2019, 52, 9, 3288-3297.
29. Adaptive Biomimetic Actuator Systems Reacting to Various Stimuli by and Combining Two Biological Snap-Trap Mechanics, F. Esser, F.D. Scherag, S. Poppinga, A. Westermeier, M.D. Mylo, T. Kampowski, G. Bold, J. Rühle, T. Speck, in U. Martinez-Hernandez et al. (Eds.): *Living Machines* 2019, LNAI 11556, pp. 114–121, 2019, Springer Nature Switzerland AG 2019.
30. Photochemical Transformation of Poly(butylene adipate-coterephthalate) and its Effects on Enzymatic Hydrolyzability, G. X. De Hoe, M. T. Zumstein, G. J. Getzinger, I. Rügsegger, H.-P. E. Kohler, M. A. Maurer-Jones, M. Sander, M. A. Hillmyer, K. McNeill, *Environ. Sci. Technol.* 2019, 53, 2472–2481
31. Resolving form-structure-function relationships in plants with MRI for biomimetic transfer *Integrative and Comparative Biology*, L. Hesse, J. Leupold, S. Poppinga, M. Wick, K. Strobel, T. Speck, T. Masselter, *Integrative and Comparative Biology*, icz051, <https://doi.org/10.1093/icb/icz051>
32. A seed flying like a bullet: Ballistic seed dispersal in Chinese witch hazel (*Hamamelis mollis* OLIV., Hamamelidaceae), S. Poppinga, A.-S. Böse, R. Seidel, L. Hesse, J. Leupold, S. Caliaro, T. Speck, *J. R. Soc. Interface* 20190327
33. Prey capture analyses in the carnivorous aquatic waterwheel plant (*Aldrovanda vesiculosa* L., Droseraceae), S. Poppinga, J. Smajj, A.S. Westermeier, M. Horstmann, S. Kruppert, R. Tollrian, T. Speck (2019) *Scientific Reports* 2019, 9, 18590, doi: 10.1038/s41598-019-54857-w

34. 4D Pine Scale: Biomimetic 4D Printed Autonomous Scale and Flap Structures Capable of Multi-Phase Movement, D. Correa, S. Poppinga, M. D. Mylo, A. S. Westermeier, B. Bruchmann, A. Menges, T. Speck, in *Bioinspired Materials and Surfaces for Green Science and Technology III*, ed. by B. Bhushan, *Phil. Trans. R. Soc. A*, 2020, 378: 20190445.
35. Plant movements as concept generators for the development of biomimetic compliant mechanisms, S. Poppinga, D. Correa, B. Bruchmann, A. Menges, T. Speck, *Integrative and Comparative Biology* 2020, 60, 886-895
36. Mechanical ecology - Taking biomechanics to the field, U. Bauer, S. Poppinga, U. K. Müller, *Integrative and Comparative Biology* 2020, 60: 820–828.
37. Composition and size controlled I-V-VI semiconductor nanocrystals, O. Yarema, M. Yarema, A. Moser, O. Enger, V. Wood, *Chem. Mater* 2020, 32, 5, 2078–2085
38. Snapping mechanics of the Venus flytrap (*Dionaea muscipula*), R. Sachse, A. Westermeier, M. Mylo, J. Nadasdi, M. Bischoff, T. Speck, S. Poppinga, *Proc. Nat. Acad. Sci. USA*, 2020 117 (27) 16035-16042
39. Functional-morphological analyses of the delicate snap-traps of the aquatic carnivorous waterwheel plant (*Aldrovanda vesiculosa*) with 2D and 3D imaging techniques, A. S. Westermeier, N. Hiss, T. Speck, S. Poppinga, *Annals of Botany* 2020, 126: 1099–1107.
40. Low-viscosity limonene dimethacrylate as a bio-based alternative to bisphenol A-based acrylic monomers for photo-curable thermosets and 3D printing, V. Schimpf, A. Asmacher, A. Fuchs, K. Stoll, B. Bruchmann, R. Mülhaupt, *Macromol. Mater. Eng.* 2020, 202000210
41. Polyhydroxymethylenes as multifunctional high molecular weight sugar alcohols tailored for 3D printing and medical applications, B. Stolz, F. Moenkemeyer, M. Mader, S. Schmidt, L. Volk, T. Steinberg, B. Bruchmann, R. Mülhaupt, *Macromol. Chem. Phys.* 2020, 221 (15), 2020132
42. Quantification of Synthetic Polyesters from Biodegradable Mulch Films in Soils, T. F. Nelson, S. C. Remke, H.-P. E. Kohler, K. McNeill, M. Sander, *Environ. Sci. Technol.* 2020, 54, 266–275.
43. Functionalized Acrylic Polyhydroxy Urethanes as Molecular Toolbox for Photocurable Thermosets and 3D Printing, H. Buchheit, B. Bruchmann, K. Stoll, R. Mülhaupt, *J. Polym. Sci.* 2021, 59, 882–892, DOI: 10.1002/pol.20210115
44. Snapshot prey spectrum analysis of the phylogenetically early-diverging carnivorous *Utricularia multifida* from U. section *Polypompholyx* (*Lentibulariaceae*), M. Horstmann, A. Fleischmann, R. Tollrian, S. Poppinga, *PLoS ONE*, 2021, 16: e0249976. DOI:10.1371/journal.pone.0249976

45. Small Molecule Investigation of Diels-Alder Complexes for Thermoreversible Crosslinking in Polymeric Applications, J. Rowlett, P. Deglmann, J. Sprafke, N. Roy, R. Muelhaupt, B. Bruchmann, *J. Org. Chem.* 2021, 86, 13, 8933 – 8944.
46. Programming sequential motion steps in 4d-printed hygromorphs by architected mesostructure and differential hygro-responsiveness, Y. Tahouni, F. Krüger, S. Poppinga, D. Wood, M. Pfaff, J. Rühle, T. Speck, A. Menges, *Bioinspir. Biomim.* 2021, 16, 055002
47. Facing the green threat: a waterflea's defenses against a carnivorous plant, S. Kruppert, M. Horstmann, L. C. Weiss, F. Barmaeva, N. Kubitzka, S. Poppinga, A. S. Westermeier, T. Speck, T. Tollrian (2021), <https://doi.org/10.1101/2021.10.19.464940>
48. Bio-inspired life-like motile materials systems: changing the boundaries between living and technical systems in the Anthropocene. T. Speck, S. Poppinga, O. Speck, F. Tauber, *The Anthropocene Review*, <https://doi.org/10.1177/20530196211039275>
49. Complexity and diversity of motion amplification and control strategies in motile carnivorous plant traps, U. Bauer, U. Müller, S. Poppinga, *Proc. R. Soc. B.* 288, 20210771.
50. Bio-inspired motion mechanisms: computational design and material programming of 4D-printed wearable systems, T. Cheng, M. Thielen, S. Poppinga, Y. Tahouni, D. Wood, T. Steinberg, A. Menges, T. Speck, *Adv. Sci.* 2021, 2100411.
51. Self-actuated paper and wood models: low-cost handcrafted biomimetic compliant systems for research and teaching, S. Poppinga, P. Schenck, O. Speck, T. Speck, B. Bruchmann, T. Masselter, *Biomimetics* 2021, 6, 42.
52. Hairy surfaces by cold drawing leading to dense lawns of high aspect ratio hairs, S. Müllers, Mara Florea-Hüring, Bernhard von Vacano, Bernd Bruchmann, Jürgen Rühle, *Sci. Reports*, 2022, 12:9952
53. The Structural and Mechanical Basis for Passive-Hydraulic Pine Cone Actuation, C. J. Eger, M. Horstmann, S. Poppinga, R. Sachse, R. Thierer, N. Nestle, B. Bruchmann, T. Speck, M. Bischoff, J. Rühle, *Adv. Sci.* 2022, 9, 2200458
54. Transient self-assembly of metal–organic complexes, J.-F. Ayme, B. Bruchmann, L. Karmazin, N. Kyritsakas, *Chem. Sci.*, 2023, 14, 1244
55. Facile preparation of biodegradable poly(γ -butyrolactone) via base-assisted ring-opening polymerization, A. Falconnet, M. Nicolas, T. Vollgraff, R. Konradi, B. Bruchmann, D. Rodewald, A. S. K. Hashmi, T. Schaub, *Green Chem.* 2023

56. Quaternary ammonium-based coating of textiles is effective against bacteria and viruses with a low risk to human health, P. Meier, P. Clement, S. Altenried, G. Reina, Q. Ren, R. Züst, O. Enger, F. Choi, N. Nestle, T. Deisenroth, P. Neubauer., P. Wick *Sci. Rep.* 2023, 13, 20556
57. Molecular Structure and Conformation of Biodegradable Water-Soluble Polymers Control Adsorption and Transport in Model Soil Mineral Systems, K. Kleemann, P. Bolduan, G. Battagliarin, I. Christl, K. McNeill, M. Sander, *Environ. Sci. Technol.*, 2024, 58, 1274
58. Beyond technical trade-offs: How the value chain impacts the deployment of mechanical and chemical recycling in the European automotive plastic sector, A. Arca, D. Reike, C. R. Bening, *J. Cleaner Production*, 2025, 489, 144616
59. Valorization of a halogenated flame retardant: Pathways for the reductive transformation of hexabromocyclododecane (HBCDD), M. Gauthier-Jaques, M. Schütte, J. H. Teles, P. Rudolf, B. Bruchmann, R. Konradi, *Results in Chemistry*, 2025, 15, 102253
60. Toward understanding the fast latex coagulation in *Campanula* spp. (Campanulaceae), M. H. M. Wermelink, M. L. Becker, R. Konradi, C. Taranta, M. Ranft, S. Nord, J. Rühle, T. Speck, S. Kruppert, *Integrative Organismal Biology*, 2025, 7 (1), obaf020