

Veröffentlichungen Dr.-Ing. Sebastian Schmeer

Stand: Januar 2024

Bücher

1. B. Hannemann, U. P. Breuer, S. Schmeer, S. Backe, F. Balle, *Metal and carbon united: Electrical function integration*, In: U. P. Breuer, (ed.): *Commercial aircraft composite technology. 1st edition*, Springer International Publishing, 2016, 220-234.
2. K. Friedrich, U. P. Breuer, S. Schmeer, *Multifunctionality of Polymer Composites: Challenges and New Solutions*, Elsevier Inc., June 2015
3. S. Schmeer, M. Maier, K. Schweizerhof, et al: *Aktueller Stand und Trends in der CFK-Berechnung im Fahrzeugbau*, FAT-Schriftenreihe, Band 217, 2008

Fachzeitschriften

1. C. Andriß, A. Kenf, S. Schmeer, "Experimental characterization and phenomenological modeling of nonlinear viscoelasticity, plasticity and damage of continuous carbon fiber-reinforced thermoplastics", *Composites Part B: Engineering*, vol. 256, 110734, ISSN 1359-8368, 2023, DOI: <https://doi.org/10.1016/j.compositesb.2023.110734>
2. S. Arweiler-Böllert, M. Liesegang, T. Beck, J. Jungbluth, S. Schmeer, „Relation Between Interface Geometry and Tensile Shear Strength of Ultrasonically Welded Joints, *Journal of Materials Engineering and Performance*, vol. 32, pages 10469-10485, 2023, DOI: <https://doi.org/10.1007/s11665-023-08325-2>
3. C. Andriß, A. Kenf, T. Donhauser and S. Schmeer, "Characterization and modeling of continuous carbon fiber-reinforced polycarbonate under multiaxial loads," *Composites Part B: Engineering*, vol. 235, p. 109740, 2022, doi: 10.1016/j.compositesb.2022.109740
4. P. Bauer, N. Motsch-Eichmann, S. Schmeer, K. Mehl, I. Müller, and J. Hausmann, "Hybrid Thermoset-Thermoplastic Structures: An in-depth study on plasma pretreated continuous fiber-reinforced epoxy specimens," *Composites Part C: Open Access*, vol. 8, p. 100281, 2022, doi: 10.1016/j.jcomc.2022.100281
5. J. Rehra, S. Schmeer, U. Breuer, B. Khatri and F. Balle, "Metal/Carbon-Fiber Hybrid Composites—Damage Evolution and Monitoring of Isothermal Fatigue at Low and Elevated Temperatures," *J. Compos. Sci.*, vol. 6, no. 3, p. 67, 2022, doi: 10.3390/jcs6030067
6. J. Rehra, C. Andriß, S. Schmeer, and U. P. Breuer, "Describing the Material Behavior of Steel and Carbon Fiber Reinforced Composites Using a Combined Damage-Plasticity Approach," *J. Compos. Sci.*, vol. 6, no. 8, p. 235, 2022, doi: 10.3390/jcs6080235
7. C. Andriß, A. Kenf, T. Donhauser und S. Schmeer, „Characterization and modeling of continuous carbon fiber-reinforced polycarbonate under multiaxial loads“, *Composites Part B: Engineering*, Jg. 235, S. 109740, 2022, doi: 10.1016/j.compositesb.2022.109740
8. B. Khatri, J. Rehra, S. Schmeer, U. Breuer und F. Balle, „Metal/Carbon-Fiber Hybrid Composites—Damage Evolution and Monitoring of Isothermal Fatigue at Low and Elevated Temperatures“, *J. Compos. Sci.*, Jg. 6, Nr. 3, S. 67, 2022, doi: 10.3390/jcs6030067
9. S. Schmeer, U. Breuer, Balle, Frank Khatri, Bilal und J. Rehra, „Metal/Carbon-Fiber Hybrid Composites—Damage Evolution and Monitoring of Isothermal Fatigue at Low

- and Elevated Temperatures“, *J. Compos. Sci.*, Jg. 6, Nr. 3, S. 67, 2022, doi: 10.3390/jcs6030067
10. J.-A. Almazán-Lázaro, E. López-Alba, S. Schmeer und F.-A. Díaz-Garrido, „Enhanced Low-Velocity Impact Properties for Resin Film Infusion-Manufactured Composites by Flow-Control Approach“, *Polymers*, Jg. 13, Nr. 19, S. 3431, 2021, doi: 10.3390/polym13193431
11. T. Donhauser, A. Kenf, S. Schmeer und J. Hausmann, „Calculation of highly stressed components made of carbonfiber-reinforced polyamide-6“, *Composite Structures*, S. 114830, 2021, doi: 10.1016/j.compstruct.2021.114830
12. K. Mehl, S. Schmeer, N. Motsch-Eichmann, P. Bauer, I. Müller und J. Hausmann, „Structural Optimization of Locally Continuous Fiber-Reinforcements for Short Fiber-Reinforced Plastics“, *Journal of Composites Science*, Jg. 5, Nr. 5, S. 118, 2021, doi: 10.3390/jcs5050118
13. F. Mischo, C. Goergen, S. Schmeer, P. Mitschang, “Use of recycled carbon staple fibers in an advanced thermoforming process and analysis of its crash performance“, *Advanced Manufacturing: Polymer & Composites Science*, vol. 6, p. 48-56, 2020, DOI: 10.1080/20550340.2020.1739402
14. A. L. Santos, R. Z. Nakazato, S. Schmeer und E. C. Botelho, „Influence of anodization of aluminum 2024 T3 for application in aluminum/Cf/ epoxy laminate“ (English), *Composites Part B: Engineering*, Jg. 184, 2020, doi: 10.1016/j.compositesb.2019.107718
15. F. Kühn, J. Rehra, D. May, S. Schmeer, P. Mitschang, “Dry fiber placement of carbon/steel fiber hybrid preforms for multifunctional composites”, *Advanced Manufacturing: Polymer & Composites Science*, March 2019, <https://doi.org/10.1080/20550340.2019.1585027>
16. S. Backe, F. Balle, B. Hannemann, S. Schmeer, U. P. Breuer, “Fatigue properties of multifunctional metal- and carbon fibre-reinforced polymers and intrinsic capabilities for damage monitoring”, *Fatigue Fract Eng Mater Struct.* 2019; 42:143–151.
17. E. López-Alba, S. Schmeer, F. Díaz, “Energy Absorption Capacity in Natural Fiber Reinforcement Composites Structures”, *Materials*, 11, 418; 2018, doi:10.3390/ma11030418
18. B. Hannemann, S. Schmeer, U. P. Breuer, „Entwicklung multifunktionaler Faser-Hybrid-Werkstoffe für Rumpfanwendungen in der Luftfahrt“, *Carbon Composites Magazin*, 2, 2017, 41-42.
19. L. Utzig, C. Karch, J. Rehra, B. Hannemann, S. Schmeer, “Modelling and simulation of effective strength of hybrid polymer composites reinforced by carbon and steel fibres”, *Journal of Materials Science*, 2017
20. L. Felipe-Sesé, E. López-Alba, B. Hannemann, S. Schmeer, F. A. Diaz, F. A.: “A validation approach for quasistatic numerical/experimental indentation analysis in soft materials using 3D digital image correlation”, *Materials*, 2017, 10 (7), 1-15.
21. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, J. Schuster, J., “Hybridisation of CFRP by use of continuous metal fibres (MCFRP) for damage tolerant and electrically conductive lightweight structures”, *Composite Structures*, 2017, 172, 374-382.
22. J. Netz, B. Hannemann, S. Schmeer, “Micro-leveled modeling of structural stitched FRP joints as energy absorbing rupture points”, *Composite Structures*, 2016, 157, 131-140.
23. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, “Metal fibre incorporation in CFRP for improved electrical conductivity”, *Materials Science and Engineering Technology*, 2016, 47 (11), 1015-1023.

24. Metal Fibre Reinforced Composite – Potentialities and Tasks. *Advanced Composites Letters*, Vol. 18, Iss. 2, 2009
<https://journals.sagepub.com/doi/pdf/10.1177/096369350901800202>
25. S. Schmeer, M. Steeg, M. Maier, P. Mitschang, "Metal fiber reinforced composite – potentialities and tasks", *Advanced composite letters*. Vol. 18, Iss. 2, 2009
26. S. Heimbs, S. Schmeer, P. Middendorf, M. Maier, "Strain rate effects in phenolic composites and phenolic-impregnated honeycomb structures", *Composite Science and technology*, Vol. 67, S. 2827-2837, 2007

Fachkonferenzen

1. C. Andriß, A. Kenf, S. Schmeer, "An integral method for the efficient characterization and modelling of the nonlinear, rate dependent behavior of continuous fiber-reinforced thermoplastics", IVW Colloquium, 14.-15.09.2023, Kaiserslautern
2. P. Bauer, K. Mehl, N. Motsch Eichmann, S. Schmeer, S. Mueller, J. Hausmann, "A novel hybrid thermoset-thermoplastic robot-based production concept for lightweight structural parts: A special view on the hybrid interface" ECCM20, 20th European Conference on Composite Materials, 26.-30. Juni 2022
3. K. Mehl, S. Schmeer, J. Hausmann, "Structural optimization of locally continuous fiber-reinforcements for short fiber-reinforced plastics", Hybrid Materials and Structures 2020, 28.-29. April 2020, DGM-Inventum GmbH, Sankt Augustin
4. S. Schmeer, D. Scheliga, F. Mischo, "Strukturelle Integrität von metallfaserverstärkten Faserkunststoffverbunden", CU-Arbeitskreis „Strukturelle Integrität, 6. November 2019, Lindau
5. J. Rehra, B. Hannemann, S. Schmeer, S. Schmidt, "Ansatz zur Beschreibung des Versagensverhaltens von stahlfaserverstärktem CFK", Werkstoffwoche 2019, 18.-20. September 2019, Dresden
6. S. Schmeer, D. Scheliga, F. Mischo, "A New Approach in Tensile Testing of Continuous Fiber Reinforced Thermoplastics", Plenary meeting ISO/TC 61, 22.9.-27.9.2018, Omiya Japan
7. B. Hannemann, J. Rehra, S. Schmeer, U. P. Breuer, " Approach for the analytical description of the post-damage behavior of steel and carbon fiber reinforced hybrid composites", 18th European Conference on Composite Materials (ECCM 18), 24.-28. Juni 2018, Athens, Greece
8. K. Strohrmann, S. Schmeer, G. Fortin, H. Hamada, M. Hajek,, "Crashworthiness Characteristics of Carbon-Flax Composite Tubes for Aerospace Applications", 18th European Conference on Composite Materials (ECCM 18), 24.-28. Juni 2018, Athens, Greece
9. S. Schmeer, D. Scheliga, F. Mischo, "A New Approach in Tensile Testing of Continuous Fiber Reinforced Thermoplastics (cFRTP) for Enabling Broader Material Application in Industrial Sector", Plenary meeting ISO/TC 61, 18.9.-23.9.2017, Daejeon Korea
10. J. Rehra, S. Schmeer, „Funktionsintegration mittels metallischen Endlosfasern - Beschreibung des Materialverhaltens“, Deutsche Gesellschaft für Materialkunde, Fachausschusssitzung "Hybride Werkstoffe und Strukturen", Clausthal-Zellerfeld, 15.-16.05.2017
11. S. Schmeer, D. Scheliga, F. Mischo, „Standardisierungsinitiative zur Charakterisierung von endlos-faserverstärkten Thermoplasten sowie zur Kennwertgenerierung für die Simulation. Kunststoffe und Simulation“, 4.-5.4.2017

12. C. Bauer, B. Hannemann, E. Glatt, S. Schmeer, "Micromechanical simulation of a multifunctional hybrid composite with continuous steel and carbon fibre reinforcement", *17th Automotive Composites Conference and Exhibition*, 6.-8.09.2017, Detroit, USA
13. J. Hausmann, B. Hannemann, S. Schmeer, U. P. Breuer, "Electrically conductive and damage tolerant fibre-hybrid-composite developed as skin material in aeronautics", *European Congress and Exhibition on Advanced Materials and Processes*, 17.-22.09.2017, Thessaloniki, Griechenland
14. S. Schmeer, D. Scheliga, F. Mischo, „Industriegetriebene Initiative zur Standardisierung endlosfaserverstärkter Thermoplaste für den Einsatz in der Automobilindustrie“, *Kunststoffe im Nutzfahrzeugbau. 3. VDI Fachkonferenz*, 29.-30.3.2017, Mannheim
15. S. Backe, B. Hannemann, F. Balle, S. Schmeer, U. P. Breuer, "Fatigue behavior of multifunctional CFRP laminates and intrinsic capabilities for damage monitoring", *21st International Conference on Composite Materials (ICCM-21)*, 20.-25. August 2017, Xi'an, China
16. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, "Intrinsic hybridisation of CFRP by incorporation of endless metal fibres for damage tolerant and highly conductive lightweight structures", *25th International Conference on Processing and Fabrication of Advanced Materials*, 22.-25.01.2017, , Auckland, Neu Seeland
17. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, "Hybridisation of CFRP with continuous metal fibres for damage tolerant and highly conductive lightweight structures", *21st International Conference on Composite Materials*, Xi'an, 20.-25.08.2017, Xi'an, China
18. Backe, S.; B. Hannemann, F. Balle, S. Schmeer, U. P. Breuer, "Fatigue behaviour of multifunctional CFRP laminates and intrinsic capabilities for damage monitoring", *21st International Conference on Composite Materials*, 20.-25.08.2017, Xian, China
19. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, "Intrinsic hybridisation of CFRP by in-corporation of endless metal fibres for damage tolerant and highly conductive leightweight structures", *PFAMXXV – 25th International Conference on Processing and Fabrication of Advanced Materials*, 22.-25. Januar 2017, Auckland, Neuseeland
20. U. P. Breuer, B. Hannemann, S. Schmeer, F. Balle, S. Backe, „Metall und Carbon - Ein neuer Multifunktionswerkstoff für Primärstrukturen entsteht“, *Deutscher Luft- und Raumfahrtkongress*, 13.-15. September 2016, Braunschweig
21. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, "Improved mechanical and electrical properties of CFRP multiaxial laminates by embedded metal fibres", *17th European Conference on Composite Materials*, 26.-30. Juni 2016, München
22. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, "Multifunctional metal-carbon-fibre composites for damage tolerant and highly conductive lightweight structures", *2nd International Conference Euro Hybrid Materials and Structures*, 20.-21. April 2016, Kaiserslautern
23. B. Hannemann, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, "New multifunctional hybrid polymer composites reinforced by carbon and steel fibres", *20th International Conference on Composite Materials*, 19.-24. Juli 2015; Kopenhagen, Dänemark.
24. Schmeer, S.; B. Hannemann, U. P. Breuer, S. Backe, F. Balle, "Steel fiber reinforced CFRP - Challenges and potentials of a new hybrid material", *25 Jahre IVW Kolloquium*, 11.-12. Juni 2015, Kaiserslautern

25. U. P. Breuer, S. Schmeer, B. Hannemann, "New multifunctional composites for airframe structures - Carbon and metal united", *7th Asia-Europe Symposium on Processing and Properties of Reinforced Polymers*, 4.- 6. Februar 2015, Madrid, Spanien
26. B. Hannemann, S. Schmeer, F. Balle, G. Wagner, M. Maier, D. Eifler, "Experimental and computational analysis of ultrasonically multi-spot welded hybrid Al/CFRP-structures on component level", *The Minerals, Metals and Materials Society: 142th Annual Meeting and Exhibition*, 3.-7. März 2013, San Antonio, USA
27. U. P. Breuer, S. Schmeer, U. Eberth, "Carbon and Metal Fibre Reinforced Airframe Structures – A New Approach to Composite Multifunctionality", *Deutscher Luft- und Raumfahrtkongress 2013*, 10.-12. September 2013, Stuttgart

Weitere Veröffentlichungen

1. D. May, S. Schmeer, „In-plane Permeability Characterization of Engineering Textiles“, *DIN Arbeitskreis Faserverstärkte Kunststoffe und härtbare Harze*, Ulm, 22.-23.5.2017
2. S. Schmeer, D. Scheliga, F. Mischo, „Charakterisierung von endlosfaserverstärkten Thermoplasten und deren Standardisierung für die Automobilindustrie – Statusbericht nach 3 Jahren Projektlaufzeit“, *CCeV-Arbeitsgruppe „Normen und Standards“*, 23. November 2018, Augsburg
3. S. Schmeer, D. Scheliga, F. Mischo, „An optimized tensile test geometry for continuous fiber reinforced thermoplastic (cFRTTP) material“, *DIN Arbeitskreis „Faserverstärkte Kunststoffe und härtbare Harze“*, 16.-17. Mai 2017, Berlin
4. B. Hannemann, J. Rehra, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, „Experimentelle Untersuchungen zur Schadenstoleranz von multiaxial metallfaserverstärktem CFK“, *Deutsche Gesellschaft für Materialkunde, Fachausschusssitzung “Hybride Werkstoffe und Strukturen”*, 29. September 2016, Darmstadt
5. B. Hannemann, J. Rehra, S. Backe, S. Schmeer, F. Balle, U. P. Breuer, „Verbesserung der mechanischen und elektrischen Eigenschaften von CFK durch zusätzliche Stahlfaserverstärkung“, *Carbon Composites e.V., Thementag „Funktionsintegration in der Praxis“*, 27. September 2016, Leipzig
6. S. Backe, B. Hannemann, F. Balle, S. Schmeer, U. P. Breuer, „Multifunctionality by embedded steel fibers for improved aircraft composites“, *Young Researchers Symposium 2016*, 14.-15. April 2016, Kaiserslautern
7. S. Backe, F. Balle, B. Hannemann, S. Schmeer, U. P. Breuer, „Elektrische und mechanische Eigenschaften von UD-Laminaten mit Metall- und C-Faserverstärkung“, *Deutsche Gesellschaft für Materialkunde, Fachausschusssitzung “Hybride Werkstoffe und Strukturen”*, 02. Dezember 2015, Braunschweig
8. S. Backe, F. Balle, D. Eifler, B. Hannemann, S. Schmeer, U. P. Breuer, „Multifunktionale Metall-C-Faser-Kunststoff-Verbunde (MCFK): Konzepte und Potentiale“, *Deutsche Gesellschaft für Materialkunde, Fachausschusssitzung “Hybride Werkstoffe und Strukturen”*, 23. Oktober 2014, Attendorn
9. M. Hübner, S. Nissle, M. Gurka, S. Schmeer, U. P. Breuer, "Smart Crash Management by Switching the Crash Behavior of Fiber Reinforced Plastic (FRP) Energy Absorbers with Shape Memory Alloy (SMA) Wires", *Proceedings, ASME 2013 Conference on Smart Materials, Adaptive Structures and Intelligence Systems SMASIS 2013*, 16.-18. September 2013, Snowbird, Utah, USA

10. S. Schmeer, N. Voll, B. Hannemann, U. P. Breuer, "New Composite Hybrid Structures for Advanced Multifunctionality", *IVW Kolloquium*, 6.-7. November 2012, Kaiserslautern
11. M. Gurka, M. Hübner, S. Schmeer, U. P. Breuer, "Load-initiated tow-way effect of shape memory alloys in composite structures and a phenomenological modelling approach", *Proceedings, ASME 2012 Conference on Smart Materials, Adaptive Structures and Intelligent Systems SMASIS 2012*, 19.-21. September 2012, Stone Mountain, Georgia, USA
12. M. Gurka, M. Hübner, S. Schmeer, U. P. Breuer, "Switchable Fiber Reinforced Structures – from Smart Materials to Components", *15th European Conference on Composite Materials (ECCM 15)*, 24.-28. Juni 2012, Venedig, Italien
13. M. Gurka, M. Hübner, S. Schmeer, U. P. Breuer, "Shape Memory Alloys as Actuating Elements in Fiber Reinforced Structures – from Smart Materials to Components" *ACTUATOR 12 International Conference and Exhibition on New Actuators and Drive Systems*, 18.-20. Juni 2012, Bremen
14. B. Hannemann, S. Schmeer, M. Maier, „Potentialstudie zu metallfaserverstärktem CFK mittels analytischen und numerischen Methoden“, *PfalzMetall-Tag*, 14.06.2012, Neustadt a. d. W.