

Employment

Dipl.-Ing. Dr.mont. Florian Arbeiter

Chair of Materials Science and Testing of Polymers (210)

Phone: 2122



Research interests

Polymeric pipe materials

Multi-layer structures

Applied fracture mechanics

Mechanical high-speed testing

Additive Manufacturing

Journal articles

1. Arbeiter, FJ, Gosch, A, Vojtek, T, Pinter, G, Hutař, P & Berer, M 2025, 'Mixed mode I/III fatigue behaviour of Polyetheretherketone', *Engineering Fracture Mechanics*, vol. 320.2025, no. 13 May, 111057. <https://doi.org/10.1016/j.engfracmech.2025.111057>
2. Arbeiter, F, Schachinger, T, Wenighofer, R, Rieß, G, Steiner, M, Micic Batka, V, Griebaum, M, Laufer, V & Galler, R 2023, 'Maßgeschneiderte Sanierungsverfahren für die Tunnelentwässerung - "DrainRepair": Teil 2: Ergebnisbericht', *Berg- und hüttenmännische Monatshefte : BHM*, vol. 168.2023, no. 12, pp. 566-571. <https://doi.org/10.1007/s00501-023-01406-8>
3. Arbeiter, F, Schachinger, T, Wenighofer, R, Rieß, G, Steiner, M, Schoen, A, Griebaum, M, Laufer, V & Galler, R 2021, 'Maßgeschneiderte Sanierungsverfahren für die Tunnelentwässerung – DrainRepair', *Berg- und hüttenmännische Monatshefte : BHM*, vol. 166.2021, no. 12, pp. 583-588. <https://doi.org/10.1007/s00501-021-01173-4>
4. Arbeiter, F, Trávníček, L, Petersmann, S, Dlhý, P, Spoerk, M, Pinter, G & Hutař, P 2020, 'Damage tolerance-based methodology for fatigue lifetime estimation of a structural component produced by material extrusion-based additive manufacturing', *Additive Manufacturing*, vol. 36, 101730. <https://doi.org/10.1016/j.addma.2020.101730>
5. Arbeiter, F, Eichinger, S, Rieß, G, Schachinger, T, Boch, R, Wenighofer, R, Galler, R, Hausberger, A, Strobl, E, Stur, M, Saliger, F, Steiner, M, Dietzel, M & Pinter, G 2020, 'Optimierte Polymer-Rohrwerkstoffe für effiziente Drainagesysteme in Tunnelbauwerken—PolyDrain Teil II', *Berg- und hüttenmännische Monatshefte : BHM*, vol. 165.2020, no. 11, pp. 623-630. <https://doi.org/10.1007/s00501-020-01045-3>
6. Arbeiter, F, Petersmann, S, Wiener, J, Oesterreicher, F, Spörk, M & Pinter, GG 2020, 'Using Compliant Interlayers as Crack Arresters in 3-D-Printed Polymeric Structures', *Materials Performance and Characterization*, vol. 9, no. 5. <https://doi.org/doi:10.1520/MPC20190201>
7. Arbeiter, F, Eichinger, S, Rieß, G, Schachinger, T, Boch, R, Wenighofer, R, Galler, R, Hausberger, A, Strobl, E, Stur, M, Saliger, F, Steiner, M, Dietzel, M & Pinter, GG 2019, 'Optimierte Polymer-Rohrwerkstoffe für effiziente Drainagesysteme in Tunnelbauwerken - PolyDrain', *Berg- und hüttenmännische Monatshefte : BHM*, vol. 164.2019, no. 12, pp. 545-551. <https://doi.org/10.1007/s00501-019-00918-6>
8. Arbeiter, F, Spoerk, M, Wiener, J, Gosch, A & Pinter, G 2018, 'Fracture mechanical characterization and lifetime estimation of near-homogeneous components produced by fused filament fabrication', *Polymer Testing*, vol. 66.2018, no. April, pp. 105-113. <https://doi.org/10.1016/j.polymertesting.2018.01.002>
9. Arbeiter, F, Frank, A & Pinter, GG 2016, 'Influence of molecular structure and reinforcement on fatigue behavior of tough polypropylene materials', *Journal of Applied Polymer Science*, vol. 133.2016, no. 38, 43948. <https://doi.org/10.1002/app.43948>
10. Arbeiter, F, Schrittmesser, B, Frank, A, Berer, M & Pinter, G 2015, 'Cyclic tests on cracked round bars as a quick tool to assess the long term behaviour of thermoplastics and elastomers', *Polymer Testing*, vol. 45, 4441, pp. 83-92. <https://doi.org/10.1016/j.polymertesting.2015.05.008>
11. Arbeiter, F, Pinter, G & Frank, A 2014, 'Characterisation of quasi-brittle fatigue crack growth in pipe grade polypropylene block copolymer', *Polymer Testing*, vol. 37, pp. 186-192. <https://doi.org/10.1016/j.polymertesting.2014.05.016>
12. Arbeiter, F, Pinter, G, Redhead, A & Frank, A 2012, 'Kunststofftechnik Leoben: Rohrexpertise in Spanien Präsentiert', *VLK-News*, pp. 18-18.

Activities

1. **Department of Materials Science and Engineering, Ghent University**
Arbeiter, F. (Visiting researcher)
15 Oct 2019 → 17 Oct 2019
2. **Institute of Physics of Materials of the Academy of Sciences of the Czech Republic**
Arbeiter, F. (Visiting researcher)
16 Feb 2017
3. **Institute of Physics of Materials of the Academy of Sciences of the Czech Republic**
Arbeiter, F. (Visiting researcher)
4 Mar 2019 → 22 Mar 2019
4. **Institute of Physics of Materials of the Academy of Sciences of the Czech Republic**
Arbeiter, F. (Visiting researcher)
13 Jan 2015
5. **Institute of Physics of Materials of the Academy of Sciences of the Czech Republic**
Arbeiter, F. (Visiting researcher), Maurer, C. (Visiting researcher), Zach, D. (Visiting researcher) & Huszar, M. (Visiting researcher)
18 Mar 2025 → 19 Mar 2025
6. **Università degli Studi di Brescia**
Arbeiter, F. (Visiting researcher)
8 Mar 2018 → 9 Mar 2018
7. **17-4PH Steel Parts Produced via Material Extrusion Additive Manufacturing, Debinding and Sintering**
Holzer, C. (Speaker), Gonzales-Gutierrez, J. (contributor), Kukla, C. (contributor), Arbeiter, F. (contributor) & Schlauf, T. (contributor)
18 Sept 2019
8. **Analyzing and Predicting Failure Modes in Mono- and Multi-Material Extrusion-based Additive Manufactured Structures**
Waly, C. (Speaker), Schulnig, S. (contributor) & Arbeiter, F. (contributor)
21 Nov 2024 → 22 Nov 2024
9. **Deformation and fracture of lithomers - a novel class of polymeric multilayer composite materials**
Waly, C. (Speaker), Höller, R. (contributor), Pletz, M. (contributor), Griesser, T. (contributor) & Arbeiter, F. (contributor)
24 Mar 2024 → 28 Mar 2024
10. **Exploring the Interplay Between Process, Structure, and Resulting Properties in Polymeric Multi-material Composites Inspired by Lithomimetics Principle**
Waly, C. (Speaker) & Arbeiter, F. (contributor)
19 May 2024 → 23 May 2024
11. **Grabungsfreie Rohrsanierungstechnologien und deren Einsetzbarkeit für Tunnel drainagen**
Griebaum, M. (contributor) & Arbeiter, F. (Speaker)
6 Jul 2022 → 8 Jul 2022
12. **17th International Conference on Deformation, Yield and Fracture of Polymers**
Arbeiter, F. (Invited speaker)
27 Mar 2018
13. **An Investigation on the Effects of Post-industrial Glass Fiber Flakes on the Properties of Recycled Polypolyene**
Raguz, I. (Speaker), Shahroodi, Z. (contributor), Krempf, N. (contributor), Arbeiter, F. (contributor), Friesenbichler, W. (contributor) & Holzer, C. (contributor)
23 May 2024
14. **EXPERIMENTAL INVESTIGATION INTO THE FRACTURE BEHAVIOR OF LAYERED POLYMERS**
Arbeiter, F. (Invited speaker), Waly, C. (contributor), Wiener, J. (contributor) & Pletz, M. (contributor)
3 Jul 2024
15. **Fracture of layered polymers**
Arbeiter, F. (Speaker)
1 Sept 2021
16. **Influence of crosslinker and water on mechanical properties of carboxylated nitrile butadiene rubber (XNBR)**
Fleischmann, D. D. (Speaker), Arbeiter, F. (contributor), Kern, W. (contributor) & Schlögl, S. (contributor)
23 Apr 2018 → 25 Apr 2018
17. **Methodische und werkstoffliche Besonderheiten bei der Bruchsicherheitsbewertung und Lebensdauerabschätzung von Polymerwerkstoffen mittels zyklischer mechanischer Beanspruchung**
Arbeiter, F. (Invited speaker), Frank, A. (contributor), Schrittmesser, B. (contributor), Berer, M. (contributor), Hutař, P. (contributor) & Pinter, G. G. (contributor)
28 Mar 2019

18. **29th Colloquium on Fatigue Mechanisms**
Arbeiter, F. (Participant)
21 Mar 2019 → 22 Mar 2019
19. **8. Internationale Tagung Kunststoffe im Anlagenbau**
Arbeiter, F. (Invited speaker)
10 Oct 2023 → 11 Oct 2023
20. **A cracking approach to inventing tough new materials: fracture stranger than friction**
Arbeiter, F. (Participant)
20 Sept 2021 → 21 Sept 2021
21. **ERFA Wasserstoffleitungen**
Arbeiter, F. (Invited speaker)
9 Oct 2025
22. **International Symposium on Smart Materials**
Arbeiter, F. (Speaker)
14 Jun 2023 → 15 Jun 2023
23. **PSM Vortragsveranstaltung: Lebensdauerabschätzung von Polymerwerkstoffen**
Arbeiter, F. (Invited speaker)
28 Mar 2019
24. **16th International Conference on Deformation, Yield and Fracture of Polymers**
Arbeiter, F. (Speaker)
29 Mar 2015 → 2 Apr 2015
25. **17th International Conference on Deformation, Yield and Fracture of Polymers**
Arbeiter, F. (Speaker)
25 Mar 2018 → 29 Mar 2018
26. **18th European Congress and Exhibition on Advanced Materials and Processes - EUROMAT**
Arbeiter, F. (Member of programme committee)
14 Sept 2025 → 18 Sept 2025
27. **18th European Congress and Exhibition on Advanced Materials and Processes - EUROMAT**
Arbeiter, F. (Speaker)
14 Sept 2025 → 18 Sept 2025
28. **18th European Congress and Exhibition on Advanced Materials and Processes - EUROMAT**
Arbeiter, F. (Chair)
14 Sept 2025 → 18 Sept 2025
29. **18th European Mechanics of Materials Conference**
Arbeiter, F. (Speaker) & Wiener, J. (Speaker)
4 Apr 2022 → 6 Apr 2022
30. **18th International Conference on Deformation, Yield and Fracture of Polymers**
Arbeiter, F. (Invited speaker)
13 Apr 2022
31. **19th International ASTM/ESIS Symposium on Fatigue and Fracture Mechanics**
Arbeiter, F. (Speaker)
15 May 2019 → 17 May 2019
32. **1st Virtual ESIS TC4 Conference on Fracture of Polymers, Composites and Adhesives**
Gosch, A. (Speaker) & Arbeiter, F. (Speaker)
28 Sept 2021 → 29 Sept 2021
33. **1st Virtual European Conference on Fracture - VECF1**
Arbeiter, F. (Speaker)
29 Jun 2020 → 1 Jul 2020
34. **22. Leobener Kunststoff-Kolloquium "Oberflächen und Grenzflächen in der Polymertechnologie"**
Arbeiter, F. (Speaker)
14 Nov 2013 → 15 Nov 2013
35. **27. Leobener Kunststoff-Kolloquium**
Arbeiter, F. (Invited speaker)
19 Apr 2018 → 20 Apr 2018
36. **28. Leobener Kunststoff-Kolloquium 2019**
Arbeiter, F. (Invited speaker)
25 Apr 2019 → 26 Apr 2019
37. **29. Leobener Kunststoff-Kolloquium**
Arbeiter, F. (Participant)
15 Sept 2021 → 16 Sept 2021

38. **32. Leobener Kunststoffkolloquium - 32nd Leoben-Conference on Polymer Engineering and Science 'New Materials – New Perspectives'**
Arbeiter, F. (Member of programme committee)
21 Nov 2024
39. **32. Leobener Kunststoffkolloquium - 32nd Leoben-Conference on Polymer Engineering and Science 'New Materials – New Perspectives'**
Arbeiter, F. (Speaker)
21 Nov 2024
40. **3rd IPPT_TWIN Conference**
Arbeiter, F. (Invited speaker)
4 Jun 2025 → 5 Jun 2025
41. **4a Technology Day 2020**
Arbeiter, F. (Speaker)
3 Mar 2020 → 4 Mar 2020
42. **4th International Conference on Polymer Process Innovation (PPI)**
Arbeiter, F. (Member of programme committee)
18 Sept 2024 → 20 Sept 2024
43. **68. Geomechanik-Kolloquium 2019**
Schachinger, T. (Speaker), Arbeiter, F. (Speaker), Eichinger, S. (Participant) & Saliger, F. (Participant)
10 Oct 2019
44. **7th International Conference on Fracture of Polymers, Composites and Adhesives**
Arbeiter, F. (Speaker)
14 Sept 2014 → 18 Sept 2014
45. **7th International Conference on Fracture of Polymers, Composites and Adhesives**
Arbeiter, F. (Speaker)
17 Sept 2014
46. **8th International Conference on Fracture of Polymers, Composites and Adhesives**
Arbeiter, F. (Participant)
10 Sept 2017 → 14 Sept 2017
47. **9th International Conference on the Fracture of Polymers and Composites**
Arbeiter, F. (Speaker)
24 Mar 2024 → 27 Mar 2024
48. **9th International Conference on the Fracture of Polymers and Composites**
Arbeiter, F. (Chair)
24 Mar 2024 → 27 Mar 2024
49. **Advances in Polymer Science and Technology (APST) 3**
Arbeiter, F. (Speaker)
9 Sept 2013 → 10 Sept 2013
50. **ASPM2013 - Austrian Slovenian Polymer Meeting**
Arbeiter, F. (Speaker)
3 Apr 2013 → 5 Apr 2013
51. **Danube Vitava Sava Polymer Meeting - DVSPM 2017**
Arbeiter, F. (Speaker)
6 Sept 2017
52. **Danube Vitava Sava Polymer Meeting - DVSPM 2017**
Arbeiter, F. (Speaker)
6 Sept 2017
53. **ESIAM21 - Second European Conference on Structural Integrity of Additively Manufactured Materials**
Arbeiter, F. (Speaker)
8 Sept 2021 → 10 Sept 2021
54. **Eurotec 2013**
Arbeiter, F. (Speaker)
4 Jul 2013 → 5 Jul 2013
55. **Fatigue 2014**
Arbeiter, F. (Speaker)
2 Mar 2014 → 7 Mar 2014
56. **Frontiers in polymer science**
Arbeiter, F. (Participant)
20 May 2015 → 22 May 2015

- 57. **Plastic Pipes in Infrastructure**
Arbeiter, F. (Speaker)
19 Apr 2016 → 21 Apr 2016
- 58. **Plastic Pipes XVI**
Arbeiter, F. (Speaker)
24 Sept 2012 → 26 Sept 2012
- 59. **Plastic Pipes XVII**
Arbeiter, F. (Speaker)
22 Sept 2014 → 24 Sept 2014
- 60. **Plastic Pipes XVIII**
Arbeiter, F. (Speaker)
14 Sept 2016
- 61. **Polymer Meeting 14**
Arbeiter, F. (Invited speaker)
30 Aug 2021 → 2 Sept 2021
- 62. **Polymertec 2014**
Arbeiter, F. (Speaker)
25 Jun 2014 → 27 Jun 2014
- 63. **PPS2015 - Polymer Processing Society Conference 2015**
Arbeiter, F. (Speaker)
21 Sept 2015 → 25 Sept 2015
- 64. **SPE ANTEC 2017**
Arbeiter, F. (Speaker)
8 May 2017 → 10 May 2017
- 65. **SPE ANTEC 2017**
Arbeiter, F. (Speaker)
9 May 2017
- 66. **SPE ANTEC 2018**
Arbeiter, F. (Speaker)
6 May 2018 → 10 May 2018
- 67. **SPE ANTEC 2018**
Gosch, A. (Speaker), Arbeiter, F. (Speaker), Berer, M. (Speaker), Wiener, J. (Speaker), Frank, A. (Speaker) &
Pinter, G. G. (Speaker)
8 May 2018