

Journal Articles

- AG25 Reymond Akpanya and Tom Goertzen. “Simplicial surfaces with given automorphism group”. In: *J. Algebraic Combin.* 62.1 (2025), p. 19. ISSN: 0925-9899,1572-9192. DOI: [10.1007/s10801-025-01424-4](https://doi.org/10.1007/s10801-025-01424-4). URL: <https://doi.org/10.1007/s10801-025-01424-4>
- Goe2+25 Tom Goertzen, Tobias Neef, Philipp Scheffler, Domen Macek, Viktor Mechtcherine, and Alice C. Niemeyer. “3D concrete printing of topological interlocking blocks”. In: *Materials & Design* (2025), p. 114049. ISSN: 0264-1275. DOI: <https://doi.org/10.1016/j.matdes.2025.114049>. URL: <https://www.sciencedirect.com/science/article/pii/S0264127525004691>
- Goe+25 Tom Goertzen, Domen Macek, Lukas Schnelle, Meike Weiß, Stefanie Reese, Hagen Holthusen, and Alice C. Niemeyer. “Influence of block arrangement on mechanical performance in topological interlocking assemblies: A study of the versatile block”. In: *International Journal of Solids and Structures* 306 (2025), p. 113102. ISSN: 0020-7683. DOI: <https://doi.org/10.1016/j.ijsolstr.2024.113102>. URL: <https://www.sciencedirect.com/science/article/pii/S002076832400461X>
- N+24 Tobias Neef, Tom Goertzen, Alice Niemeyer, and Viktor Mechtcherine. “Materialsparende Betondecke aus 3D-gedruckten Verriegelungsblöcken”. In: *Beton- und Stahlbetonbau* 119.12 (2024), pp. 882–893. DOI: <https://doi.org/10.1002/best.202400061>. eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/best.202400061>. URL: <https://onlinelibrary.wiley.com/doi/abs/10.1002/best.202400061>

Conference Articles

- Akp+24 Reymond Akpanya, Tom Goertzen, Yuanpeng Liu, Sascha Stüttgen, Daniel Robertz, Yi Min Xie, and Alice C. Niemeyer. “Constructing Topological Interlocking Assemblies Based on an Aperiodic Monotile”. In: *Proceedings of the IASS 2024 Symposium: Redefining the Art of Structural Design*. Ed. by Philippe Block, Giulia Boller, Catherine DeWolf, Jacqueline Pauli, and Walter Kaufmann. International Association for Shell and Spatial Structures (IASS). Zurich, Switzerland, 2024
- Akp+23b Reymond Akpanya, Tom Goertzen, Sebastian Wiesenhuetter, Alice C. Niemeyer, and Jörg Noennig. “Topological Interlocking, Truchet Tiles and Self-Assemblies: A Construction-Kit for Civil Engineering Design”. In: *Proceedings of Bridges 2023: Mathematics, Art, Music, Architecture, Culture*. Ed. by Judy Holdener, Eve Torrence, Chamberlain Fong, and Katherine Seaton. Phoenix, Arizona: Tessellations Publishing, 2023, pp. 61–68. ISBN: 978-1-938664-45-8. URL: <http://archive.bridgesmathart.org/2023/bridges2023-61.html>
- Akp+23c Reymond Akpanya, Tom Goertzen, and Alice C. Niemeyer. “A Group-Theoretic Approach for Constructing Spherical-Interlocking Assemblies”. In: *Proceedings of the IASS Annual Symposium 2023: Integration of Design and Fabrication*. Ed. by Y.M. Xie, J. Burry, T.U. Lee, and J. Ma. International Association for Shell and Spatial Structures (IASS). Melbourne, Australia, July 2023, pp. 470–480
- Wie+23 Sebastian Wiesenhuetter, Tom Goertzen, Iurii Vakaliuk, Manfred Curbach, Silke Scheerer, Alice C. Niemeyer, and Jörg Rainer Noennig. “Triply Periodic Minimal Surfaces – A Novel Design Approach for Lightweight CRC Structures”. In: *Building for the Future: Durable, Sustainable, Resilient*. Ed. by Alper Ilki, Derya Çavunt, and Yavuz Selim Çavunt. Cham: Springer Nature Switzerland, 2023, pp. 1449–1458. ISBN: 978-3-031-32511-3
- Vak+22 I. Vakaliuk, T. Goertzen, S. Scheerer, A. C. Niemeyer, and M. Curbach. “Initial numerical development of design procedures for TRC bioinspired shells”. In: *Innovation, Sustainability and Legacy –*

Proceedings of IASS/APCS 2022. Ed. by Su-duo Xue, J.-z. Wu, and G.-j. Sun. International Association for Shell and Spatial Structures (IASS)/Asia Pacific Conference on Shell & Spatial Structures (APCS). Beijing, China, 2022, pp. 2597–2608

GNP22 Tom Goertzen, Alice Niemeyer, and Wilhelm Plesken. “Topological Interlocking via Symmetry”. In: *Proc. of the 6th fib International Congress 2022*. Novus Press, Oslo, Norway, June 2022, pp. 1235–1244. ISBN: 978-2-940643-15-8

Mathematical Software/Other Contributions

P25 Phan et. al. *Humanity’s Last Exam*. 2025. arXiv: 2501.14249 [cs.LG]. URL: <https://arxiv.org/abs/2501.14249>

AG24 Christian Amend and Tom Goertzen. *SelfIntersectingComplexes - GAP package*. <https://github.com/TomGoertzen/SelfIntersectingComplexes>. Version 1.0dev. 2024

Akp+23a Reymond Akpanya, Tom Goertzen, Samuel Losi, and Sebastian Wiesenhuetter. *Grasshopper-Plugin Honeycomb*. <https://www.food4rhino.com/en/app/honeycomb>. 2023

Nie+23 A.C. Niemeyer, M. Baumeister, R. Akpanya, T. Goertzen, and M. Weiß. *SimplicialSurfaces, Version 0.6*. <https://github.com/gap-packages/SimplicialSurfaces>. 2023

Preprints/Submitted work

G24b Tom Goertzen. “Mathematical Foundations of Interlocking Assemblies”. In: *arXiv e-prints*, arXiv:2405.17644 (May 2024). arXiv:2405.17644. DOI: 10.48550/arXiv.2405.17644. arXiv: 2405.17644 [math.CO]

G24a Tom Goertzen. “Constructing Interlocking Assemblies with Crystallographic Symmetries”. In: *arXiv e-prints*, arXiv:2405.15080 (May 2024). arXiv:2405.15080. arXiv: 2405.15080 [cs.CG]

AGN24 Reymond Akpanya, Tom Goertzen, and Alice C. Niemeyer. “Topologically Interlocking Blocks inside the Tetroctahedrille”. In: *arXiv e-prints*, arXiv:2405.01944 (May 2024), arXiv:2405.01944. DOI: 10.48550/arXiv.2405.01944. arXiv: 2405.01944 [math.CO]

AG24 Christian Amend and Tom Goertzen. *A Framework for Symmetric Self-Intersecting Surfaces*. arXiv:2312.02113. May 2024. DOI: 10.48550/arXiv.2312.02113. arXiv: 2312.02113 [cs.CG]