Dr Kunal Masania

Associate Professor in Additive Manufacturing Bio-inspired Composites
The Shaping Matter Laboratory
TU Delft, Faculty of Aerospace Engineering
Kluyverweg 1, 2629 HS Delft, NL
k.masania@tudelft.nl | T +31 15 2782774
Google Scholar | Researchgate

Using additive manufacturing, I structure self-assembling materials across multiple length scales, allowing the study of hierarchical microstructural designs and fabrication of engineering materials.

Research Track Record

Since 01.2020	Associate Professor in Additive Manufacturing of Bio-inspired Composites, Faculty of Aerospace Engineering, TU Delft, the Netherlands
10.2015 – 12.2019	Senior Scientist, Complex Materials Group (Prof. A.R. Studart), ETH Zürich, Switzerland
01. 2012 - 10.2015	Group leader, Institute for Polymer Engineering (Prof. C. Dransfeld), FHNW University of Applied Sciences and Arts Northwestern Switzerland, Switzerland

Education

10.2006 - 12.2010	PhD Mechanical Engineering, Mechanics of Materials (Prof. A.J. Kinloch, Dr. A.C. Taylor), Department of Mechanical Engineering, Imperial College London, UK
09.2005 - 09.2006	MSc DIC, Composite Materials, Department of Aeronautics & Department of Chemical Engineering (Prof. A. Bismarck, Prof. M. Schaffer, Prof. E. Greenhalgh), Imperial College London, UK
10.2002 - 06.2005	BEng(hons) Mechanical Engineering, Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, UK

Selected Honors and Awards

- Shortlisted for Spark Award 2020, best invention at ETH.
- Top research team shortlist at the 3D Printing Industry Awards, 2019.
- Best poster presentation by supervised student at SCCER Mobility Annual conference, ETH Zürich, 2018.
- Best presentation by supervised student at the British Society of Strain Measurements, Experimental Mechanics Conference at Imperial College London, UK, 2018.
- Expert coach for ETH Week, “Manufacturing the Future”, 2017.
- JEC Innovation Award for an automated production system for fully recyclable, complex bicycle components, 2016.
- MaP Career Seed Grant, ETH Foundation for promising young researchers, 2015.
- School of Engineering award for research excellence, 2014.
- Best Poster at the 36th annual meeting of the Adhesion Society, 2013.
- School of Engineering award for teaching excellence, 2013.
- Nominated for the Unwin PhD Prize, Viva 18th June 2010.

- Royal Academy of Engineering UK travel award, 2009.
- ACMA POLYCON and Composites '09 best technical paper, 2009.
- Defence Science and Technology Laboratory UK prize for best Master's Thesis, 2006.

Supervision 8 Master's thesis and 5 PhD's co-supervised. Design synthesis team 2020 achieved 2nd place from 26 teams.

Teaching

- Responsible for designing and delivering a new Masters elective at TU Delft: Additive Manufacturing AE4ASM521
- University teaching qualification DEVELOP, TEACH, SUPERVISE, ASSESS 2020.
- Computational design summer school, TU Delft, 2020.
- Outreach activities including "Nationaler Zukunftstag" and "Schweizer Jugend forscht" (promote young women and primary school students in STEM), 2011-2019.
- GTA, Department of Aeronautics and Mechanical Engineering (Imperial College London): Teaching stress analysis, mechanics and mechanical characterization of composite materials, interpretation of experimental data and error analysis, 2009-2010.

Funding Track Record circa 3.3M € competitive, 700K € direct industry

Editorial Activities

Referee for: Composites Science and Technology; Acta Biomaterialia; Journal of Materials Science; Composites: Part A; Composite Structures; Composites: Part B; Polymer; Society for Advancement of Materials and Processing Engineering; Additive Manufacturing; IEEE Access; Frontiers; Materials and Design; Journal of the Mechanical Behavior of Biomedical Materials; Extreme Mechanics Letters; MDPI Polymers; Advanced Material Technologies, Material Horizons, Nature Materials.

Institutional Activities

- QS (Quacquarelli Symonds) Intelligence Unit for performance indicators in university rankings 2020-
- Executive board of society of advancement in materials and processes engineering (SAMPE) Switzerland 2013-2020
- ProfGradIMMM and CENG track at the Institute of mineral, materials and mining (IOM^3) 2011-
- Polymer and fibers expert for the British Mountaineering Council (BMC) 2010-
- The British Alpine Club 2010-
- Scientific & organizing committees of the SAMPE Technical conference, Luzern 2012, Zürich 2019 and upcoming European conference on composite materials, Lausanne, 2022.

Other Sporting highlights include six Himalayan first ascents (notable "Lama Jimsa Kangri" and "Ranglana"), Anti-atlas mountains first ascent of "Storm o'clock", and completion of the Patrioulle des Glaciers, Zermatt to Verbier, twice (best 13h:24m)

Publications

33. Woigk, W., Masania, K., Stork, F., Heusi, A., Poloni, E. and Studart, A.R. “Hierarchical damping of natural fibre composites”, "Bio-inspired platelet-reinforced polymers with enhanced stiffness and damping behaviour", (Accepted, ACS Applied Polymer Materials, 2020).
32. Schadt, F., Rueppel, M., Brauner, C., Masania, K. and Dransfeld, C. “Nonlinear bending compliance of closed-section composite beam structures by local compression flange buckling”, Composite Structures 239, 2020. Link
31. Koch, J., Gantenbein, S., Masania, K., Stark, W., Erlich, Y. and Grass, R. “DNA storage enables 3D printed functional materials with embedded memory”, Nature Biotechnology, 38, 39-43 (2020). Link
30. Moore, D., Barbera, L., Masania K. and Studart, A.R. “Three-dimensional printing of multicomponent glasses using phase-separating molecular inks”, Nature Materials, 19, 212-217 (2020). Link
29. Frey, M., Schneider, L., Masania, K., Keplinger, T. and Burgert, I. “Delignified wood - polymer interpenetrating composites exceeding the rule of mixtures”, ACS Material Interfaces, 11, 38, 35305-35311 (2019). Link
28. Woigk, W., Fuentes, C.A., Rion, J., Hegemann, D., Van Vuure, A.W., Kramer, E., Dransfeld, C. and Masania, K. “All-cellulose natural fibre-reinforced thermoplastic composites”, Composites Science and Technology, 183 (2019). Link
27. Kleger, N., Cihova, M., Masania, K., Studart, A.R. and Loeffler, J. “3D printing salt as a template for magnesium with structured porosity” Advanced Materials, 1903783 (2019). Link
26. Woigk, W., Fuentes, C.A., Rion, J., Hegemann, D., Dransfeld, C., Van Vuure, A.W. and Masania, K. “Interface properties on the mechanical performance of flax fibre thermoplastic composites”, Composites Part A, 122 (2019): 8-17. Link
25. Studer, J., Dransfeld, C., Cano, J.J., Keller, A., Wink, M., Masania, K. and Fiedler, B. “Effect of fabric architecture, compaction and permeability on through thickness thermoplastic melt impregnation”, Composites Part A, 122 (2019): 45-53. Link
24. Frey, M., Biffi, G., Adobes-Vidal, M., Zirkelbach, M., Wang, Y., Tu, K., Hirt, A.M., Masania, K., Burgert, I. and Keplinger, T. “Tunable wood by reversible interlocking and bioinspired mechanical gradients”, Advanced Science 1802190, (2019). Link
23. Grossman, M., Pivovarov, D., Bouville, F., Dransfeld, C. Masania, K. and Studart, A.R. “Hierarchical toughening of nacre like composites” Advanced Functional Materials 1806800 (2019). Link.
22. Grossman, M., Bouville, F., Masania, K. and Studart, A. R. “Quantifying the role of mineral bridges on the fracture resistance of nacre-like composites”, Proceedings of the National Academy of Sciences of the USA (2018): 1-6. Link
21. Gantenbein, S., Masania, K., Woigk, W., Sesseg, J., Tervoort, T. A. and Studart. A.R. “Three-dimensional printing of hierarchical liquid crystal polymer structures”, Nature, 561 (2018): 226-230. Link
20. Fuentes, C.A., Zhang, Y., Guo, H., Woigk, W., Masania, K., Dransfeld, C., Seveno, D. and Van Vuure, A.W. “Predicting the adhesion strength of thermoplastic/glass interfaces from wetting measurements”, Colloids and Surfaces A, 558 (2018): 280-290. Link
19. Keller, A., Dransfeld, C., and Masania, K. “Flow and heat transfer for cure optimisation of compression resin transfer moulding process with a highly reactive epoxy”, Composites Part B: Engineering, 153 (2018): 167-175. Link

18. Guild, F.J., A.J. Kinloch, K. Masania, A.C. Taylor and Sprenger, S. “The Fracture of Thermosetting Polymers containing Silica Nanoparticles”, Invitation Edition in memory of D.M.R. Taplin, Journal of Strength, Fracture and Complexity, 11 (2018): 137-148. Link
17. Leal, A.A., Neururer, O. Bian, A., Gooneie, A., Rupper, P., Masania, K., Dransfeld, C. and Hufenus, R. “Interfacial interactions in bicomponent polymer fibers”, Polymer 142 (2018): 375-386. Link
16. Studer, J., Keller, A., Leone, F. Stefaniak, D., Dransfeld, C. and Masania, K. “Local reinforcement of aerospace structures using co-curing RTM of metal foil hybrid composites”, Journal of Production Engineering, Hybrid Materials Special Issue (2018): 1-7. Link
15. Keller, A., Chong, H. M., Taylor, A. C., Dransfeld, C. and Masania, K., “Core-shell rubber nanoparticle reinforcement and processing of high toughness fast-curing epoxy composites”. Composites Science and Technology, 147 (2017), 78-88. Link
14. Geissberger, R., Maldonado, J., Bahamonde, N., Keller, A., Dransfeld, C. and Masania, K. “Rheological modelling of thermoset composite processing”, Composites Part B: Engineering, 124 (2017): 182-189. Link
13. Rueppel, M., Rion, J., Dransfeld, C. Fischer, C., and Masania, K. "Damping of carbon fibre and flax fibre angle-ply composite laminates”, Composites Science and Technology 146 (2017): 1-9. Link
12. Grossman, M., Bouville, F., Erni, F., Masania, K., Libanori, R., and Studart, A. R. “Mineral nano-interconnectivity stiffens and toughens nacre-like composite materials”. Advanced Materials 29, 1605039 (2017). Link
11. Keller A., Dransfeld, C., Taylor, A.C., Sprenger, S., Ritter, K., and Masania, K. “Cure kinetics of a fast cure epoxy with silica nanoparticles”. JEC Journal Reaction Kinetics Special Issue, (2016). Link
10. Studer, J., Dransfeld, C., and Masania. K. "An analytical model for B-stage joining and co-curing of carbon fibre epoxy composites”, Composites Part A: Applied Science and Manufacturing 87 (2016): 282-289. Link
9. Keller, A., Masania, K., Taylor, A.C. and Dransfeld. C. "Fast-curing epoxy polymers with silica nanoparticles: properties and rheo-kinetic modelling”, Journal of Materials Science 51, (2016): 236-251. Link

During PhD at Imperial College London, per the laboratory rules, all authors were listed alphabetically (6 as first author from PhD).

8. Bray, D.J., Dittanet, P., Guild, F. J., Kinloch, A. J., Masania, K., Pearson, R. A. and Taylor, A. C., "The modelling of the toughening of epoxy polymers via silica nanoparticles: the effects of volume fraction and particle size", Polymer 54 (26), (2013): 7022-7032. Link
7. Bray, D.J., Gilmour, S., Guild, F., Hsieh, T.-H., Masania, K. and Taylor, A.C. “Quantifying nanoparticle dispersion: application of the Delaunay network for objective analysis of sample micrographs”. Journal of Materials Science 46 (2011): 6437-6452. Link
6. Hsieh, T.-H., Kinloch, A.J., Masania, K., Taylor, A.C. and Sprenger, S. “The mechanisms and mechanics of the toughening of epoxy polymers modified with silica nanoparticles”, Polymer 51 (2010) 6284-6294. Link

5. Masania, K. "Toughening mechanisms of silica nanoparticle-modified epoxy polymers", PhD Thesis (2010). Link
4. Giannakopoulos, G., Masania, K. and Taylor, A.C. "Toughening of epoxy using core–shell particles", Journal of Materials Science 46 (2010) 327-338. Link
3. Hsieh, T.H., Kinloch, A.J., Masania, K., Sohn Lee, J., Taylor, A.C. and Sprenger, S. "Erratum to: The toughness of epoxy polymers and fibre composites modified with rubber microparticles and silica nanoparticles", Journal of Materials Science 45 (2010): 4092-4092. Link
2. Hsieh, T.-H., Kinloch, A.J., Masania, K., Sohn Lee, J., Taylor, A.C. and Sprenger, S. "The toughness of epoxy polymers and fibre composites modified with rubber microparticles and silica nanoparticles", Journal of Materials Science 45 (2010) 1193-1210. Link
1. Kinloch, A.J., Masania, K., Taylor, A.C., Sprenger, S. and Egan, D. "The fracture of glass fibre reinforced epoxy composites using nanoparticle-modified matrices", Journal of Materials Science 43 (2008) 1151-1154. Link

Patents

e. Filed Patent no. 0787-PTS12-FR, Rion, J., Aebsicher, R., Jerinic, M., Rytka, C., Botor, D. and Masania, K. "Fil imprégné, produit composite à paroi mince nervuré comportant un tel fil imprégné, et procédé de fabrication de ce fil et de ce produit composite / Impregnated yarn, thin-walled composite product having such an impregnated yarn, and method of manufacturing this yarn and this composite product", (2019).
d. Filed Patent no. EP19192139.4, Jeoffroy, E., Galinski, H., Rühs, P.A., Masania, K., Zingg, A., Werder, J., Spolenak, R. and Studart, A.R. "Additive-free structural coloration of chocolate", (2019). Spark Award Nomination Top 20 inventions at ETH Zürich, 2020.
c. PCT phase Filed Patent no. EP18191209, Moore, D., Barbera, L., Masania K. and Studart, A.R. "Additive manufacturing phase separating compositions to prepare glasses and ceramics", (2018).
b. PCT phase Filed Patent no. EP18179376, Gantenbein, S., Masania, K., Woigk, W., Sesseg, J., Tervoort, T. A., and Studart, A.R. "Bioinspired 3D Printing of Tough Liquid Crystal Polymers", (2018).
a. Filed Patent no. EP17156787, Schaffner, M., Rühs, P.A., Gantenbein, S., Masania, K. and Studart, A.R. "3D printing Bio-ink for bacteria-laden Multi-Material Scaffolds", (2017).

Other publications / Press

- "DNA storage enables 3D printed functional materials with embedded memory" Nature Biotechnology (2020), featured in Wired, ETH News, ETH Video, NZZ, Wall Street Journal, 3D printing industry, Economist, SciGlow and SciTech Daily.
- "Three-dimensional printing of multicomponent glasses using phase-separating resins", Nature Materials (2020), featured in ETH news, ZME Science, Tech Explorist, Futurity, Phys.org, Chemistryworld, X-mol, Science Daily, Imeche, The Hans India, SciTechDaily, Soylent News, Blick, Newsgram and 3Druck.
- "3D printing salt as a template for magnesium with structured porosity" Advanced Materials, (2019), featured in ETH News, MedicalView, Phys.org, and 3D printing Industry.
- "Tunable wood by reversible interlocking and bioinspired mechanical gradients" Advanced Science (2019), featured in Physics world article.

- "Hierarchical toughening of nacre like composites" Advanced Functional Materials (2018), reported in ETH News and SCCER Mobility.
- "Quantifying the role of mineral bridges on the fracture resistance of nacre-like composites", PNAS (2018) reported in Bioinspired-materials.ch, Department of Materials News, Phys.org, Nanowerk, SCCER Mobility, Sciencedaily.com, Longroom.com, EurekAlert, News atlas, Futurity, DesignNews and ETH News.
- "Three-dimensional printing of hierarchical liquid crystal polymer structures", Nature (2018) published widely including: Nature behind the paper, Nature twitter, Nature Instagram, 3DERS.org, Physics world, All3DP, 3D printing Industry, 3D printing media network, Nanowerk, Chemistry News, 3DPrint.com, Sci-News, ETH D-MATL News, 3Dmake, 3D-Grenzenlos, AzoMaterials, phys.org, Technology.org, Interesting engineering, ETH Industry News, SCCER Mobility and Materials World, Chemistry views and shortlisted best research/academic team in 3D Printing Industry Awards 2019.
- Bachmann, B., Maldonado, J., Giger, L., Masania, K., Dransfeld, C., Eguémann, N. "High performance composites with increased plasticity made from discontinuous carbon fibre tapes with thermoplastic matrix", CTI 16547.1 PFIW-IW (2016).
  Production cell for the development of high-performance discontinuous composites wins JEC Innovation award
- Bachmann, B., Masania, K., Dransfeld, C., Studiger, H., Reimers, C., Müller, S., Siegfried, M., De Pietro, J. and Stauffer, R. "Hybride flachseile aus carbon composites (Hybrid flat tapes composed of carbon composites)", CTI 14873.1 PFIW-IW (2014).
  The developed carbon fibre cable is 50 % lighter and currently 10 times better in fatigue performance compared to current state of the art (tests on-going, at 15 M cycles).
- Woigk, W., Masania, K., Dransfeld, C., Kramer, E., Rion, J., Fischer, C., Hegemann, D., Van Vuure, A. and Fuentes, C.A. High performance thermoplastic composites based on natural fibres (HIPETCONF), CTI 15091.1 PFIW-IW (2014).
  Specific in plane modulus of the natural fibre thermoplastic composite 10 % higher than glass fibre epoxy composite, demonstration of the toughness flax fibre composite ever realised (in published literature).
- Masania, K. "Environmental degradation in a climbing harness", Incident Ref. 03/11/E.WAR, Technical Memorandum of the Technical Committee for the British Mountaineering Council, available from office@thebmc.co.uk (2013).
  Published in the BMC Summit Magazine as a special feature article.
- Masania, K. "Low-stretch rope, snapped rigging rope for Tyrolean", Incident Ref. 01/11/B.KIN, Technical Memorandum of the Technical Committee for the British Mountaineering Council, available from office@thebmc.co.uk (2012).
- Guidelines for safe usage and prevention of overload published by www.slacktivity.ch.
- Masania, K., Dransfeld, C., Rion, J. and Fischer, C. "Modelling and characterisation of natural fibre based thin-walled composite structures: Design of a Flax Composite Seat Post", CTI 12435.1 INNO-IW (2011).
  Designed natural fibre-carbon fibre composite 20 % lighter than the lightest design currently available.
- Imperial College Raru Valley Himalayan expedition report featured on UKClimbing.com, the American Alpine Journal and Imperial College London (2011).
- Masania, K. and Taylor, A.C. "Development of tough polymer matrices for lighter composite armour", Ministry of Defence, FATS/RAOWPE/02 TIN009 (2010).

A 28 % increase in the ballistic limit with 2 % addition of core-shell nanoparticles in the matrix of the composite material.

- Imperial College Obra Valley Himalayan expedition report featured on UKClimbing.com, the American Alpine Journal and Imperial College London (2010).
- Imperial College Taghia Morocco Big-wall expedition report featured on UKClimbing.com and Imperial College London (2009).

Invited Talks

- Masania, K. "Fabrication of architectured composite materials", University of Applied Sciences and Arts Northwestern Switzerland FHNW, Switzerland, 2019.
- Masania, K. "Fabrication of architectured composite materials", European Space Research and Technology Centre (ESTEC ESA), Netherlands, 2019.
- Masania, K. "Fabrication of architectured composite materials, current research and future vision", Faculty of Aerospace Engineering, TU Delft, Netherlands, 2019.
- Masania, K. "Fabrication of architectured composite materials", Digital Building Technologies invited Seminar, ETH Zürich, Switzerland, 2019.
- Masania, K. "Fabrication of architectured composite materials", Universität Wien, Vienna, Austria, 2019.
- Masania, K. "Three-dimensional printing of hierarchical liquid crystal polymer structures", Carbon Composites (CCeV) Workshop on Thermoplastic Composites, EPFL Lausanne, Switzerland, 2019.
- Masania, K. "Fabrication of architectured composite materials", Department of Materials Science Materials Colloquium, ETH Zürich, Switzerland, 2019.
- Masania, K. "Fabrication of architectured composite materials", Faculty of Aerospace Engineering, TU Delft, Netherlands, 2018.
- Masania, K. "Printing advanced functional materials", ETH Zürich Additive Manufacturing and Bio-fabrication Summer School, Zürich, Switzerland, 2018.
- Masania, K. "Hierarchical materials across length scales", Shift Zürich Conference, Zürich, Switzerland, 2018.
- Woigk, W., Masania, K., Gantenbein, S., Rueppel, R., Dransfeld, C. and Studart, A.R. "Natural fibre composites structured at multiple length scales for high stiffness, damping and sustainability", Singapore Institute of Manufacturing Technology (SIMTech), Singapore, 2018
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J., Tervoort, T.A., Schaffner, M., Rühs, P., Kilchner, S., Coulter, F. and Studart. A.R. "3D printing of self-assembly inks into bioinspired materials". Gordon Research Conference on Bioinspired Materials, Les Diablerets, Switzerland, 2018.
- Arsenovic, N., Bao, Y., Masania, K., Kleger, N., Cadalbert J., Studart, A. and Leroux, J.-C. "New Materials For the 3D Printing of Biodegradable Personalized Medical Devices", Materials and Processes Graduate Symposium, Switzerland, 2018.
- Masania. K. and Studart, A.R. "3D printing of hierarchical materials across length scales", AdditvETH AM mini-symposium, ETH Zürich, Zürich, Switzerland, 2018.
- Masania, K., Woigk, W., Grossman, M., Bouville, F., Studart, A.R. "Bio-inspired composites: record properties through hierarchical structuring", 7th Academic exchange collaboration with Hakkaido University, Japan, ETH Zürich, Zürich, Switzerland, 2017.
- Keller, A., Chong, H.M., Taylor, A.C., Dransfeld, C., and Masania, K. "Toughening of a fast-cure resin", University of Tokyo, Japan. 2017.

- Masania, K., Woigk, W., Grossman, M., Bouville, F., Studart, A.R. “Bio-inspired composites: record properties through hierarchical structuring”, Materials and Processes Partnership Council, ETH Zürich, Zürich, Switzerland 2017.
- Studer, J., Keller, A., Masania, K., Fiedler, B. and Dransfeld, C. “Using injection moulding for the manufacture of thermoplastic composites via through thickness impregnation”. 15th European-Japanese Meeting on Composite Materials, London, UK, 2017.
- Woigk, W., Masania, K. and Studart, A.R. “Banana fibres – Working with agricultural waste material” Lucerne Design Seminar 2017 at Lucern University of Applied Sciences and Arts, 2017.
- Masania, K., “Additive manufacturing of bio-inspired heterogeneous composites”. Presented at GOCarbon Conference Hannover, Germany, 2016.
- Rueppel, M., Rion, J., Fischer, C., Dransfeld, C. and Masania, K. "Thin-walled composite structures with improved damping properties by using natural fibre composites and thin ply carbon fibre technology", Swiss Space Office Annual Meeting, EPFL, Switzerland, 2015.
- Masania, K. “The mechanics of composite manufacturing”. Centre for Innovative manufacturing of composites, National Composites Centre, Bristol, UK, 2014.
- Dransfeld, C., Vogel, S., and Masania, K. "Carbon reinforced materials and applications - the challenge of size effects and hierarchies" Swiss Nanoscience Institute Annual Meeting, Lenzerheide, Switzerland, 2015.
- Taylor, A.C., Keller, A., Masania, K. and Dransfeld, C. "Toughening fast-curing epoxy polymers as matrices for fibre composites in railway applications: Properties and rheo-kinetic modelling". 1st international seminar of rolling stock composite materials (RSCM2015), Zhuzhou, China, 2015.
- Masania. K. and Studart, A.R. “Additive manufacturing of bio-inspired heterogeneous composites”. CCMX Technology Aperitif "New Perspectives on Advanced Composites", Lausanne, Switzerland, 2015.
- Masania, K. “Mechanics of composite manufacturing”. Department of Mechanical Engineering, Imperial College London, UK, 2014.
- Masania, K. “Compression resin transfer moulding for efficient composite manufacturing”. Department of Mechanical Engineering, Imperial College London, UK, 2013.

Conference Presentations

- L. Barbera, D. G. Moore, C. Mascolo, K. Masania, A. R. Studart, “Printing of Multicomponent Glasses Using Phase-Separating Resins”, at Materials Science & Technology, Portland, Oregon, USA, 2019
- Frey, M., Schneider, L., Zirkelbach, M., Dransfeld, C., Masania, K., Keplinger, T. and Burgert, I. “Tunable Wood and Design of High-performance Cellulose Fiber Materials”, at ETH Materials and Processes Annual Conference, Zürich, Switzerland, 2019.
- Schreck, M., Kleger, N., Masania, K., Studart, A.R. and Neiderberger, M. “The Beauty Behind Hydrogen Production – Titania Nanoparticle-based Aerogels as Photocatalysts”, at ETH Materials and Processes Annual Conference, Zürich, Switzerland, 2019.
- Frey, M., Schneider, L., Zirkelbach, M., Dransfeld, C., Masania, K., Keplinger, T. and Burgert, I. “Densified Cellulose Materials and Delignified Wood Reinforced Composites”, at International Conference on Composite Materials, Melbourne, Australia, 2019.
- Schadt, F., Rueppel, M., Brauner, C., Masania, K., Dransfeld, C. and Ricard, T., “Nonlinear bending compliance of closed-section composite beam structures by local compression flange buckling”, Kunststofftag FHNW, Switzerland, 2019.
- Bao, Y., Arsenovic, N., Masania, K., Kleger, N., Coulter F., Geks, A., Klein, K., Kronen, P., Franzen, D., von Rechenberg, B., Studart, A. and Leroux, J.-C. “New Materials For the 3D Printing of

Biodegradable Personalized Medical Devices", 6th international Symposium: Frontiers in Polymer Science, Budapest, Hungary, 2019.

- Schadt, F., Rueppel, M., Brauner, C., Masania, K., Dransfeld, C. and Ricard, T., "Nonlinear bending compliance of closed-section composite beam structures by local compression flange buckling", C.C. eV Arbeitsgruppe at Huntsman advanced materials Basel, Switzerland, 2019.
- Woigk, W., Gantenbein, S., Masania, K., Sesseg, J.W., Tervoort, T.A. and Studart . A.R. "Three-dimensional printing of hierarchical liquid crystal polymer structures", Presented at the 4th The British Society of Strain Measurements Postgraduate Experimental Mechanics Conference Glasgow, UK, 2018. Wins 3rd prize for presentation.
- Woigk, W., Masania, K., Heusi, A., Gantenbein, S. and Studart, A.R. "Hierarchical damping of natural fibre composites", Presented at Swiss Soft Days, ETH Zürich, Switzerland, 2018.
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J.W., Tervoort, T.A. and Studart. A.R. "Three-dimensional printing of hierarchical liquid crystal polymer structures", Presented at Swiss Soft Days, ETH Zürich, Switzerland, 2018.
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J.W., Tervoort, T.A. and Studart. A.R. "Three-dimensional printing of hierarchical liquid crystal polymer structures", Presented at IUTAM Symposium on Architectured Materials Chicago, USA, 2018.
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J., Tervoort, T. A. and Studart. A. R. "Bioinspired 3D Printing of Tough Liquid Crystal Polymers", SAMPE Technical Conference 18 (2018). Student awarded SAMPE Swiss Student Prize 2018, SAMPE Europe Student Competition, Southampton 2018.
- Grossman, M., Bouville, F., Masania, K. and Studart, A. R. "On the Fracture Mechanics of Multiscale Nacre-like Composites", Poster presented at Gordon Research Conference on Bioinspired Materials, Les Diablerets, Switzerland, 2018.
- Woigk, W., Masania, K., Heusi, A., Gantenbein, S., Poloni, E. and Studart, A.R. "Damping behaviour of nacre-inspired and natural fibre composites", 18th European Conference on Composite Materials Greece, 2018.
- Grossman, M., Bouville, F., Masania, K. and Studart, A. R. "Quantifying the role of mineral bridges on the fracture resistance of nacre-like composites", 18th European Conference on Composite Materials Greece, 2018.
- Asquier, J., Teuwen, J., Inderkum, P., Masania, K., Fernandez Villegas, I., Dransfeld, C. "Gradient Interphases between high Tg epoxy and polyetherimide for advanced joining processes", 18th European Conference on Composite Materials Greece, 2018.
- Schadt, F., Rueppel, M., Brauner, C., Masania, K., Dransfeld, C. and Ricard, T., "Nonlinear bending compliance of closed-section composite beam structures by local compression flange buckling", 18th European Conference on Composite Materials Greece, 2018.
- Bao, Y., Arsenovic, N., Masania, K., Schai, N., Cadalbert J., Studart, A. and Leroux, J.-C. "New Materials For the 3D Printing of Biodegradable Personalized Medical Devices", 2018 Fall Meeting of the Swiss Chemical Society, Lausanne, Switzerland, September 2018.
- Bao, Y., Arsenovic, N., Masania, K., Schai, N., Studart, A.R. and Leroux, J.-C. "Polymeric Materials for 3D printing of Biodegradable Medical Devices", Bordeaux Polymer Conference, Bordeaux, France, 2018
- Woigk, W., Heusi, A., Masania, K. and Studart, A.R., "Damping behaviour of hierarchical natural fibre composites", 3rd The British Society of Strain Measurements Postgraduate Experimental Mechanics Conference at Imperial College London, UK, 2017. Wins best presentation prize

- Libanori, R. Velasquez, S., Ulbrich, J.-A., Binelli, M.R., Masania, K. and Studart, A.R. “Powder-based processing of highly-loaded platelet-reinforced composites”, Composites at Lake Louise, Canada, 2017.
- Fuentes, C.A., Zhang, Y., Guo, H., Woigk, W., Masania, W., Dransfeld, C., Seveno, D. and Van Vuure, A.W. “Wettability and interphase adhesion of molten thermoplastics on glass fibres”, 21st International Conference on Composite Materials China, 2017.
- Masania, K., Carnelli, D. and Studart, A.R. “Additive manufacturing of bio-inspired heterogeneous composites”. 9th ECNP International Conference on Nanostructured Polymers and Nanocomposites, Rome, Italy, 2016.
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- Sprenger, S., Kinloch, A.J., Taylor, A.C., Masania, K., Manjunatha, C.M., and Mohammed, R.D. "Tough and stiff: the synergy between rubber-toughening and SiO_2-nanoparticles in GFRC and CFRC", SAMPE EUROPE 30th International Conference and Forum: Composites - Innovative Materials for Smarter Solutions, Paris. (2009), SAMPE: Covina, USA.
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- Masania, K., Taylor, A.C., Kinloch, A.J. and Sprenger, S. "The fracture of nanosilica and rubber toughened epoxy fibre composites", in Proceedings of "American Composites Manufacturing Association (ACMA) Composites and POLYCON '09". Tampa, USA. (2009), ACMA, USA. Wins Best Technical Paper Prize at the Conference.
- Taylor, A.C., Kinloch, A.J., Masania, K., Mohammed, R.D., and Sprenger, S. "Toughness of nanoparticle-modified epoxy and fibre Composites", in Proceedings of "31st Annual Meeting of the Adhesion Society", Austin, USA. (2008), Adhesion Society: Blacksburg, USA.

Conference Poster Presentations

- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J.W., Tervoort, T.A. and Studart. A.R. "Three-dimensional printing of hierarchical liquid crystal polymer structures", Poster presented at the 5th Competence Center for Energy Research, Efficient Technologies and Systems for Mobility (SCCER Mobility) Annual conference, ETH Zürich, Zürich, Switzerland, 2019.
- Woigk, W., Masania, K., Heusi, A., Gantenbein, S. and Studart, A.R. "Hierarchical damping of natural fibre composites", Poster presented at the 5th Competence Center for Energy Research, Efficient Technologies and Systems for Mobility (SCCER Mobility) Annual conference, ETH Zürich, Zürich, Switzerland, 2019.

- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J.W., Tervoort, T.A. and Studart. A.R. “Three-dimensional printing of hierarchical liquid crystal polymer structures”, Poster presented at ETH Materials and Processes Annual Conference, Zürich, Switzerland, 2019.
- Woigk, W., Masania, K., Heusi, A., Gantenbein, S. and Studart, A.R. “Hierarchical damping of natural fibre composites”, Poster presented at ETH Materials and Processes Annual Conference, Zürich, Switzerland, 2019. Runner up for poster prize
- Bao, Y., Arsenovic, N., Masania, K., Kleger, N., Coulter F., Geks, A., Klein, K., Kronen, P., Franzen, D., von Rechenberg, B., Studart, A. and Leroux, J.-C. “New Materials For the 3D Printing of Biodegradable Personalized Medical Devices”, Poster presented at ETH Materials and Processes Annual Conference, Zürich, Switzerland, 2019. Wins first prize
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J.W., Tervoort, T.A. and Studart. A.R. “Three-dimensional printing of hierarchical liquid crystal polymer structures”, Poster presented at the at the 2nd International Workshop on Advanced 3D Patterning, Dresden, Germany, 2018.
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J., Tervoort, T. A. and Studart. A. R. “Bioinspired 3D Printing of Tough Liquid Crystal Polymers”, Poster presented at SAMPE Technical Conference 18 (2018). Student awarded SAMPE Swiss Student Prize 2018, SAMPE Europe Student Competition, Southampton; UK, 2018.
- Grossman, M., Bouville, F., Masania, K. and Studart, A. R. “On the Fracture Mechanics of Multiscale Nacre-like Composites”, Poster presented at Gordon Research Conference on Bioinspired Materials, Les Diablerets, Switzerland, 2018.
- Woigk, W., Masania, K., Heusi, A., Gantenbein, S. and Studart, A.R. “Hierarchical damping of natural fibre composites”, Poster presented at the 5th Competence Center for Energy Research, Efficient Technologies and Systems for Mobility (SCCER Mobility) Annual conference, ETH Zürich, Zürich, Switzerland, 2018. Wins best poster award
- Gantenbein, S., Masania, K., Woigk, W., Sesseg, J., Tervoort, T. A. and Studart. A. R. “Bioinspired 3D Printing of Tough Liquid Crystal Polymers”, Poster presentation at the 5th “Competence Center for Energy Research, Efficient Technologies and Systems for Mobility”, (SCCER Mobility) Annual conference, ETH Zürich, Zürich, Switzerland, 2018.
- Grossman, M., Bouville, F., Masania, K. and Studart, A.R. “On the Fracture Mechanics of Multiscale Nacre-like Composites”. Poster presentation at the 5th Competence Center for Energy Research, Efficient Technologies and Systems for Mobility”, (SCCER Mobility) Annual conference, ETH Zürich, Zürich, Switzerland, 2018.
- Woigk, W., Masania, K., Heusi, A., Gantenbein, S., Poloni, E. and Studart, A.R. “Damping behaviour of nacre-inspired and natural fibre composites”, Poster presentation at the 4th Euro Bio-inspired Materials Conference, Potsdam, Germany, 2018
- Grossman, M., Bouville, F., Erni, F., Masania, K., Libanori, R., and Studart, A. R. “Mineral nano-interconnectivity stiffens and toughens nacre-like composite materials”, Poster presentation at the 3rd Euro Bio-inspired Materials Conference, Potsdam, Germany, 2016
- Geissberger, R., Masania, K. and Dransfeld, C. "Rheological modelling of an epoxy resin for Thin Ply prepreg materials" Poster presentation at the SEICO student session (2013), SAMPE Europe, Paris, France.
- Masania, K., Bachmann, B. and Dransfeld, C. “The compression resin transfer moulding process for efficient composite manufacture” Poster presentation at the International Conference on Composite Materials 19, Montreal, Canada. (2013), CACSMA, Canada.
- Taylor, A. C., Bray, D. J., Gilmour, S. G., Guild, F. J., and Masania, K. "Quantifying the dispersion of nanoparticles in adhesives" Poster presentation at the 36th Annual Meeting of the Adhesion Society, Daytona Beach, USA, (2013), Adhesion Society: Blacksburg, USA. Wins Best Poster Prize

at the 36th Annual Meeting of the Adhesion Society.